



November 2013

Agrocybe Notebook 3

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The genus *Agrocybe* Fayod

In North America

Key to Sections

- A. Spores 6 - 8 (10) μ long Microsporae p. 1
A. Spores 8 - 12 μ long Mesosporae p. 7
A. Spores, at least many of them, 12 μ or more long Macrosporae p. 23

Agrocybe

Section Microspora

Key to Species

1. Lamellae distant; pleurocystidia absent 1. A. zuchilensis
1. Not as above 2
2. Associated with grass in well fertilized soil. . . 2. A. pusilla
2. Habitat in woods -- on wood or on humus 3
3. Pileus brownish moist, ochraceous yellow faded; stipe $\frac{1}{2}$
2 mm. thick 3. A. pruinatipes
3. Pileus blackish to date-brown fresh; stipe typically
more than 2 mm. thick 4
4. Pleurocystidia with subacute to subcapitate apices;
spores obscurely truncate 4. A. firma
4. Pleurocystidia with hardly any neck and with
broadly rounded apices 5
5. Spores 7 - 9 (10) X 4 - 5 μ , subelliptic to obscurely
inequilateral in side view 5. A. firma sensu Smith
5. Spores 6 - 7.5 X 4.5 - 5.5 μ , elliptic to obscurely bean-shaped
in side view 6. A. illicita

1. *Agrocybe xuchilensis* (Murr.) comb. nov.

Naucoria xuchilensis Murrill, *Mycologia* 4:80. 1912.

Pileus 3.5 cm. broad, convex to plane, finally slightly depressed, surface ochraceous, slightly fulvous at the disc, subglabrous, even.

Lamellae adnate, broad, distant, inserted, fulvous.

Stipe 2 cm. long, 3 mm. thick, cylindric, equal, glabrous, creamy.

Spores 6 - 8 x 4.5 - 5.5 μ , ovate in face view, very obscurely inequilateral in side view, smooth, thick-walled, truncate but apical pore relatively small, dull ocher brown in KOH; basidia 4-spored, 22 - 26 x 6 - 7 μ ; pleurocystidia none; cheilocystidia abundant, clavate-pedicellate, mucronate or a few fusoid-ventricose, 28 - 36 x 9 - 12 μ , hyaline in KOH or walls slightly yellowish and uneven; gill trama interwoven; indications of an hymeniform cuticle seen but elements of cuticle badly collapsed; clamp connections present.

Habit, habitat and distribution: On low rich ground under coffee trees; Xuchiles, near Cordoba, Vera Cruz, Mexico.

Observations: The small spores, lack of pleurocystidia and lack of a veil are distinctive.

2. *Agrocybe pusiola* (Fr.) Métrod

Agaricus pusiolus Fr.

Pileus 8 - 10 mm. broad, convex becoming plane, smooth, pale citrine (Naples yellow), pliant; flesh whitish, odor farinaceous.

Lamellae unequal, crowded, narrow, adnate, grayish violaceous then brown.

Stipe 30 x 1 mm., confluent, flexuous, cartilaginous, thickened at base, narrowly fistulose, concolorous.

Spores 8 - 8.5 x 4 - 5 μ , smooth, uniguttulate, pale brown; basidia long-clavate, 30 - 35 x 6 μ , four-spored; pleurocystidia and cheilocystidia similar, 40 - 60 x 9 - 10 μ , apices obtuse; gill trama interwoven; cuticle of pileus hymeniform, of clavate cells 20 - 25 x 6 - 10 μ ; clamp connections present.

Habit, habitat and distribution: Fixed by rhizoids to the base of stems of grass in well-manured meadow.

Observation: Métrod commented on the germ pore not showing in the spores, hence in Singer's classification it belongs in his subgenus *Aporus*.

Fries (1874) described *Agaricus pusiolus* as: Pileus hemisphaerico-expanded, obtuse, smooth, glabrous, "viscidula", stipe fistulose, filiformis, glabrous, yellow, shining; lamellae adnate, close, horizontal, "sumentoides", pallid becoming cinnamon. On soil and among grasses, "flexilis inter muscos". Stipe about 1 inch long or less, subviscidus,

Agrocybe pusiola (Fr.) Métrod, cont.

citrinus. Pileus 3 lines broad, fulvo lateus, "at praecedens (A. melinoides) nitidus nec ut Galearum similum hygrophanomatomatus l. sericellus".

Note: I don't think Métrod's identification is correct (AHS).

3.
X. *Agrocybe pruinatipes* (Pk.) comb. nov.

Agaricus pruinatipes Peck, Ann. Rep. N. Y. State Mus.,
29:39. 1878.

Naucoria pruinatipes (Pk.) Saccardo, Syll. Fung., 5:842.
1887.

Pileus 2.5 - 3.5 cm. broad, regular, convex, surface smooth, hygrophanous, brownish when moist, ochraceous yellow when dry; flesh whitish.

Lamellae crowded, nearly plane, rounded behind, pale cinnamon.

Stipe 2.5 - 5 cm. long, about 2 mm. thick, equal firm, stuffed or hollow, striate, pallid or cinereous.

Spores 6.5 - 8 x 4.5 - 5 μ , smooth, dull ochraceous, thin, obscurely truncate from a small but distinct apical pore; basidia four-spored; pleurocystidia scattered 40 - 60 x 12 - 16 μ , ventricose, with broadly rounded apices, thin-walled, often yellow in KOH; cheilocystidia ventricose-subcapitate, 30 - 46 (50) x 9 - 12 (18) μ , thin-walled, smooth, mostly hyaline in KOH; gill trama not reviving well in type; pileus trama floccose-interwoven; cuticle hymeniform and with many pilocystidia some of which measure 50 - 80 x 10 - 14 μ , their apices slightly enlarged and their content often yellowish; clamp connections present.

Habit, habitat and distribution: On the ground in woods, Greig, New York.

2. *Agrocybe pruinatipes* (Pk.) comb. nov., cont.

Observations: The small obscurely truncate spores and pruinose stipe are distinctive. The pleurocystidia are typical of *Agrocybe*. The spores of *A. firma* are similar in all these characters and need to be carefully compared.

Spores: 2.5 - 3.5 μ m, smooth, truncate, convex, surface smooth, hyaline, thin-walled, slightly thickened at the corners when dry; flesh white.

Stipe: 2.5 - 5 cm, slender, smooth, rounded below, pale yellowish, stuffed or hollow, striate, solid or anastomosing.

Spores: 5.5 - 8.5 μ m, smooth, dull ochraceous, thin, obscurely truncate with a small but distinct apical notch.

Basidia: 4 - 6 μ m, 2 - 4 sterigmata, 25 - 30 x 12 - 16 μ m, ventricose, thin-walled, apical notch, yellowish.

Pleurocystidia: 10 - 15 μ m, 3 - 5 μ m, 30 - 40 x 10 - 15 μ m, 2 - 4 μ m, 15 - 20 μ m, thin-walled, smooth, hyaline in KOH; gill trama not visible in type; pileus trama floccose-interwoven; gills broadly adnexed and with many pleurocystidia.

Spores: 4.5 - 6.5 μ m, 4.5 - 6.5 x 10 - 14 μ m, their apices slightly enlarged and their apices often yellowish; clamp connections present.

Habit, habitat and distribution: On the ground in woods, Ohio, New York.

4
7. *Agrocybe firma* (Pk.) Singer *sensu lato*

Naucoria firma Peck, Ann. Rep. N. Y. State Mus.,
54:148. 1901.

Pileus 1.5 - 2.5 cm. broad, fleshy, firm, broadly convex becoming plane or nearly so, surface hygrophanous, blackish brown when moist, ochraceous-brown when dry, often rugulose; flesh white, the taste farinaceous, soon changing to bitter.

Lamellae thin, rather narrow, crowded, rounded behind, adnexed, minutely floccose on the edges, pallid.

Stipe 2.5 - 5 cm. long, 2 - 4 mm. thick, firm, equal, often flexuous or curved, stuffed or hollow, fibrillose-striate and minutely flocculose, concolorous or a little paler.

Spores 7 - 8 x 4.5 - 5 μ , ovate in face view, elliptic in side view, smooth, obscurely truncate, dull ochraceous revived in KOH; basidia 4-spored, 16 - 20 x 5 - 6 μ ; pleurocystidia scattered (30) 36 - 44 x 15 - 22, broadly ventricose with rounded apices, hyaline to yellowish in KOH, smooth, thin-walled, readily collapsing; cheilocystidia 30 - 46 x 10 - 18 (20) μ , fusoid-ventricose with subacute to subcapitate apices, hyaline to yellowish, thin-walled, smooth; gill trama \pm interwoven, pale yellowish in KOH; pileus trama floccose-interwoven; outicle hymeniform, of clavate to pear-shaped cells, large pilocystidia 50 - 80 x 9 - 13 μ also present and with ventricose bases and long necks with obtuse apices; clamp connections present.

3. *Agrocybe firma* (Pk.) Singer, cont.

Habit, habitat and distribution: On decaying trunk of sugar maple, Floodwood, New York.

Observations: Check spores of my *N. firma* again - are they truncate also?

⁵
8. *Agrocybe firma* (Peck) Singer *sensu Smith*.

Pileus (1) 2.5-7 (9) cm. broad, obtuse to convex when young, the margin strongly inrolled, either expanding to plane or remaining broadly umbonate, glabrous, lubricous, surface smooth to rugose-wrinkled, often with oval to circular depressions in age, "fuscous black" when young, margin with a hoary sheen, becoming "hair brown" and finally "clay color", margin striatulate only in age; flesh

Lamellae "avellaneous" becoming earth brown or finally dark dingy clay color, close, narrow to moderately broad, adnate to adnexed, thin, tapering to cap margin, edges even.

Stipe 4-8 cm. long, 5-10 mm. thick, terete or compressed, concolorous with the lamellae or paler below, with a grayish pruina especially above, approaching a scaly condition at times at base but no veil present, pale brown within, white rhizomorphs numerous at the base.

Spores 7-8.8 (10) \times 4-5 μ , elliptic to ovate in face view, subelliptic to obscurely inequilateral in side view, dull reddish brown in KOH, apical pore not distinct (hence apex not truncate); basidia 4-spored, 20-23 \times 6-6.5 μ , hyaline in KOH; pleurocystidia scattered, (35) 40-48 \times 12-20 μ , ventricose with hardly any neck and with very broadly rounded apices; hyaline, thin-walled;

Agrocybe firma (Peck) Singer, cont.

cheilocystidia 25-36 x 9-13 μ ; fusoid-ventricose with narrow (3-5 μ) necks and subacute apices, some cells similar to pleurocystidia also present; gill trama subparallel; pileus trama interwoven, nearly hyaline in KOH; outcicle a palisade the cells of which have brown walls in the pedicels, many subcylindric- subcapitate pilocystidia intermingled or some of these narrowly ventricose, 40-60 x 5-8 μ ; clamp connections present but rare.

Habit, habitat and distribution: Cespitose gregarious on rotten hardwood logs and debris, common at times in northeastern United States in the late summer. Sm-38194, Tahquamenon Falls State Park, Michigan.

Observations:

6 - *Agrocybe illicita* (Peck)

Hebeloma illicitum (Peck) Saccardo, Syll. Fung. 5: 806. 1887.

Agaricus illicitus Peck, Ann. Rep. N. Y. State Mus. 24: 68. 1872.

Pileus 2.5 - 3.5 cm. broad, obtuse to convex, expanding, fleshy, firm, surface glabrous, hygrophanous, dark brown when moist, paler when dry.

Lamellae crowded, broad, ventricose, adnexed, pale-brown.

Stipe 3.5 - 5 cm. long, 4 mm. thick, equal, firm, hollow, concolorous but paler, striate at apex, with a white mycelium at the base.

Spores 6 - 7.5 x 4.5 - 5.5 μ , elliptic to obscurely bean-shaped in side view, ovate in face view, smooth, pale ochraceous tawny in KOH, apical pore present but apex not truncate; basidia 4-spored, 14 - 16 x 5 - 6.5 μ , hyaline in KOH; pleurocystidia scattered, 30 - 40 x 12 - 22 μ , broadly ventricose with hardly any neck and a broadly rounded apex, hyaline, thin-walled, smooth (all in ^KOH); cheilocystidia similar to pleurocystidia or more saccate; gill trama subparallel to interwoven; pileus trama homogeneous beneath an hymeniform cuticle of clavate-pedicellate cells studded with fusoid-ventricose pilocystidia having narrower and longer necks than the pleurocystidia and merely obtuse apices; clamp connections present.

Agrocybe illicita (Peck), cont.

Habit, habitat and distribution: Gregarious to
cespitose on decaying logs, Greig, New York; Peck.

Observations: This is clearly in the Agrocybe firma
group and very likely is not distinct from A. firma.

KEY TO SPECIES OF SECTION MESOSPORAE

1. Annulus typically present and membranous 2
1. Annulus typically absent or veil merely
 - leaving a fibrillose zone 9
 2. Stipe typically less than 3.5 mm. thick;
 - growing on *Typha* debris ^{76.} A. Sm-32232
 2. Not as above 3
3. Odor and taste not farinaceous 4
3. Odor and taste distinctly farinaceous 5
 4. Taste slightly bitterish; spores somewhat
 - angular-ovate in face view ^{8.} A. howeana Pk.
 4. Taste mild; spores rounded-ovate
 - in face view (*taste farinaceous?*) ^{9.} A. acericola Pk.
5. Pileus bister to dingy tawny or yellowish (never
 - gray to olive brown) when fresh 6
5. Pileus typically olive, olive brown, or olive buff
 - when young 7
 6. Typically terrestrial and vernal ^{10.} A. praecox
 6. Typically lignicolous ^{10.} A. Sm-9509
7. Gills "wood brown" or a darker earth brown
 - in age ^{12.} A. Sm-14638
7. Gills at least dingy rusty brown in age 8
 8. Many clavate cells present as cheilocystidia ^{13.} A. Sm-13663
 8. Cheilocystidia all about like pleurocystidia ^{14.} A. Sm-13824

- 9. Stipe typically 4 mm. or more thick 10
- 9. Stipe typically 1 - 4 mm. thick 12
- 10. Growing on dung; taste bitter ¹⁵~~14~~. A. Amara (Murr.)
- 10. Growing on soil 11
- 11. Veil fibrillose; pileus 2 - 3 cm. broad ¹⁶~~15~~. A. Brooks-975
- 11. Veil lacking; pileus 5 - 10 cm. broad ¹⁷~~16~~. A. Sororia (Pk)
- 12. Pleurocystidia absent 13
- 12. Pleurocystidia present 14
- 13. Lamellae distant; growing on sugar cane
- 18. A. sacchari (Murr.)
- 13. Lamellae close to crowded; on moss and soil
- (but see A. cubensis also) -- ¹⁹~~18~~. A. vervacti (Fr.)
- 14. Basidia 2-spored; lamellae subdistant and narrow ²⁰~~19~~. A. earlei (Murr.)

14. Basidia 4-spored; lamellae close and broad ²¹~~20~~. A. underwoodii (Murr.)

14. Lamellae close and broad; basidia 4-spored. Stipe with a pseudorhiza leading to a sclerotium 21. A. arvalis var. tuborigera

14. Basidia 4-spored; lamellae close and broad 15

15. Spores 8-10x5.5-7µ; pileocystidia none 21. A. underwoodii

15. Spores 8-10x4-5µ; pileocystidia very abundant 22. A. arvalis var. tuborigera

7th 10. Agrocybe Sm-32232

Pileus 1.5-3 cm. broad, convex, glabrous, viscid, olivaceous gray fading to sordid cinnamon buff or pallid, margin slightly striate moist; flesh thin, pallid, soft, odor and taste none.

Lamellae grayish then pallid cinnamon brown, close, moderately broad, adnate to depressed-adnate, edges even.

Stipe 7-8 cm. long, 2-2.5 mm. thick, equal, fragile, dull brownish below, pallid to grayish above, with a superior thin membranous annulus and glabrous above and below the ring.

Spores (8) 9-11 x 4.5-5.5 x - 6.8 μ , compressed, elliptic in side view, ovate (and some obscurely angular) in face view, dark dull ochraceous tawny in KOH, smooth, with an apical pore causing spore to appear truncate; basidia 22-24 x 8-9 μ , 4-spored; pleurocystidia scattered, broadly fusoid-ventricose with obtuse apices, thin-walled, smooth, hyaline in KOH, in water mounts of fresh material often with an oily-globular content; cheilocystidia small 14-18 x 5-8 μ , clavate-pedicellate or ventricose-mucronate; cuticle of pileus a palisade of clavate-pedicellate cells as in Conocybe; clamp connections present.

Habit, habitat and distribution: Single on typha debris; Mud Lake Bog, Cheboygan Co., Michigan;

June 20, 1949, Sm-32232.

This may be near A. temnophylla, in which however the pileus is dry.

Agrocybe Sm-32232, cont.

Observations: The habitat, slender stipe, medium sized compressed spores and small cheilocystidia are distinctive. The colors and pattern of color changes are as observed for the majority of species in the genus.

Stem slender, brown, above, below, glabrous, with a superior thin membrane, glabrous above and below the ring.

Spores 4-6 x 2-3, compressed, elliptic to subelliptic, smooth, with an acute to obtuse apex, truncate, deciduous, scattered, broadly elliptic, smooth, thin-walled, smooth, hyaline in KOH, in fresh material often with a faint yellowish tint; cheilocystidia 4-6 x 2-3, elliptic to subelliptic, smooth, thin-walled, smooth, hyaline in KOH, in fresh material often with a faint yellowish tint; gills 4-6 x 2-3, elliptic to subelliptic, smooth, thin-walled, smooth, hyaline in KOH, in fresh material often with a faint yellowish tint.

Habit, habitat and distribution: Single on typha debris; Mud Lake Bog, Chatham Co., Michigan; June 20, 1949, S. S. S.

This may be *A. leucosticta*, in which case the gills are white.

8.
8 12a. *Agrocybe Howeana* (Pk.)

Pholiota Howeana Pk. Rept. N. Y. State Mus.,
26:59. 1874.

Stropharia Howeana Pk. Bull. Buff. Soc. Nat. Sci.,
4:53. 1873.

Pileus 3 - 5 cm. broad, convex-complanate, obtuse when young, glabrous, "honey yellow" moist, "cream buff" to "chamois" when faded, margin even; flesh whitish, odor none, taste slightly bitterish.

Lamellae adnate, with a decurrent tooth, broad, ventricose, close to crowded, thin, whitish at first, then "drab" to "cinnamon drab" tinged "fuscous", edge serrulate floccose.

Stipe 5 - 9 cm. long, 4 - 6 mm. thick, enlarged to narrowly clavate at base, equal above, flexuous, white silky fibrillose, base mycelioid and tomentose, stuffed, pale brownish fuscous within, fuscous in age, apex striate to ridged; annulus thin, membranous, superior, collapsing, fragile, evanescent, striate above, rather narrow.

Spores 8 - 10 x 4.5 - 5.5 x 5 - 6 μ , slightly compressed, angular-ovate in face view, subelliptic in side view, smooth, thick-walled, apex truncate; basidia clavate, 4-spored, hyaline in KOH, 25 - 30 x 6 - 8 μ ; pleurocystidia scattered, 48 - 60 (65) x 15 - 28 μ , fusoid-ventricose with subacute to obtuse ^{apex}, thin-walled, hyaline in KOH, smooth; cheilocystidia scattered, similar to pleurocystidia; gill trama parallel, hyaline in KOH; pileus trama floccose-interwoven; hyaline or

12a. *Agrocybe Howeana* (Pk.), cont.

nearly so; cuticle of hymeniform, of clavate to pear-shaped cells; clamp connections present.

Habit, habitat and distribution: Gregarious in woods on leaf mold (hardwoods), Ann Arbor; July 9, 1924, Kauffman.

Observations: The pleurocystidia have more pointed tips than in *A. acericola* and the color of the gills is certainly different. In addition the spores in face view are more angular than in the others of this group.

Kauffman had a specimen sent him by Van Hook from Bloomington, Ind., in which the pleurocystidia varied from globose pedicellate to fusoid-ventricose with subacute apices. It had a bitterish taste, a pale yellow pileus and angular-ovate spores in face view. *Sn-28696* from *Broussards, Mich.* has exceptionally dark spores (new *aire*) which show a tendency toward angularity, a habitat on sandy soil, and enlarged clavate cheilocystidia as well as those similar to the pleurocystidia. The collection is placed here tentatively pending a study of Becke type at Albany (the part studied to date was from Murrill's material at New York. See Potter 3177 - also with clavate cheilocystidia

91. *Agrocybe acericola* (Pk.) Singer

Pileus 3 - 6 (10) cm. broad, obtuse when young, becoming expanded umbonate to plane, surface glabrous, moist, hygrophanous, "bister" when young, gradually a paler dingy yellow brown and finally fading to "cinnamon buff" or more clay color, somewhat atomate faded, margin pallid in some at times, opaque; flesh pallid and fragile, odor and taste not distinctive. (*farinaceous?*)

Lamellae close, 2 - 3 tiers of lamellulae, broad at maturity, broadly adnate to subdecurrent, pallid ("tulleul buff") to pale avellaneous young, "drab" at maturity or finally sordid earth brown from spores, edges slightly uneven.

Stipe 6 - 10 cm. long, 8 - 12 mm. thick at apex, equal or slightly enlarged at base, solid becoming hollow, whitish from a thin coating of oppressed fibrils, pallid within, in age becoming sordid brownish within, base with numerous white rhizomorphs, *typically with a thin superior membranous annulus.*

Spores 8 - 10 x 5 - 6 μ , elliptic in side view, ovate in face view, pale bister in KOH, smooth, terete or practically so, truncate from a broad apical pore; basidia 23 - 30 x 7 - 8 μ , 4-spored, clavate, not projecting when sporulating, hyaline or nearly so in KOH; pleurocystidia scattered to abundant, 48 - 65 x 14 - 23 μ , ventricose-pedicellate with slightly narrowed necks and rounded to very obtuse apices, hyaline to pale yellowish (content) in KOH, thin-walled, smooth; cheilocystidia similar to pleurocystidia but usually

12. *Agrocybe acericola* (Pk.) Singer, cont.

smaller, some clavate cells similar to immature basidia also present; gill trama with central medulla subparallel to interwoven, parallel near subhymenium, subhymenium very narrow and indistinct; pileus trama floccose-interwoven, yellowish to hyaline in KOH, many laticiferous hyphae present; cuticle a region of inflated and pear-shaped cells 1 - 3 (6) deep; clamp connections present.

Habit, habitat and distribution: Gregarious to scattered on or near decaying hardwood, spring, summer, and fall, often common; Sm-21729, Cross Village, Michigan, July 13, 1946.

Observations: No clavate differentiated cheilocystidia were found and excellent material was examined. Sm 37309 appears to be a robust dark colored collection. No cheilocystidia were seen and the spores are as in typical material. The caps, however, were slate brown. In 21682 scattered clavate cheilocysts were seen. It appears to be typically of *A. acericola* *atherinae*.

10¹¹ *Agrocyste praecox* (Sm-6297)

Pileus (1) 2-6 (10) cm. broad, obtuse to convex when young, expanding to plane or retaining a low obtuse umbo, surface glabrous, soft to the touch and slightly viscid at first, soon merely moist, color cream color over all but disc becoming darker (tan to near ochraceous tawny), surface even or at times slightly netted, rarely areolate and then usually only in age from weathering; flesh white, soft, odor and taste farinaceous.

Lamellae adnate, receding or becoming emarginate, somewhat rounded behind, close, of medium width, whitish becoming cream color and finally clay color, edges finally crenulate.

Stipe 3-9 cm. long, 3-5 mm. thick, equal, soft, fibrous, base slightly enlarged and with radiating rhizomorphs; surface glabrous, apex pruinose; veil submembranous, forming a thin membranous evanescent annulus, rarely appendiculate to cap margin.

Spore 8-10 x 5-6 μ , elliptic in side view, slightly ovate in face view, terete or nearly so, dull yellow brown in KOH, truncate from an apical pore; basidia four-spored, 22-26 x 6-7 μ , hyaline in KOH; pleurocystidia 38-50 x 10-18 μ , broadly ventricose (usually beyond the midportion) and with only a slight neck and obtuse to broadly rounded apex, thin-walled, hyaline, smooth, often only tapered to apex; cheilocystidia similar to pleurocystidia, no appreciable number of small

Agrocybe praecox (Sm-6297) cont.

clavate cells noted; gill trama †parallel or finally with an interwoven medulla flanked by strands of parallel hyphae, subhymenium not distinctive, cream color to hyaline in KOH; pileus trama interwoven, floccose, brownish beneath the cuticle; cuticle of clavate to pear-shaped cells, with inflated cells intermingled (much as in *Psathyrella*).

Habit, habitat and distribution: Scattered to gregarious on humus in Conifer plantations and on accumulations of debris, often on lawns and fields or open woods, most common in the spring. (Sm-1390 and 6297, June, Ann Arbor, Michigan).

Observations: I consider this distinct from those members of the stirps with olive to gray pilei when young.

11 ~~10~~ ~~11~~. *Agrocybe* Sm-9509

near *aceticola*.

Pileus 7-13 cm. broad, obtuse to convex at first, soon expanded and plane to subumbonate, in age the margin sometimes recurved and wavy, very faintly pubescent near the margin at first, soon glabrous, margin at times decorated with veil fragments, surface moist but not viscid, color evenly "bistre" on buttons, fading to "tawny olive", "clay color" and finally "warm buff" to "pinkish buff" (dingy dark brown and gradually becoming pallid buff); flesh of buttons grayish, of mature caps yellowish, thick, firm, odor and taste farinaceous.

Lamellae broad (\pm 1 cm.), adnate with a tooth, close (65-75 reach the stipe) about 4 tiers of lamellulae, "olive buff" when young, grayish until colored dull tawny brown from spores, edges crenulate.

Stipe 3-8 cm. long, 1-2.5 cm. thick at apex, solid, becoming hollow, dingy purplish to ashy gray and densely oppressed fibrillose silky to apical annulus, above the annulus silky, in age dingy buff below and grayish above annulus; at times somewhat scaly below, base with white rhizomorphs; annulus striate above, membran^{an}ous, thin, grayish when young, dingy brown in age.

Spores 8-10 x 5.5-6 x 6-6.5 μ , slightly compressed, ovate to elliptic in base view, elliptic in side view, smooth, with an apical pore (hence truncate), dull rusty

Agrocybe Sm-9509, cont.

brown in KOH; basidia four-spored, clavate, $20-26 \times 7-8 \mu$, hyaline in KOH; pleurocystidia scattered, $44-56 (65) \times 9-18 \mu$, fusoid-ventricose with acute apices to fusoid but there tapered to apex with 1 or 2 swellings as if the cell had started to become capitate and then grew out again from apex, smooth, thin-walled, hyaline in KOH; cheilocystidia mostly clavate and $28-36 \times 9-12 \mu$; smooth and hyaline, some cells similar to pleurocystidia also present; gill trama with an interwoven medulla flanked (in sections) on either side by parallel hyphae, subhy-menium not distinctive; pileus trama of interwoven hyphae $9-15 \mu$ in diam. and equal to somewhat swollen, hyaline in KOH (individually); cuticle a region (1-3 cells deep) of inflated to pear-shaped to clavate or subcylindric cells, not completely collapsing at maturity; clamp connections present.

Habit, habitat and distribution: On a mixture of soil and sawdust along a road, Milford, Michigan. May 21, 1938; Sm-9509.

Observations: This is a large fleshy, thick-stiped member of the Acericola stirps. The biater cap, and farinaceous odor and taste are distinctive along with the small spores. *Sm-32103* The cheilocystidia are globose pedicellate and measure up to 30μ in diameter.

12. *Agrocybe* Sm-14638

near *acricola*

Pileus (4) 8-12 (16) cm. broad, convex expanding to plane or at times with a slight umbo, glabrous, lubricous opaque, "olive brown" young, becoming sordid greenish blue-gray, gradually yellowish (to "clay color" on disc and "cream buff" in age), subhygrophanous, young caps fading to a sordid bluish gray, old caps often areolate; flesh thick, watery greenish-gray moist, whitish faded, thick and soft as in *Boletus*, odor and taste strongly farinaceous.

Gills close (55-60), 3 tiers of lamellulae, narrow to moderately broad, (5-7 mm.), adnate to adnexed with a decurrent tooth, "olive buff" young, "wood brown" or darker in age, edges crenulate.

Stipe (6) 10-16 cm. long (8) 10-30 mm. thick near apex, equal or enlarged at base or apex, stuffed becoming hollow, grayish fibrillose above the annulus and striate, below the ring more or less covered with "cinnamon buff" oppressed fibrillose squamules^s, glabrescent and oppressed silky in age, base with white rhizomorphs, pallid and dingy in age over all; annulus membranous, grayish.

Spores 7-10 x 5-6 μ , smooth, terete, ellipsoid, truncate from an apical pore, dull tawny brown in KOH; basidia four-spored, 23-26 x 6-7 μ , hyaline in KOH; pleurocystidia scattered, 46-60 x 12-16 μ , fusoid ventricose with obtuse to rounded apices, thin-walled, hyaline, smooth.

Agrocybe Sm-14638, cont.

Cheilocystidia similar to pleurocystidia, no appreciable number of clavate cells seen; gill trama somewhat interwoven; pileus trama of interwoven hyphae; cuticle hyphae a layer mostly several cells deep of clavate to pear-shaped or vesiculose cells; clamp connections present.

Habit, habitat and distribution: Scattered to gregarious along trails on soil, Olympic Mts., Washington. June 25, 1939, Sm-14638 and July 7, 1939, Sm-14855.

Observations: This is a small-spored species growing on soil but in the A. acericola stirps. Compare 13824, 9509 and 13663 very carefully!

13.
~~12~~. *Agrocybe* Sm-13663

Pileus 3-6 cm. broad, broadly convex expanding to plane or nearly so, glabrous, hygrophaneous, "Dark olive buff" moist, fading to "olive buff" or paler, often with dark olive watery spots, margin faintly striate when moist; flesh thick, firm, watery-olive or concolorous with surface, taste and odor decidedly farinaceous.

Lamellae crowded (65-70 reach stipe), broad (\pm 1 cm), depressed adnate or shallowly adnexed, lamellulae in about 2 tiers, color "pale olive buff" becoming sordid brown, edges even.

Stipe 5-6 cm. long, 1-1.5 cm. thick, equal, hollow, concolorous with pileus below, watery olive streaked with olive gray above, base with white rhizomorphs; annulus thin and membranous, superior, pallid olive buff.

Spores 9-11 \times 6-6.5 μ , terete in section, sordid ochraceous tawny in KOH, smooth, truncate from a broad apical pore; basidia four-spored, 25-30 \times 7-8 μ , hyaline in KOH; pleurocystidia rare to scattered, fusoid ventricose with obtuse to subacute apices, 46-60 \times 12-22 μ , hyaline and thin-walled; cheilocystidia similar to pleurocystidia or merely clavate, the former rare, the latter abundant and measuring 23-28 \times 8-11 μ ; gill trama subparallel, hyaline in KOH; pileus trama of interwoven hyaline hyphae; cuticle of clavate to pear-shaped cells, in more or less of a palisade layer; clamp connections present.

Agrocybe Sm-13663, cont.

Habit, habitat and distribution: Singly on soil under spruce, Mora, Washington. May 22, 1939. Sm-13663.

Observations: This could easily be the same as Sm-13038 but the spores ran slightly larger and more terete, and clavate cheilocystidia were abundant. The collection impressed me as being not more than 50 per cent fertile. Insect larvae destroy both of these very

rapidly. In a *Vigiliv* collection from Eagle Peak the pleurocystidia have narrow necks as in 13663 but is placed with 13824 because of lack of numerous clavate cheilocystidia.

14 ^{18.} Agrocyste Sm-13824

Pileus (3) 4-10 cm. broad, obtuse to convex, becoming broadly convex to plane, glabrous, moist, evenly olivaceous to grayish olivaceous, somewhat hygrophanous, dingy alutaceous in age ("Neutral gray" to "Dark olive buff", slowly becoming "cinnamon buff" before fading); often appearing rather spotted when fading, margin incurved and often decorated with veil remnants; flesh thick, firm, watery pallid, odor and taste farinaceous.

Lamellae close ± 50 reach stipe, broad, many tiers of lamellulae, rounded adnate, pallid when young ("tilleul buff"), becoming dingy rusty brown from the spores.

Stipe 4-10 cm. long, (7) 10-15 mm. thick, equal, stuffed solid, pallid ("tilleul buff") near apex, bister at or near the base, often longitudinally fibrillose striate up to the evanescent annulus, silky above, with a superior thin, membranous, frequently evanescent annulus; white rhizomorphs present at the base.

Spores (7) 8-10 (11) x 5-6 x 5.5-6.5 μ , terete or very slightly compressed, truncate from an apical pore, smooth, thick-walled, dull tawny in KOH; basidia four-spored, 28-32 x 6-7 μ , hyaline in KOH; pleurocystidia scattered, 48-66 x 12-22 μ , broadly ventricose with one or more apical protuberances (fingerlike) ending in obtuse to rounded tips, hyaline, smooth in KOH, thin-walled; cheilocystidia similar to pleurocystidia but

Agrocybe Sm-13824, cont.

scattered; gill trama subparallel or with a somewhat interwoven medulla, hyaline in KOH; pileus trama of compactly interwoven hyphae, the cells becoming somewhat inflated, hyaline in KOH, thin-walled; cuticle: a region of staggered inflated and pear-shaped cells usually several cells deep; clamp connections present.

Habit, habitat and distribution: Single to scattered on soil and humus especially along streams in the mountains of the Pacific Northwest, spring and summer (at high elevations late in the season). (Sm-13824 and Sm-13038 used for above description).

Observations: This species is in the stirps Acericola and is distinctive by reason of the farinaceous odor and taste, the gray to olive fresh pileus and clearly terrestrial habitat. It is very close to A. Sm-9509 but that has a thicker veil which leaves a persistent striate annulus, and ^{that} also differs in having the pileus [^] bister when young.

15. ~~14~~. *Agrocybe amara* (Murrill), comb. nov.

Naucoria amara Murrill, N. Am. Flora 10:176. 1917.

Pileus 3 - 4 cm. broad, convex to nearly plane, not umbonate, glabrous, moist, surface somewhat uneven, ochroleucous to isabelline with a darker zone near the margin, not striate and margin only slightly incurved at first; flesh thin, whitish, taste decidedly bitter becoming farinaceous, odor farinaceous.

Lamellae slightly sinuate, crowded, plane, rather narrow, whitish to fulvous, very thin, entire and concolorous on the edges.

Stipe \pm 5 cm. long and $\frac{5}{\wedge}$ mm. thick, hollow, irregular and variable in shape and size, smooth, glabrous, white, shining.

Spores 9 - 11 x 5 - 6.5 μ (10 - 12 x 6 - 7 μ - Murrill), ovoid to elliptic, smooth, dingy ochraceous in KOH, truncate from a broad apical pore; basidia 4-spored, 20 - 25 x 6.5 - 8 μ , \pm hyaline in KOH; pleurocystidia scattered, 30 - 55 x 10 - 18 μ , broadly clavate-pedicellate or ventricose with broadly rounded apices, some originating deep in gill trama, thin-walled, smooth, hyaline to ochraceous in KOH; cheilocystidia similar to the pleurocystidia; gill trama somewhat interwoven, pallid ochraceous in KOH, subhymenium not distinctive; pileus trama floccose interwoven, hyaline to dingy in KOH; cuticle an hymeniform layer of clavate cells; clamp connections present.

5. *Agrocybe amara* (Murrill), comb. nov., cont.

Habit, habitat and distribution: Gregarious on dung;
New York Botanical Garden, New York City, July 2, 1915,
W. A. Murrill.

Observations: This species is very close to *A. sororia*
but that is usually described as larger. However, both are
poorly known and the differences may not be as clear as
the descriptions indicate. The microscopic data are taken
from the type.

16
16-18

Agrocybe Brooks 975

Pileus 2-3 cm., convex becoming broadly convex, viscid when young, "Sudan brown" gradually becoming paler; Gills broad, close, adnate; Stipe \pm 3 cm. long and 4-5 mm. thick, equal or slightly enlarged by adhering sand below, veil thin but distinct.

Spores 10.5 - 12 x 6.5 - 8 μ , terete to slightly compressed, smooth, apical pore present, dull rusty brown in KOH, (darker than buckthorn brown); basidia 4-spored, \pm 33 - 11 μ , clavate when sporulating, hyaline in KOH; pleurocystidia scattered to abundant, (30) 40-55 x 10-17 μ , ventricose-capitate, the capitellum often only 7-10 μ broad and sessile or nearly so, wall of ventricose portion often slightly thickened and colored (yellowish in KOH), smooth; cheilocystidia of 2 types, capitate but usually with a longer neck than the pleurocystidia or 20-28 x 6-10 μ and fusoid ventricose with narrow necks and apices 2-4 μ broad (relatively acute); gill trama subparallel to interwoven, hyaline to yellowish in KOH, subhymenium narrow and not distinctive; pileus trama yellowish in KOH, hyphae compactly interwoven; cuticle a palisade of clavate to pear-shaped cells collapsing at maturity; clamp connections present.

Habit, habitat and distribution: Scattered on sandy soil, Willow Village, Ypsilanti, Michigan. May 21, 1946 (Brooks 975).

Agrocybe Brooks 975, cont.

Observations: At the time it was collected it was taken to be the 4-spored form of Br-969, but the cheilocystidia have more slender necks and narrower tips, the basidia are clavate at all stages and do not project as far when sporulating, the pleurocystidia have as a rule slightly thicker and slightly colored walls, and the color of the spores in KOH is darker. If these differences are constant in large collections Br-975 cannot be regarded as conspecific with Br-969.

in KOH; pleurocystidia restricted to margin, (30)
Br-975 x 1000 μ, ventricose, the apical part
only 2.5 μ broad and usually as deeply as wall of
margin and beneath the slightly thickened and colored
lyellian to 200 μ, smooth, cheilocystidia of 2 types,
one that bear a long seta and the
cheilocystidia of 200 μ and 100 μ ventricose
with narrow necks and usually as deeply as wall
of margin; gills narrow, hyaline to
yellowish in KOH, attachment narrow and not distinctive;
stipe yellowish brown, 100 μ diameter, smooth, slightly
enlarged at base to clavate to pedicel-like
shape; attachment present,
gills no barbs; attachment and setae, etc.
coll. V. L. Gilman, Ipswich, Michigan, May 21, 1946
Brooks 975

17. 18.
18. 9.

Agrocybe sororia (Pk.) Singer

Naucoria sororia, Bull. Torrey Club, 34:101. 1907.

Pileus 5 - 10 cm. broad, convex to broadly umbonate, lacunose, subviscid, tawny, often with a slightly darker zone near the margin when moist, even, wavy or slightly lobed on the margin; flesh thick, firm, fragile, watery white, taste and odor farinaceous.

Lamellae narrow, close, adnate, whitish, becoming darker with age and in drying.

Stipe 4 - 12 cm. long, 4 - 8 mm. thick, equal or slightly bulbous, flexuous, fragile, striate at the apex, stuffed, pale tawny white within. Veil none (see Key).

Spores 8 - 11 x 6 - 7 μ oval in face view, elliptic in side view, smooth, thick-walled, dull ochraceous brown in KOH, apex truncate; basidia 26 - 30 x 8 - 9, 4-spored, yellowish to hyaline revived in KOH; pleurocystidia scattered, 32-48 x 12 - 20 μ , ventricose with broadly rounded apices or clavate, hyaline, thin-walled, smooth; cheilocystidia similar to the pleurocystidia or generally smaller and merely fusoid-ventricose with obtuse apices, hyaline; gill trama \pm interwoven; pileus trama floccose-interwoven; cuticle hymeniform, gills hyaline to pale yellowish; clamp connections present.

Habit, habitat and distribution: Solitary to gregarious in open grassy places; Falmouth, Mass. July, Simon Davis.

Observations: This species, to judge from the description must resemble *A. praecox* in many respects but differs in lack of a veil.

18. *Agrocybe sacchari* (Murrill), comb. nov.

Naucoria sacchari Murrill, Mycologia 4:79. 1912.

Pileus 1 - 1.5 cm. broad, obtuse to convex expanding to plane or nearly so, surface moist, subviscid, not striate, slightly floccose, scaly to glabrous, pale fuscous, shading to nearly white on the margin; flesh thin.

Lamellae adnate, distant, nearly plane, rather broad, pale-fuscous.

Stipe 3 - 4 cm. long, 1 mm. thick, cylindric, hollow, floccose, concolorous.

Spores 9 - 12 x 5 - 6 μ , broadly oval in face view, elliptic in side view, smooth, truncate from a broad apical pore, dull ochraceous brown in KOH (near "buckthorn brown"); basidia 4-spored, 20 - 25 x 9 - 10 μ ; pleurocystidia none; cheilocystidia 20 - 24 x 6 - 9 (10) μ , fusoid to fusoid-ventricose, apex in some subcapitate; gill trama \pm interwoven, pale ochraceous; pileus trama with an hymeniform cuticle of clavate pedicellate cells badly collapsed; clamp connections present.

Habit, habitat and distribution: On rotting sugar cane trash; Hope Gardens, near Kensington, Jamaica.

Observations: The fuscous brown colors, habitat on sugar cane, medium sized spores and lack of pleurocystidia are distinctive.

19.
~~18.~~

Agrocybe vervacti (Fr.) Romag., sensu Lange

(Translation from Romagnesi, Not collected by Smith.)

Pileus 13 - 30 mm. broad, convex-plane, with the margin obtuse, expanding to plane and a bit wavy along the margin, at times with a broad obtuse umbo, not hygrophanous, color a warm ochraceous tawny although dingy (a little more ochraceous on the margin and more tawny on the disc, (201 of Seguy with the disc tending to 186 or more yellow), fading and losing soon its bright aspect (tarnished ochraceous tawny), surface moist to at times subviscid, more or less wrinkled grained or even subscarbecutate especially on the margin, becoming almost smooth; flesh thick in the disc, (\pm 3.5 mm.), thinning to margin, whitish then (especially in stipe) pale ochraceous, odor weak, (not farinaceous).

Lamellae close to crowded, 2 - 3 tiers of lamellulae, broadly adnate, ventricose to triangular in outline, sometimes slightly sinuate, broad (2.5 - 6 mm.), brown, with the edge slightly paler.

Stipe 30 - 45 x 1.5 - 3.75 mm., slightly flexuous, short, more or less inflated or with a non-marginate bulb, at times with some short root-like rhizomorphs, solid, rather firm, at times furnished with white cottony mycelium, white but becoming very pale translucent ochraceous, rather strongly fibrillose-striate and shining.

Spores 8 - 9 (10) x 5 - 6 μ , obovate or elliptic sub-amygdaliform, with a small apical germ pore, endospore rather thick; basidia 4-spored cylindric-narrowed, 6.5 - 8 μ broad;

Agrocybe vervacti (Fr.) Romag., sensu Lange, cont.

cheilocystidia \pm 50 μ long, narrowly fusoid-ventricose, with flexuous tapering necks and slightly enlarged apices; hyphae of medio-stratum 7.5 - 16 μ compact in arrangement; cells of the flesh interwoven and larger; cuticle hymeniform of clavate cells 35 - 65 x 8 - 10 - 22 μ , pedicels with brown walls, pilocystidia present and with long necks, \pm like cheilocystidia, 50 - 60 x 7.5 - 12 μ often \pm covered with a refringent yellow brown substance.

Habit, habitat and distribution: November 14, 1939 and July 27, 1940 in France, on a mossy slope.

Observations: This Agrocybe is very distinct from semiorbicularis by its brighter color, the pileus surface recalling that of Boletus scaber, and its stipe at first white, and its very small spores.

It is possible that this is Naucoria pediacles of certain authors, but we have found an excellent figure in Lange, which author considers N. pediacles a synonym of N. semi-orbicularis. (Translated from Romagnesi).

20
~~19~~. *Agrocybe earlei* (Murr.) comb. nov.

Naucoria earlei Murrill, *Mycologia* 4:77. 1912.

Pileus 2 - 3 cm. broad, convex becoming plane to slightly depressed, surface glabrous, pallid or alutaceous, margin even or slightly striate.

Lamellae slightly adnexed, subdistant, rather narrow but ventricose, pallid to fuscous.

Stipe 3 - 4 cm. long, 2 mm. thick, cylindric, solid, firm, glabrous, pallid to brownish, darker than the pileus.

Spores 10 - 12.5 x 5.5 - 7 μ , smooth, truncate, oval in face view, elliptic in side view, dingy ochre brown in KOH (almost as in *Philocybe*); basidia 2-spored; pleurocystidia scattered, ventricose-elongate with rounded apices, or sub-cylindric, 60 - 80 x 10 - 18 μ , yellowish in KOH; cheilocystidia none seen, gill edges amorphous in portion of type studied; gill trama interwoven; pileus trama with indications of a cellular cuticle but cells remaining badly collapsed (as is often true for *A. semiorbicularis*); clamp connections not studied.

Habit, habitat and distribution: On damp ground, Castleton Gardens, Jamaica.

Observations: Compare carefully with *A. semiorbicularis*.

31. *Agrocybe underwoodii* (Murrill) comb. nov.

Naucoria underwoodii Murrill, Mycologia 4:80. 1912.

Pileus 2 cm. broad, convex to expanded, surface glabrous, hygrophanous, brownish ^{when wet,} ochraceous when dry, the disc darker; flesh thin.

Lamellae adnexed, subcrowded, rather broad, subventricose, dull fulvous.

Stipe 3 cm. long, 3 mm. thick, crooked, slightly larger below, concolorous, hollow, subfibrillose, the apex floccose-fibrillose.

Spores 8 - 10 x 5.5 - 7 μ , broadly ellipsoid in face view, narrower (slightly) but elliptic in side view, smooth dull ocher brown in KOH, smooth, truncate; basidia 4-spored, 22 - 26 x 9 - 11 μ , hyaline in KOH; pleurocystidia scattered, 50 - 70 x 10 - 20 μ , ventricose with broadly rounded apices, hyaline, thin-walled, smooth; cheilocystidia similar to pleurocystidia or narrower and with merely obtuse apices; gill trama not well revived; pileus trama with an hymeniform cuticle of yellowish clavate-pedicellate cells; clamp connections present.

Habit, habitat and distribution: Singly on rotten wood; El Yumke, Cuba.

Observations: Apparently a fibrillose veil is present as in the *A. pediaedes* series, but the spores are small and the habitat is lignicolous.

22. *Agrocybe* ^{*arvalis*} ~~*arvalis*~~ var. *tuberigona*

Pileus 6-15 mm. broad, broadly convex with an inrolled margin, plane or nearly so in age, surface moist, at first hoery due to a projecting covering of pilocystidia, becoming naked, dingy tawny brown, hygrophanous, fading to "cinnamon buff"; flesh moderately cartilaginous, odor & taste not recorded.

Lamellae broad, close, adnate, white, becoming dull cinnamon brown, edges white fibrilate.

Stipe 2-5 cm. long, 1-2.5 mm. thick, whitish to near "pale pinkish buff", twisted striate, equal to the inflated basal portion, surface densely pubescent from projecting caulocystidia, with a thin mycelial coating lower down, arising from a sclerotium; sclerotium 5-15 mm. diam., wrinkled to irregular or almost round, surface fuscous to black, interior white and homogeneous.

Spores dull cinnamon brown in mass, 8-10 × 4-5 μ , pale tawny brown under a microscope in KOH, furnished with a small apical pore hence obscurely truncate, essentially ellipsoid; basidia 4-spored; pleurocystidia and cheilocystidia very abundant, 30-55 × 10-18 μ , hyaline, thin-walled, midportion decidedly ventricose, neck short and apices obtuse, thin-walled, smooth; gill trama not studied; pileus trama homogeneous beneath a cuticle of tangled to \pm upright clavate-pediculate cells 10-18(22) × 7-12 μ , some vesiculose cells intermingled; numerous hyaline thin-walled pilocystidia 36-54 × 7-9 μ projecting.

Habit, habitat and distribution: From a garden in Indiana,

Agrocybe ovalis var. *tuberigena* Cont.

material sent to me by G.B. Cummins of Purdue Univ.

Observations: Check the literature on this, I think it has been put in *Agrocybe* as a distinct species.

Agrocybe

Section Macrosporeae

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1. Spores with a distinct apical pore and hence usually appearing truncate 3
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2. Pileus 3 - 10 cm. broad; spores 10 - 13.5 X 5.5 - 6.5 μ ; lamellae often conspicuously decurrent 24. A. ombrophila
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13. Spores 13.2 - 16 (18) μ long 35. A. (Brooke 969)
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15. Spores 11 - 13.5 X 6 - 7.5 - 9 μ 37. A. cubense
16. Stipe typically with "long solid rhigomorph" (Romagnesi); color ferruginaceous. 38. A. arvalis
16. Not as above 17
17. Spores 11 - 15 X 7 - 9 μ , not appreciably compressed;
basidia 4-spored 39. A. Sm-12094
17. Spores 13 - 18 X 7 - 10 X (8) 9 - 12 μ compressed 18

18. Pileus margin at first adorned with vestiges of a white
veil 40. A. platysperma
18. Veil rudimentary to lacking 41. A. arenaria

23 ~~270~~. *Agrocybe erebia* (Fr.) Kuhner

Pileus (1) 2 - 5 cm. broad, obtuse to convex, expanding to plane or slightly umbonate or at times the margin elevated, slightly viscid at first, soon dry, glabrous or with only a few marginal veil remnants at first, smooth to wrinkled or slightly reticulate, evenly colored dark fuscous brown to near "Warm sepia" at first, hygrophanous, fading to dingy clay color; flesh

Lamellae adnate to slightly decurrent, close to sub-distant, often intervenose, moderately broad, pallid brownish becoming dull rusty brown, slightly paler than "cinnamon brown" as dried, edges even.

Stipe (2) 3 - 7 cm. long, 3 - 10 mm. thick, equal, pruinose and pallid above the annulus, dingy brownish below, somewhat fibrillose, glabrescent; annulus superior, pallid, membrous but thin, \pm persistent.

Spores 11 - 15.4 x 5 - 6.6 μ , in side view obscurely inequilateral to elongate-subcylindric or with a snout-like apex, subfusoid in face view, tapered at each end, smooth, dull rusty brown in KOH, not truncate (no distinct pore evident); basidia 4-spored, clavate, not projecting, nearly hyaline in KOH; pleurocystidia abundant 50 - 75 x 9 - 15 μ , narrowly fusoid-ventricose with elongated necks and obtuse apices, thin-walled, hyaline in KOH, smooth; cheilocystidia

23.

22. *Agrocybe erebia* (Fr.) Kuhner, cont.

scattered, oval-pedicellate to ventricose with broadly rounded apices, $26 - 35 \times 10 - 16 \mu$, some elongated and similar to pleurocystidia; gill trama parallel or nearly so, subhymenium not distinctive, pileus trama floccose interwoven, pallid to brownish in KOH, incrusted pigment present; cuticle an irregular palisade of clavate to pear-shaped cells with the walls of the pedicels thickened somewhat and brownish, clamp connections not found. (Harding - 271).

Habit, habitat and distribution: Singly to scattered on humus under hardwoods and conifers, not uncommon during the late summer and fall. (Harding - 271).

Observations: The dark brown color, long pleurocystidia and non-truncate spores are distinctive of the group of which this is the central species.

224.
~~224.~~ Agrocybe ombrophila (Sm-16171)

Pileus 3-¹⁰/₇ cm. broad, obtuse to convex when young, becoming plane or subumbonate in age, either entirely glabrous or with scattered patches of veil remnants along or near the margin, surface viscid when young but soon dry, opaque, smooth or becoming either rugulose or pitted over the disc or along the margin, color evenly "warm sepia" to "Verona brown" fading to near "wood brown" but not truly hygrophanous; (colors dull dark vinaceous to reddish brown - not matching well in Ridgway); flesh 3-5 mm. thick in the disc, brittle, pale buffy brown, odor and taste not distinctive.

Lamellae close (25-32 reach stipe), about 3 tiers of lamellulae, broad near the stipe (4-5 mm.), bluntly adnate to decurrent (often conspicuously decurrent in age, often by tines or ridges), appearing to recede readily but actually the gills breaking so as to leave part on the stipe, dull brown (almost concolorous with pileus).

Stipe (3) 5-12 cm. long, (4) 6-12 (15) mm. thick, stuffed, becoming hollow, pith silky, surface evenly "wood brown" and unpolished or ⁺/_gppressed fibrillose, no rhizomorphs seen at the base, with an avellaneous to wood brown ⁺ median to superior evanescent annulus.

Spores 10-13.5 x 5.5-6.6 μ , obscurely inequilateral in side view, ovate to elongate-ovate in face view, no apical pore present, color in KOH dull rusty brown; basidia 2- and 4-spored, 30-35 x 7-8 μ , hyaline to yellowish in KOH;

Agrocybe ombrophila (Sm-16171) cont.

pleurocystidia abundant, 46-60 × 10-15 μ , fusoid-ventricose thin-walled, hyaline to yellowish in KOH, apices obtuse; cheilocystidia abundant and similar to pleurocystidia but usually smaller (30-50 × 8-11 μ); gill trama subparallel, the subhymenium thin and filamentous but not gelatinous (as revived in KOH); pileus trama floccose-interwoven, brownish and with some faint incrustations beneath cuticle; cuticle of clavate to pear-shaped cells with thick-walled brown pedicels and yellowish to hyaline walls in enlarged part; no clamp connections present as far as observed.

Habit, habitat and distribution. Cespitose to scattered on humus; Maple Creek, Forest Camp, Rockport, Washington; August 15, 1941; Sm-16171.

Observations: The large size, decurrent gills and lack of clamp connections appear distinctive. The wrinkled cap surface appears to be more variable than the first two characters mentioned.

95 ~~79~~ ² Agroclybe dura (Bolt. ex Fr.) Singer

Pileus 3-8 (12) cm. broad, obtuse to convex when young, expanding to plane or with a low umbo, surface glabrous, soft to the touch and slightly viscid at first when moist, soon dry, smooth at first but in age rimose areolate, color white to pale yellow, becoming slightly darker on the disc and in age tending toward alutaceous; flesh thickish, white to pallid, taste mild to slightly disagreeable (Overholts), odor not distinctive.

Lamellae close, broad, (\approx 1 cm.), broadly adnate becoming sinuate, white when young, becoming earth brown at maturity, dark rusty brown when dried.

Stipe 4-10 (12) cm. long, 3-10 (15) mm. thick, solid, equal or in some enlarged at the apex or the base somewhat bulbous, white to pallid, in age dingy at times, fibrillose but glabrescent, apex pruinose and sometimes striate; veil white membranous but thin, forming a thin superior often evanescent annulus or at times adhering as shreds to cap margin.

Spores 10-14 \times 6.5-8 μ , elliptic in side view, ovate in face view but hardly compressed, truncate with an apical pore, smooth, thick-walled, dull yellow-brown in KOH; basidia 28-32 \times 7-8.5 μ , clavate, 4-spored, hyaline in KOH; pleurocystidia scattered, 35-48 (56) \times 10-18 (24) μ , ventricose-pedicellate with rounded apices or narrowed to a broad neck

Agrocybe dura (Bolt. ex Fr.) Singer, cont.

and obtuse to rounded apex, thin-walled, hyaline in KOH, smooth; gill trama with a somewhat interwoven medulla flanked by parallel hyphae, subhymenium not distinctive, hyaline in KOH; pileus trama interwoven, the hyphae more or less inflated and 12-22 μ diam.; cuticle a palisade of clavate to pear-shaped cells readily collapsing, hyaline (including the pedicel); clamp connections present but difficult to demonstrate.

Habit, habitat and distribution: Gregarious to scattered on lawns, in pastures and grassy areas of waste land, rather common in spring. (Sm-20458, Ann Arbor, June 21, 1945).

Observations: I have been unable to distinguish between this and Pholiota vermiflua Peck and hence regard the latter as a synonym. As I have found it, it is always a whitish to pale yellowish fungus with a characteristic soft feel when the cap is touched. The large spores distinguish it from A. praecox.

265. *Agrocybe* Sm-41194

Pileus 4 cm. broad, convex with a slight obtuse umbo, surface moist and hygrophanous, dark olive brown fading to dingy clay color, pruinose from projecting pilocystidia at first, margin opaque; flesh firm and thick (at least in the disc), pallid olivaceous to buff, odor and taste distinctly farinaceous.

Lamellae narrow, subdistant, adnate to slightly decurrent, dingy pallid becoming dark "buckthorn brown".

Stipe 4 cm. long, 10 mm. thick at apex, clavate, firm, ground color pallid but nearly obscured by a dense brownish pruinosity (almost scabrous as elements become joined in groups), no veil present.

Spores 10 - 13.5 x 5 - 6.5 μ , terete, narrowly ellipsoid, dingy buckthorn brown in KOH, smooth, thick-walled, with small apical pore (hence apex not conspicuously truncate); basidia 4-spored, hyaline in KOH, 24 - 28 x 7 - 8 μ ; pleurocystidia abundant, 44 - 60 x 10 - 18 μ , broadly ventricose with obtuse to rounded apices, thin-walled, hyaline; cheilocystidia 40 - 60 x 8 - 12 μ , narrowly fusoid-ventricose with obtuse to slightly rounded apices, hyaline, smooth, thin-walled; gill trama interwoven, nearly hyaline in KOH; pileus trama floccose-interwoven, cells often considerably inflated; cuticle a palisade of clavate cells and intermixed are pilocystidia \pm similar to the cheilocystidia; clamp connections present.

Agrocybe Sm-41194, cont.

Habit, habitat and distribution: Single in a trail at Green Lake, Mt. Rainier National Park, Washington, October 19, 1952, Sm-41194.

Observations: The long, narrow spores are distinctive in this group of alpine, thick-stiped, veilless species of Agrocybe.

27. *Hebeloma hortense* (Burt) - data on Co-type

Spores $11 - 13.2 \times 6 - 7 \mu$, ^{ate}ovoid in face view, sub-elliptic in side view, smooth, pale ochraceous tawny in KOH, apex truncate from apical pore; basidia 4-spored, $28 - 34 \times 7 - 9 \mu$, hyaline in KOH; pleurocystidia rare to scattered, $30 - 40 \times 11 - 22 \mu$, broadly clavate with rounded apices or ventricose below and scarcely narrowed to the broadly rounded apex, thin-walled, hyaline in KOH, smooth; cheilocystidia similar to the fusoid-ventricose pleurocystidia; gill trama with an interwoven central core flanked by parallel hyphae next to the thin almost non-existent subhymenium; pileus cuticle on hymeniform layer of clavate-pedicellate cells, yellowish in KOH; tramal body of floccose-interwoven hyphae; clamp connections present.

Habit, habitat and distribution: Along manured borders, Missouri Botanical Garden, St. Louis, Mo., June 3, 1919; E. A. Burt, commun. to Kauffman.

Observations: This is clearly an *Agrocybe* and very close to *A. sororia* Peck. Has Singer already pointed this out?

28. 29
24/8 Agrocyste (Sm-34994)

Pileus 5-15 cm. broad, convex with an inrolled margin, surface glabrous and unpolished (all caps faded), "tilleul buff" (pallid) but with cinnamon brown stains when bruised, in age alutaceous at least over the disc; flesh very thick and soft (as in Boletus), white, odor and taste strong of ~~raw~~^{raw} cucumber.

Lamellae "tilleul buff" (pallid) when young, "benzo brown" (purplish) before becoming "cinnamon brown" in age from the spores, very broad, rounded-adnate, close to crowded, edges even.

Stipe 6-11 cm. long, 1-2.5 cm. thick, equal or ± enlarged below, fibrous, pallid to brownish within, surface densely pruinose over all and pruina appearing brownish on the pallid ground color; veil absent.

Spores 13-15.5 (17) x 8-9 μ, smooth, truncate from an apical pore, terete, slightly ovate in face view, sub-elliptic to obscurely inequilateral in side view, dingy tawny in KOH; basidia four-spored, 28-34 x 8-9 μ, hyaline in KOH or nearly so, projecting nearly half their length when sporulating; pleurocystidia scattered to abundant, rare in some caps. 40-56 x 14-24, ventricose-pedicellate and with broadly rounded apices with scarcely any neck, thin-walled, hyaline, smooth; cheilocystidia either similar to pleurocystidia or smaller (both types present together, the smaller type 30-40 x 8-12 μ and fusoid-ventricose to ventricose-capitate or subcylindric-capitate;

Agrocybe Sm-34994 cont.

hyaline, thin-walled, smooth; gill trama interwoven, pallid, subhymenium not distinctive; pileus trama compartly interwoven, pallid in KOH; cuticle of pileus a palisade of clavate to pear-shaped cells and with numerous pilocystidia 50-75 x 8-15 μ arising in it, the cystidia subcapitate and slightly ventricose in mid-portion, some with yellowish content in KOH, all thin-walled but some showing incrustations when first revived; clamp connections present.

Habit, habitat and distribution. Gregarious under sage brush, Pale Mt., Wyoming, Laramie County, July 22, 1950. Coll. W. G. Solheim (Sm-34994).

Observations: The absence of a veil and heavily pruinose stipe along with the large size are distinctive. At a certain stage the gills are colored almost exactly as in Stropharia. The strong odor and taste are additional good field characters.

29.
~~28~~. *Agrocybe texensis*, sp. nov.

Pileus 1 - 3 cm. broad, convex to hemispheric young, expanding to broadly convex or nearly plane, surface glabrous, moist, pale yellow drying to pale dull tan.

Lamellae broad, subdistant, adnate, dull rusty cinnamon when dried.

Stipe 3 - 6 cm. long, 1 - 3 mm. thick, equal or nearly so, about concolorous with pileus but more dingy when dried, often with a bulb of dirt and white threads at base or this prolonged into a short pseudorhiza, surface at least over upper half pruinose, veil (if present) rudimentary.

Spores 11 - 13.5 x 6.5 - 8 (8.8) μ , terete, oval to elliptic, dull cinnamon in KOH, smooth, ^{very} thick-walled, obsoerely truncate from a small apical pore; basidia 4-spored, 23 - 26 x 8 - 9 μ , hyaline in KOH; pleurocystidia ^{rare} none; cheilocystidia scattered, 22 - 28 x 6 - 9 μ , fusoid-ventricose with capitate to subcapitate apices, the capitellum 3 - 4 μ diam., hyaline, thin-walled; gill trama interwoven, dingy ochraceous in sections (mounted in KOH); pileus trama floccose-interwoven, yellowish in KOH, pigment in the wall; outicle a collapsing layer or palisade of clavate cells; clamp connections present.

Habit, habitat and distribution: Gregarious on an area where a dead cow had been allowed to decay. Cisco, Texas, June 17, 1935, E. A. Smith.

Agrocybe texensis, sp. nov., cont.

Observations: This collection is close to A. Sm-20330 but differs in lack of pleurocystidia, presence of a labrous, pseudorhiza-like structure, and distinctly smaller spores on 4-spored basidia. The odor and taste were not recorded.

See Smith June 1955 - This collection has pleurocystidia but they are rare. The spores are smaller than in A. semicircularis.

Spores 11 - 13.5 x 5.5 - 6.5 μ , terete, oval to ellipsoid, dull cinnamon to reddish, smooth, thick-walled, apically flattened, with a small apical pore; basidia 4-spored, 23 - 26 x 8 - 9 μ , hyaline, slender; pleurocystidia absent; cheilocystidia scattered, 12 - 15 x 6 - 9 μ , fusoid-ventricose with apical to subapical spines, the apical one 4 - 5 μ diam., hyaline, thin-walled, all trees; intervocal, dingy ochraceous in sections (darker in K); pileus cream floccose-intervocal, yellowish in K, pigment in the wall; cuticle a collapsing layer of cells of clavate cells; lamellae numerous present.

Colts, habitat and description of vegetation as an area where a road now had been cleared to a way. Cisco, Texas, June 17, 1955, F. A. Smith.

30 ~~28~~
~~27~~ Agroclybe Sm-6355

Pileus 2-5 cm. broad, obtuse to convex, expanding to obscurely umbonate or nearly plane, surface viscid, glabrous except for an inconspicuous fringe of fibrils along the margin of young caps and representing the remains of a rudimentary veil, disc "ochraceous buff" to clay color, margin "light buff", about cinnamon buff when dried; flesh whitish, thick, odor and taste farinaceous.

Lamellae broad and subdistant, adnate, receding, pale buff when young, becoming earth-brown (as in A. dura), edges even.

Stipe 3-8 cm. long, 2.5-6 mm. thick, equal or nearly so, at times flaring slightly near apex, hollow, terete or compressed above, fibrillose scurfy over lower portion, pruinose above, apex striate, glabrescent in age, about concolorous with pileus and remaining so when dried.

Spores 10-13.5 x 7-8.5 x 8.5 - 9.5 μ , slightly compressed, elliptic in side view, ovate to broadly elliptic in face view, smooth, with a broad apical pore (hence truncate), dingy ochraceous tawny in KOH; basidia four-spored, 25-30 x 7-8.5 μ , hyaline in KOH; pleurocystidia none; cheilocystidia abundant; fusoid-ventricose with narrow subacute tips or tips somewhat capitate, 28-36 x 8-12 μ , thin-walled, hyaline; gill trama parallel or

Agrocybe Sm-6355 cont.

nearly so, hyaline in KOH, subhymenium cellular but thin; pileus trama of interwoven hyphae hyaline in KOH or nearly so (dingy ochraceous near cuticle), thin-walled; cuticle apparently with a cellular structure at first but all traces soon vanishing; clamp connections present.

Habit, habitat and distribution: Gregarious on dung, Oak Hill Road, Oakland Co., Michigan, June 17, 1937. Sm-6355.

Observations: The coprophilous habitat, pale yellow color of the cap, rudimentary veil, and collapsing cells of the pileus cuticle are distinctive. The stature is too robust for A. semiorbicularis.

A collection on dung from Texas, by E. A. Smith appears to be a 2-spored form. It has pleurocystidia-like cells (very rare) which appear to be 2-spored basidia which have not developed properly. The stature of this 2-spored form is that of A. semiorbicularis.

31 ~~28~~. Agrocybe Sm-20330

Pileus 2 - 4 cm. broad, convex when young and expanding to plane or nearly so, surface glabrous or nearly so (margin may have scattered fibrils) and viscid, pale ochraceous, evenly colored on the disc slightly darker, drying to a dingy cinnamon buff; flesh moderately thick and soft, odor and taste not recorded.

Lamellae close, moderately broad, broadly adnate or with a slight tooth, pale cinnamon brown when dried.

Stipe 4 - 8 cm. long, 3 - 4 mm. thick at apex, equal, pale clay color and drying \pm concolorous with pileus, not darker below, the remnants of the thin pallid fibrillose veil variously disposed and finally evanescent (but not forming more than an indistinct annular zone).

Spores 12 - 17 (17.5) \times 8 - 10 (11) μ , terete or nearly so, subelliptic in side view, oval in face view but varying to elliptic, smooth, dingy yellow brown in KOH, obscurely truncate from a small apical pore; basidia 4-spored, 20 - 24 \times 10 - 12 μ , hyaline in KOH; pleurocystidia rare to scattered 30 - 35 \times 9 - 13 μ , fusoid-ventricose with obtuse apices and neck \pm flexuous, at times capitate; cheilocystidia 23 - 34 \times 6 - 12 μ , numerous, ventricose near attachment and tapered to an acute to capitate apex hyaline and often with highly refractive material in neck or apex, lacking incrustations; gill trama \pm interwoven, dingy yellowish in KOH, subhymenium not distinctive; pileus trama floccose-interwoven, the

Agrocybe Sm-20330, cont.

hyphae equal to scarcely inflated, cuticle an amorphous zone of collapsed cells (possibly cellular at first) and hypodermial region more highly pigmented than any other zone, pigment incrustated; clamp connections present.

Habit, habitat and distribution: Gregarious on cow dung, Crooked Lake, Washtenaw County, Michigan, May 15, 1945, Sm-20330.

Observations: The presence of pleurocystidia and larger more terete spores distinguish this from Sm-6355 which is also coprophilous. Although unexpanded buttons were examined, no palisade of clavate or isodiametric cells could be demonstrated. It is assumed here that such cells were originally present but collapse very soon, as is known to be true for other species in the genus.

3729. *Agrocybe semiorbicularis* Fr. sensu Kauffman

Pileus 1 - 3 cm. broad, hemispheric to convex expanding to nearly plane, surface glabrous, viscid when fresh but soon dry, yellowish on margin and disc usually near "cinnamon buff" in age often pale ochraceous over all, near cinnamon buff when dried, sometimes rimose; flesh thin except in the disc, pallid, odor none, taste slightly disagreeable.

Lamellae adnate and often seceding, broad close, pallid to pale pinkish buff, finally dull rusty brown, edges often faintly white fimbriate.

Stipe 3 - 6 cm. long, 1 - 3 ^{mm} thick, equal or nearly so, terete and rather tough, stuffed with a white pith, ± pale ochraceous and drying evenly concolorous with pileus, veil rudimentary and leaving only a faint evanescent fibrillose zone, pruinose above, somewhat oppressed silky to naked below.

Spores 12 - 15 x 7.5 - 9.5 μ , terete or nearly so, oval in face view, more elliptic in side view, smooth, dull yellow brown in KOH, apical pore small and hence apex only obscurely truncate; basidia four-spored, 30 - 34 x 10 - 12 μ , hyaline in KOH; pleurocystidia scattered, 40 - 56 x 10 - 14 μ , fusoid-ventricose with obtuse to subcapitate apices, necks often flexuous, thin-walled, hyaline in KOH; cheilocystidia 28 - 40 x 6 - 11 (14) μ , ventricose with flexuous necks and obtuse apices or subcapitate hyaline, thin-walled, apices usually 4 - 6 μ in diam.; gill trama subparallel becoming interwoven,

Agrocybe semiorbicularis Fr. sensu Kauffman, cont.

hyaline in KOH; pileus trama floccose-interwoven, yellowish to hyaline; cuticle a palisade of clavate cells which soon collapses; clamp connections present.

Habit, habitat and distribution: Gregarious on lawns and on grassy places everywhere in late spring, usually found along with P. foenesioides.

Observations: This needs to be most carefully compared with Sm-20330 which is larger and grows on dung but is otherwise very similar. Check odor and taste carefully. Also

compare 10294! *Brooks 986 appears to be a 2-spored form. pleurocystidia are present. B-970 is the same - spores are broader, more compressed, and oval in face view.*

Singer says 2-spored form is semiorbicularis sensu Sydow!

33. *Agrocybe broadwayi* (Murrill)

Hebeloma broadwayi Murrill, Mycologia 4: 82. 1912.

Pileus 2 - 4 cm. broad, convex to expanded, surface white, glabrous, subviscid, not striate.

Lamellae adnexed, crowded, rather narrow, white to ochraceous-fulvous, the edges white, crenulate.

Stipe 3 - 4 cm. long, 2 - 4 mm. thick, cylindric, white, glabrous, hollow.

Spores 12 - 16 (17.5) x 6.5 - 8.5 μ, slightly ovate in face view, in side view obscurely inequilateral to elliptic, smooth, buckthorn brown, truncate from an apical pore; basidia 4-spored, 23 - 26 x 10 - 14 μ, hyaline in KOH, clavate; pleurocystidia rare to scattered, 30 - 46 x 12 - 25 μ, pedicellate-clavate with broadly rounded apices or submucronate but mucro obtuse; cheilocystidia similar but rare; gill trama subparallel, subhymenium not distinctive; pileus cuticle a collapsed (in type) layer of clavate-pedicellate cells (undoubtedly hymeniform fresh); indications of clamps seen but difficult to demonstrate positively because of the broad, but collapsed hyphae, rare but definitely demonstrated on the hyphae of the stipe.

Habit, habitat and distribution: Along roadsides in lowlands, St. George's, Grenada.

Observations: This is clearly an *Agrocybe* of the stature of a large semiorbicularis, in the group in which the spores are not compressed. It does not seem to be in my MS of that genus yet.

34
Agrocybe Sm-6184 (pediades?)

Pileus 8 - 12 mm. broad (all young), convex, glabrous except for a faintly silky to furfuraceous margin, moist but not viscid, "russet" to "tawny" when fresh, hygrophanous and fading to "ochraceous buff", opaque at all stages seen; flesh thick, whitish, odor none, taste decidedly farinaceous.

Lamellae close broad, adnate, seceding, whitish to pale cinnamon buff, becoming carob brown (dark reddish) at maturity, edges even.

Stipe \pm 1 cm. long, 3 mm. thick, equal, firm, solid, stuffed by a white pith, at first minutely fibrillose-furfuraceous, glabrescent, apex whitish, pale buff to yellowish brown downward, and sordid brown (as if changing on aging) at base in oldest.

Spores 9 - 13.2 x 6.6 - 7.5 x 7.5 - 9 μ , compressed, elliptic in side view, oval in face view, truncate from an apical pore, dingy yellow brown in KOH, smooth; basidia 4-spored, 28 - 34 x 8 - 9 μ , hyaline in KOH; pleurocystidia rare to scattered, 30 - 36 x 8 - 14, fusoid-ventricose with acute to subcapitate apices, the capitellum 2.5 - 4 μ diam., thin-walled, smooth, hyaline; cheilocystidia abundant, similar to pleurocystidia; gill trama \pm interwoven, yellowish in KOH; pileus trama floccose-interwoven, rusty orange near cuticle; cuticle an amorphous layer of (apparently) collapsed clavate cells; clamp connections present but rare.

Agrocybe Sm-6184 (pediades?), cont.

Habit, habitat and distribution: Gregarious on soil in an old road, Saginaw Forest, Ann Arbor, Mich. May 12, 1937, Sm-6184.

Observations: The russet to tawny young pilei, farinaceous taste, and strong reddish coat to the mature gills are distinctive. It is close to A. semiorbicularis on cystidial characters.

Stipe 2 cm. long, 3 mm. thick, equal, firm, solid, stuffed by a white with, at first minutely fibrillose-farfaraceous, lutescent, apex whitish, pale buff to yellowish brown downwards, and reddish brown (as if emerging on aging) at base in oldest.

Spores $13.2 \times 6.6 - 7.5 \times 7.2 - 9 \mu$, compressed, elliptic in side view, oval in face view, truncate from an apical base, dingy yellow brown in KOH, smooth; basidia 4-spored, $8 - 9 \times 3 - 4 \mu$, hyaline in KOH; pleurocystidia rare to scattered, $30 - 36 \times 8 - 14$, fuscil-ventricose with acute to subacute apices, the apicellum $2.5 - 4 \mu$ diam., thin-walled, smooth, hyaline; cheilocystidia abundant, similar to pleurocystidia; gill trama 1 interwoven, yellowish in KOH; pileus trama floccose-interwoven, rusty orange near cuticle; cuticle an amorphous layer of (apparently) collapsed clavate cells; clamp connections present but rare.

Singer says this is semiorbicularis sensu Sydow

35. ~~29~~
21. Agrocyste Brooks 969

Pileus 1-3 cm. broad, convex or obtuse with an inrolled margin when young, expanding to broadly convex or nearly plane, surface viscid when young but soon becoming dry. "Sudan brown" overall at first, gradually becoming paler and finally "light buff", often retaining the yellow longer on the disc; flesh relatively thick, white, odor and taste not distinctive.

Lamellae pinkish buff becoming near "buckthorn brown", broad (\pm 3 mm.), close, bluntly adnate but soon receding at least partly or appearing adnexed, edges minutely white fimbriate.

Stipe short, 2-3 cm. long, 3-5 mm. thick, stuffed with a white pith, cartilaginous pliant, surface coated with "cinnamon buff" or duller fibrils and scurfy at least over lower half, in age almost concolorous with cap or slightly darker in the base, cortex pallid to brownish, apex pruinose to scurfy; veil present on buttons but all traces soon vanishing.

Spores 13.2-16 (18) \times 8.2-9.5 \times 10-13 μ , compressed, ovate in face view, elliptic in side view, thick-walled, smooth, with apical pore, near buckthorn brown in KOH, occasional giant spores bifid or merely broadly elliptic (face view) and with 2 apical germ pores; basidia 2-spored, 28-34 \times 8-9 μ , clavate but becoming slightly ventricose

Agrocybe Brooks 969 cont.

before sterigmata form, sterigmata 3-4.5 μ broad at base; pleurocystidia 34-46 x 10-15 μ , ventricose-capitate (as in *Conocybe*) rare to scattered, thin-walled, hyaline and smooth in KOH; cheilocystidia narrowly fusoid-ventricose with obtuse tips or in some the tips forked, hyaline, thin-walled, smooth; subhymenium narrow and not distinctive; gill trama subparallel to interwoven, hyphae 9-15 μ diam; pileus trama interwoven, hyphae with yellowish to hyaline smooth walls in KOH, 10-15 μ in diam. and not greatly swollen (most of nearly equal width); cuticle a palisade layer of clavate to pear-shaped cells the apices of which are covered with a thin layer of gluten, the cells hyaline or nearly so and soon collapsing (the layer difficult to demonstrate on mature or old caps); clamp connections present.

Habit, habitat and distribution. Gregarious on sandy grassy soil, Willow Village, Ypsilanti, Michigan.

May 20, 1946, Brooks 969. Again May 21. (B-973).

Discussion. The capitate pleurocystidia, large compressed spores on 2-spored basidia, viscid ~~cap~~^{cap} when young and collapsing cuticular cells along with the thin veil are distinctive for the group.

36
26.
27.
32.

Agrocybe lenticeps (Pk.) comb. nov.

Agaricus lenticeps Peck, Ann. Rep. N. Y. State Mus.,
31:34. 1879.

Naucoria lenticeps (Pk.) Saccardo, Syll. Fung.,
5:838. 1887.

Pileus 1.2 - 2 cm. broad, convex or nearly plane, surface dingy-ocher or subolivaceous, brown or blackish brown on the disc.

Lamellae plane, subdistant, adnate, with a decurrent tooth, whitish or pallid.

Stipe 2.5 - 3.5 cm. long, \pm 2 mm. thick, slender, hollow, paler and slightly squamulose at the apex.

Spores 12 - 18 x 7 - 9 x 8 - 11 μ , smooth, truncate, dull ochraceous tawny in KOH, broadly oval in face view, subellipsoid in side view; basidia 2-spored, 20 - 26 x 9 - 10 μ , hyaline in KOH; pleurocystidia absent or possibly very rare, similar to cheilocystidia; cheilocystidia abundant to scattered, 20 - 30 x 6 - 12 μ , ventricose with a narrow (3 - 4 [5] μ) flexuous neck and subacute to subcapitate apex, wall of neck and apex \pm thickened, hyaline in KOH; gill trama \pm interwoven, hyphae nearly hyaline in KOH; pileus trama \pm ochraceous in KOH, interwoven; Cuticle amorphous as though from collapsed pedicellate cells; clamp connections present.

Habit, habitat and distribution: On sandy soil along railroads. Center, New York.

37 Hebeloma cubense Murrill, N.A.F. 10: 227. 1924

Pileus 2 cm. broad, convex, fleshy, surface floccose with the remains of the veil, not striate, chestnut brown.

Lamellae short-decurrent, crowded, broad, cinnamon, eroded on the edges.

Stipe 4 cm. long, 3 - 4 mm. thick, flexuous, tough, fibrous, cylindric, floccose-fibrillose, pale brown, solid, whitened below.

Spores $11 - 13.5 \times 6 - 7 \times 7.5 - 9 \mu$, compressed, oval in face view, elliptic in side view, smooth, truncate from a broad apical pore; basidia 4-spored, $23 - 28 \times 8.5 - 10 \mu$, hyaline in KOH; pleurocystidia none; cheilocystidia abundant, fusoid-ventricose to subcylindric, $18 - 25 \times 6 - 10 \mu$, apices obtuse but neck often narrowed to $2 - 3 \mu$, apices often \pm refractive, hyaline in KOH; gill trama interwoven to subparallel; pileus trama of floccose-interwoven hyphae up to the ochraceous tawny cuticle of collapsed clavate-pedicellate cells, the area beneath this layer of compactly interwoven ochraceous hyphae; clamp connections present.

Habit, habitat and distribution: Gregarious on garden soil, Herradura, Cuba, Earle 560. June 15, 1907.

Observations: This fungus is obviously an Agrocybe and so close to A. platysperma that I think it may be only the ~~4-spored variety. Check this carefully.~~

38
Agrocybe arvalis (Fr.) Fayod

Pileus 1 - 2 cm. broad companulate convex or hemispheric, becoming convex, orbicular, glabrous, slightly viscid, Indian yellow, then brownish; flesh tawny, taste mild (sweet), odor distinctly farinaceous.

Lamellae rather distant, broad, rather thick, sinuate, cream color then ochraceous brownish, paler on the edges.

Stipe 3 - 4 cm. long, robust, at first pear-shaped then cylindrical and inflated at the base in an ovoid bulb prolonging into long and solid rhizomorphs, jonquil brown, paler above, entirely pruinose.

Spores 12 - 14 - 15.5 - 18.5 x 9 - 9.5 - 10.5 μ , ovoid-almondshaped, with a large germ pore, not depressed around the pore, ochraceous brown in mass, bright ocher seen isolated; basidia clavate, 4-spored; cheilocystidia cylindrical-irregular or elongate-fusiform, 18 - 50 x 6 - 8 μ , drawn out toward the tip and slightly inflated at the summit.

Habit, habitat and distribution: Found the year around near tufts of Iris.

Observations: Although near to A. semiorbicularis, this species typically on cultivated soil, is distinguished neatly by the long solid rhizomorphs and its much larger spores. Its cheilocystidia (which are very apparent) have already been figured by one of us. It has been noticed that arvalis, as in a number of Agrocybes, when fresh possesses a farinaceous odor. (Translated from Heim & Romagnesi, Bull. Myc. Fr. 50:171. 1934).

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Agrocybe Sm-12094

Pileus 10-25 mm. broad, broadly convex, becoming nearly plane, surface smooth, glabrous, viscid when fresh, becoming irregularly cracked in age, margin regular and opaque, color "cinnamon buff" to "pinkish buff" or in age paler and dingy, often strongly shaded gray when faded out but not truly hygrophanous, no veil remnants present; flesh pale buff, firm, thin, odor none or slight, taste farinaceous.

Lamellae subdistant (17-20 reach the stipe), broad (4-5 mm.), adnate, ventricose, edges even, color at first very pale buff soon tinged avellaneous and finally dingy brown, edges even.

Stipe 3-4.5 cm. long, 1-2.5 (3) mm. thick, equal or slightly larger above, solid, stuffed, rigid and firm, concolorous with or paler than the pileus, glabrous, evenly colored over all when dried, rhizomorphs not evident.

Spores 11-14 (15) x 7-9 μ , terete or only very slightly compressed, smooth, ellipsoid to slightly ovoid, with a very small apical pore - hence hardly appearing truncate, dull tawny in KOH; basidia four-spored, hyaline in KOH, 30-35 x 9-11 μ , projecting half their length when sporulating; ^{cheilo}pleurocystidia abundant, fusoid-ventricose to ventricose-capitate, 24-35 x 7-11 μ , the capitellum when present 3.5-5 μ diam., hyaline and thin-walled; gill

Cheilocystidia?

Agrocybe Sm-12094 cont.

trama somewhat interwoven, hyaline or nearly so in KOH; pileus trama of interwoven hyphae, the cells 9-15 μ in diam. and relatively not inflated, hyaline or nearly so in KOH; cuticle with an indistinct thin layer of gluten over the surface, beneath this a palisade of small clavate to pear-shaped cells; clamp connections present.

Habit, habitat and distribution. Scattered in an old garden plot, ^aKelaloch, Washington. April 29, 1939, Sm-12094 and 13037.

Observations. The lack of any appreciable veil *and presence of* ~~and~~ pleurocystidia, the pale color, and terete to very slightly compressed spores are distinctive along with the farinaceous taste.

Agrocybe

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~~24.19.~~

Agrocybe platysperma (Peck) comb. nov.

Naucoria platysperma Peck, Bull. Torrey Club,
25:324. 1898.

Pileus 2.5 - 3.5 cm. broad, convex becoming nearly plane, glabrous, slightly tinged with ochraceous or reddish-yellow when young, soon whitish, margin at first adorned with vestiges of a white flocculent veil; flesh white.

Lamellae moderately crowded, slightly rounded behind, pallid, becoming brownish.

Stipe 3.5 - 5 cm. long, 2 - 4 mm. thick, equal, stuffed with a white pith, slightly flocculent or furfuraceous above when young, whitish, base with white rhizomorphs. Veil (see above).

Spores 13 - 16 x 7 - 10 x 9 - 12 μ , usually slightly compressed, broadly elliptic in face view, more nearly elliptic in side view, dull ochraceous brown in KOH, apex truncate from a broad pore, thick-walled, smooth; basidia 2-spored, 20 - 25 x 9 - 11 μ , \pm hyaline in KOH; pleurocystidia none; cheilocystidia \pm nine-pin shaped to fusoid ventricose, 24 - 33 x 8 - 11 μ (occasionally \pm 15 μ broad and with broadly rounded apices), thin-walled and smooth; gill trama interwoven, hyaline in KOH; pileus trama appearing homogeneous or with a thin gelatinous pellicle (but probably has an hymeniform cuticle when young since some evidence of collapsed cells was seen); clamp connections present.

Habit, habitat and distribution: On the ground; Compton, Calif. McClatchie.

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19. *Agrocybe platysperma* (Peck) comb. nov., cont.

Observations: The veil is more pronounced than in other large spored species of this group.

Agrocybe platysperma

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26. Agrocybe arenaria (Pk.) comb. nov.

Naucoria arenaria Pk., Bull. N. Y. State Mus.,
157:29. 1912.

Pileus 0.75 - 2 cm. broad, convex to nearly plane, surface glabrous, pale yellow or reddish yellow with a paler margin.

Lamellae broad, distant, unequal, sinuate, brownish ferruginous.

Stipe 2 - 3 cm. long, 1 - 2 mm. thick, slender, rigid, glabrous, stuffed with a white pith, concolorous, pseudo-bulbous.

Spores 14 - 18 x 7 - 8.5 x 8 - 10 μ , slightly compressed, ovate in face view, subelliptic in side view, smooth, truncate, dull brown in KOH; basidia 2-spored; cheilocystidia abundant, 28 - 40 x 9 - 12 μ , mucronate or apex subcapitate, neck at times with slightly thickened walls but not collared; pleurocystidia none seen; gill trama \pm interwoven, pale ochraceous, subhymenium moderately broad but not gelatinous; pileus trama floccose-interwoven; cuticle an hymeniform layer of readily collapsing cells as in A. semiorbicularis; clamp connections present.

Habit, habitat and distribution: Gregarious to scattered on sandy soil.

Observations: More data on macroscopic characters is needed, but the lack of pleurocystidia and very large compressed spores are distinctive.