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## Camarophyllus Notebook 2

L. R. Hesler

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Section: Camarophyllus

Misc. Notes

HYGROPHORUS ALBIPES Pk.

Type: collected in Massachusetts by G. E. Francis,  
September.

Spores 5.5-7 (8) x 4.5-5.5 (6)  $\mu$ , subglobose, short-  
ellipsoid, some ovoid, smooth, pale yellow in Melzer's reagent.  
Basidia 37-58 x 5-7  $\mu$ , 4-spored. Pleurocystidia and  
cheilocystidia none. Gill-trama intricately interwoven, of  
narrow hyphae, 1.7-2.3  $\mu$  broad. Cuticle fibrillose, with many  
more or less erect to repent hyphae. Clamps present on the  
cuticular hyphae.

HYGROPHORUS ALBIPES PK.  
(Bigelow-9331)

Notes by Bigelow

Pileus 2-5 cm. broad, convex when young with margin inrolled and incurved, expanding to broadly infundibuliform with margin decurved and  $\pm$  arched, viscid, dull, brown ("Snuff brown") at first, paler in age ("Tawny olive"); flesh white, pliant, thick, on disc, no odor or taste.

Lamellae decurrent, subdistant young, valvose ~~in~~ expanded as specimens, narrow, pallid.

Stipe 3-4 cm. long, subclavate to clavate, 5-10 mm. at apex, 1-1.5 cm. at base, stuffed, glabrous, dingy white, tomentum at base.

Spores 5.5-7 x 4-4.5 $\mu$ , elliptic, smooth, not amyloid; basidia more or less 39 x 7 $\mu$ , 4-spored; cystidia none; pileus tissue; cuticle pale olivaceous in KOH, pigment dilute in cell contents, cuticular hyphae cylindric, 3-4 $\mu$  in diameter, occasional laticiferous hyphae, trama hyaline, hyphae cylindric to inflated, 5.5-15.5 $\mu$  in diameter, clamp connections present; gill trama interwoven (but some have a regular central strand).

Gregarious, under white pine. September 21, 1960. Pine Hill R Road, Conway, Mass. Coll. H.E. & M.E. Bigelow. HEB # 9331, card, photo.

Notes by Hesler

Spores 5-6.5 x 3.5-4.5 $\mu$  Pleurocystidia and Cheilocystidia none. Gill trama interwoven with more or less of a mediostrate of subparallel hyphae. Cuticle with a very few gelatinous, surface hyphae, and a few more or less erect. Pileus trama of radially disposed hyphae, interwoven. Clamp connections present.

*over*

This agrees with Peck's description except for the subclavate to clavate stipe.

HYGROPHORUS ANGUSTIFOLIUS Murr.

Type: on soil, in woods, Fort Lee, N. J., Sept. 1902,  
F. S. Earle & W. A. Murrill, No. 1387.

Spores 4.5-5.8 x 3.5-4.5  $\mu$ , ellipsoid to subglobose,  
apiculate, smooth, very pale yellow in Melzer's reagent. Basidia  
30-46 x 4-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia  
none. Gill-trama interwoven. Epicutis a loose tangle of  
hyphae. Glamps present in epicutis, few.

The lamellae of the type are close to nearly  
subdistant,

13704

Hygrophorus angustifolius Murr.  
under redwood, Orick, Calif.  
Coll. & Det. A. H. Smith (No. 3879), Dec. 7, 1935

Spores 4.5-6 x 3-4.5  $\mu$ , ellipsoid to subglobose, apiculate, smooth, pale yellow in Melzer's reagent. Basidia 44-58 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Epicutis of loosely tangled hyphae. Clamps present, few. (See: Lloydia 5:7-8).

This collection agrees with the Type.

HYGROPHORUS ANGUSTIFOLIUS (Murr.) comb. nov.

(Bigelow-8986)

Notes by Bigelow

Pileus up to 3 cm., umbonate at times, white with a pale pink disk. Gills decurrent, white, close to subdistant, narrow. Stipe white.

Notes by Hesler

Spores 3.5-5.5 x 3.5-4.5  $\mu$ , subglobose, ovoid, or short-ellipsoid, smooth, yellow in Melzer's reagent. Basidia 34-43 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 2.5-4  $\mu$  broad. Cuticle of repent hyphae, -a cutis, with a few scattered more or less erect hyphae.

The gills are close to subdistant in the type, rather than rather crowded as Murrill says (N.A. Flora 9:386).



Omit

G. Oston  
check - first

HYGROPHORUS ATROPUNCTUS (<sup>Fr?</sup> ~~Sacc.~~ <sup>Bres.</sup>) Sm. & Hes.

Lloydia 5:15. 1942

Camarophyllus atropunctus (<sup>Fr.</sup> ~~Bres.~~) Lange, Flora  
Agar. Danica 5:17. 1940.

Omphalia atropuncta (Fr.) ~~Sacc.~~ <sup>Quél.</sup>

near  
Camarophyllus  
(in Camarophyllus)

Not yet found  
in N.A.

Illustrations:

Bresadola, Icon. Nycal. tab. 271, 1.

Lange, Flora Agar. Dan. 5, pl.

(Description from Bresadola & Lange)

Pileus 1-<sup>2.5</sup>~~2.5~~ cm. broad, convex, mostly umbilicate, then  
plano-depressed, fuscous or bistre, hygroph<sup>anous</sup>~~erous~~, fading  
canescent, glabrous to squamulose, the margin occasionally lobed.  
Contex concolorous with the pileus, odor rancid-subfarinaceous,  
(Lange says none), taste mild.

Lamellae decurrent, concolorous with the pileus, distant,  
broad, thick.

Stipe 2-5 cm. long, 2-5 mm. thick, concolorous, fibrillose,  
apex squamulose, black punctate, not separable from the pileus,  
subattenuated downward.

Spores 4-5  $\mu$ , subglobose, inner membrane subaureus. Basidia  
clavate, 24-28 x 5-6  $\mu$ .

Observations. - Singer (Agar. p. 217) states that Omphalia atropuncta (Pers. ex Fr.) Sacc. probably belongs to Armillariella to which genus he assigns A. mellea and such Hygrophorus species as paupertinus and deceptivus. Lange (Flora Agar. Dan. 5:17.) places it in Camarophyllus because of its thick gills. Kühner and Romagnesi give the spores as 5-7 x 3.5-4.5  $\mu$ , the odor subspermatoc-herbaceous.

HYGROPHORUS BAKERI Dennis

Type

Spores 6-8(9) x 5-6(7)  $\mu$ , subglobose to ovoid or pyriform, apiculate, smooth, yellowish in Melzer's reagent. Basidia 33-38 x 4.5-5.5  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama subparallel in the center, interwoven toward sides, hyphae 5-12  $\mu$  broad. ~~Cuticle not differentiated.~~ The surface a cutis of more or less <sup>undifferentiated,</sup> repeat, non-gelatinous hyphae, 4-7  $\mu$  broad, with clamp connections.

Pileus trama of more or less radial hyphae.

Dennis (1953) treats this species under the subgenus *Camarophyllus*.

HYGROPHORUS BASIDIOSUS Pk.

Type: Sandlake, New York, August. C. H. Peck

Spores 4-5.7 (6) x 3-4.5  $\mu$ , subglobose, ovoid, or short-ellipsoid, smooth, pale yellow in Melzer's reagent.

Basidia 37-44 x 4.5-6  $\mu$ , 4-spored, sterigmata up to 8  $\mu$  long.

Gill-trama intricately interwoven, hyphae 2-4.5  $\mu$  broad.

Cuticle fibrillose, some hyphae more or less erect. Clamps present.

Pl. + ch. none.

HYGROPHORUS BASIDIOSUS (Pk.) Pk. [Bigelow 4494]  
(On humus, in mixed woods, Guerette, Maine, Aug. 29, 1956,  
Bigelow-4494)

Notes by Bigelow

Pileus: 1-3.5 cm. broad, convex at first with an incurved and narrowly inrolled margin, expanding to broadly convex and finally nearly plane, not striate, surface hygrophanous, a dull watery brownish gray when moist (SO 9-2°, OOS 9-3°), appearing somewhat grayish canescent in fading, finally a pale ashy buff when faded and innately fibrillose, flesh thin, concolor and fading with cap, no odor or taste.

Gills: short to moderately decurrent (evenly), subdistant to distant, arched, (*word?*), moderately broad (2-4 mm.), forked at times, color gray with a salmon tint (SO 15-2° & 3°, 14-3°), more salmon color in age, edges even and straight.

Stipe: 2.5-5 cm. long x 3-10 mm. at apex, apex usually enlarged and tapered downwards gradually, solid, curved and flexuous often, innately-fibrillose, dull, concolor with faded cap.

Notes by Hesler

Spores 5-6 x 3.5-5  $\mu$ , ovoid to subglobose, smooth, yellow in Melzer's reagent. Pleurocystidia and cheilocystidia none. Basidia 2- and 4-spored. Gill trama interwoven. Cuticle a cutis, or a slight trichodermium. Clamp connections present. No hypodermium. Pileus trama more or less radially disposed, and interwoven.

HYGROPHORUS BASIDIOSUS Pk.

On humus, in mixed woods, Guerette, Maine, Aug. 29, 1956.

Bigelow-4494.

(See same, Bigelow 4669)

Spores 5-6 (7) x 3.5-5  $\mu$ , ovoid to subglobose, smooth, yellow in Melzer's reagent. Pleurocystidia and cheilocystidia none. Basidia 2- and 4-spored. Gill trama subparallel or only slightly<sup>?</sup> interwoven. Cuticle a cutis. Clamp connections present. No hypodermium. Pileus trama more or less radially disposed and somewhat interwoven.

HYGROPHORUS BASIDIOSUS Pk.

(Bigelow: #8301)

Notes by Bigelow

Pileus 1.5-2 cm. broad, convex to plane with the margin decurved, disc dry, dull, somewhat hoary under a lens, flat, light gray (nearest "pale gull gray" but more or less with a glaucous whitish bloom to the eye); flesh thin, firm, whitish, odor and taste, not distinct.

Lamellae short to moderately decurrent, subdistant, arched, rather broad, (3-4 mm.), thickened and waxy, light gray ("drab gray" --darker than cap), pubescent under a lens!! especially sides, edges even.

Stipe 2.5-4 cm. long, 3-5 mm. thick, apex slightly flared and covering gill ends, curved, hollow, dead white, (but base end with slight orange area), innately fibrillose under a lens.

Notes by Hesler

Spores 4.5-5.5 x 3-4.5  $\mu$ , subglobose to ovoid, smooth, pale yellow in Melzer's reagent. Basidia 38-50 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 2-3.5  $\mu$  broad. Cuticle a cutis, with scattered, more or less erect short hyphae (appearing hoary to naked eye), 2.5-3.5  $\mu$  broad. Pileus trama of both radially and periclinally-disposed hyphae which are more or less interwoven. Clamp connections present.

HYGROPHORUS BOREALIS Pk.

Type: (In the original description (Rept. 26:64), Peck lists both Croghan and Copake as stations, September and October. The lid on the herbarium box is marked "Types." Within the box the Croghan and Copake collections are in separate packets and glued and mounted on labelled cards. Both lots were studied and found to be identical.)

1. Croghan Collection

Spores 8-11 (12) x 4.5-6  $\mu$ , the majority 8-9 x 4.5-5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 37-49 x 6-7 (8)  $\mu$ , 2- and 4-spored, the majority 2-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Cuticle of appressed hyphae which are only slightly gelatinous. Clamp, ~~present.~~ *connections present on the cuticular hyphae.*

2. Copake Collection

Spores 8-11 x 5-6  $\mu$ , the majority 8-9 x 4.5-5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 40-52 x 6-8  $\mu$ , 2- and 4-spored, majority 2-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Cuticle of appressed hyphae, only slightly gelatinous. Clamps present.



HYGROPHORUS BOREALIS ~~P. BISPORA~~

Pileus 1.5-3 cm. broad, convex, white, moist, not viscid, radiately appressed-fibrillose, margin even when dry, faintly striate when wet. Flesh white, thin; odor and taste mild. Lamellae decurrent, white, unchanging, subdistant, medium-broad, ventricose, many short, edges even. Stipe 2-3.5 cm. x 3-6 mm., often compressed, silky, tapering below, hollow.

Spores 9-12 x 5-6  $\mu$ , ellipsoid, smooth (spore-deposit failed). Basidia 46-58 x 6-7  $\mu$ , 2-spored, sterigmata stout, 8-11  $\mu$  long. Pleurocystidia and cheilocystidia none. Clamps none. Gill-trama interwoven.

Habitat and Distribution. - On soil, pine woods, Timberlake Road, Boarts' woods, January 1, 1960.

HYGROPHORUS BOREALIS Peck (Bigelow-4452)

Notes by Bigelow

Pileus 8-25 mm., convex with an incurved margin at first, remaining convex for some time, the disc finally somewhat flattened, faintly pellucid-striate, surface glabrous, ? hygrophanous, watery pallid fresh ("tilleul buff"), fading soon to white (color change very slight but conspicuous); flesh thick on disc, very thin at margin, concolorous and fading with cap. no odor or taste, rather brittle.

Lamellae moderately to long decurrent, subdistant to distant, arched, uneven on stipe but forming collar, narrow (1-3 mm.), white (nearest a pale pinkish buff or cartridge buff), edges even and straight, not intervenose, occasionally forked.

Stipe 2-3.5 cm. long, 3-7 mm., equal or slightly enlarged toward the base, solid (white inside) but at times cavernous in age, surface innately fibrillose, no basal tomentum to speak of, curved at times, central, white.

Gregarious under fir and beech (occasionally in clumps) on humus in mixed woods. State game preserve, near Guerette, Aroostook Co., Maine, August 28, 1956. H.E.B. #4452. card  
Spores print white.

I have not seen this collection (Bigelow-4452).

BURGDORFIENSIS SP. NOV.  
HYGROPHORUS ~~BURGDORFIENSIS SP. NOV.~~

Pileus 1-3.5 cm. broad, viscid, hygrophanous, pale yellow or "warm buff" becoming pinkish buff; lamellae decurrent, "cartridge buff" to "pale pinkish buff", broad, distant; stipe 5-7 cm. long, 2.5-4 mm. thick, dull white, equal or narrowed downward. Spores 7-9 (10) x 4-5  $\mu$ , ellipsoid. Specimen typicum in Herb. Univ. Mich.; lectum prope Burgdorf, Aug. 12, 1958, A. H. Smith n. 60169.

*ensis*  
BURGDORFIANUS SP. NOV.  
HYGROPHORUS ~~Sm-60169~~ sp. nov.

Pileus 1-3.5 cm. latus, viscidus, hygrophanus, pallidoluteus vel "warm buff" deinde "pinkish buff"; lamellae decurrentes, "cart/ridge buff" demum "pale pinkish buff," latae, distantes; stipes 5-7 cm. longus, 2.5-4 mm. crassus, albidus, aequalis vel deorsum constrictus; sporae 7-9 (10) x 4-5  $\mu$ , ellipsoideae. Specimen typicum in Herb. Univ. Mich.; lectum prope Burgdorf, Idaho, Aug. 12, 1958, A. H. Smith n. 60169.

HYGROPHORUS CANESCENS Sm. & Hes.

(Type: Smith 10031)

Spores 4-5.5 (6) x 4-4.5  $\mu$ , at times globose, more often subovoid, smooth, pale yellowish in Melzer's reagent. Basidia 34-51 x 4.5-6  $\mu$ , 2- and 4-spored, mostly 4-spored; sterigmata 5-8  $\mu$  long. Pleurocystidia and cheilocystidia none. Gill-trama compactly and intricately interwoven, hyphae 2.5-5  $\mu$  broad. Cuticle of interwoven hyphae with numerous more or less erect, slender hyphae, non-gelatinous. Clamp connections present on the cuticular and gill-trama hyphae.

HYGROPHORUS CANESCENS Sm. & Hes.

(Bigelow-9125)

Notes by Bigelow

Pileus watery-violaceous-gray, slowly fading to ashy color, not viscid. Gills pale violaceous-gray or gray. Stipe concolor with gills, canescent at apex, not viscid.

Notes by Hesler

Spores 4-5 x 3.5-4  $\mu$ , ovoid or subglobose, smooth, yellowish in Melzer's reagent. Basidia 36-43 x 5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 2.5-4  $\mu$  broad. Cuticle of repent hyphae, with some more or less erect hyphae. Clamp connections present.

This is close to H. pallidus which has a gelatinous cuticle and a white stipe. Your No. 9125 may have been canescent, a point that bothers me some. - L. R. Hesler.

HYGROPHORUS COLEMANIANUS Blöxem

Smith 7577 (U-T 13710), La Badie Lake, Oak County, Michigan,  
September 14, 1937.

Spores 6-8 x 4.5-6  $\mu$ , ellipsoid, a few subvoid, smooth,  
yellowish in Melzer's reagent. Basidia 37-51 x 6-8  $\mu$ ,  
4-spored, sterigmata 4-8  $\mu$  long. Fleurocystidia and  
cheilocystidia none. Gill-trama intricately interwoven, hyphae  
5-8  $\mu$  broad. Cuticle a narrow zone of gelatinous hyphae. Clamp  
connections present on the hyphae of the cuticle and gill-trama.

Sm-62062

HYGROPHORUS COLEMANIANUS Blox.

Spores (5.5) 6-8 x 4.5-5.5 u, ellipsoid to ovoid, smooth, yellow in Melzer's. Basidia 42-54 x 6-7 u, 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven (at times moderately, again intricately interwoven), hyphae 4-6 u broad. Cuticle a narrow gelatinous zone, 60-80 u thick. Clamp connections few on the cuticular hyphae.

In this collection the cap is darker than in other collections under this name.



HYGROPHORUS CREMEUS(Murr.)Dennis

No. 73, from Trinidad, Sept. 27, 1949

Spores 7.5-9 x 4.5-6  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 37-46 x 5-6.5  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 3-5  $\mu$  broad. Cuticle not differentiated, surface hyphae repent, 3-5  $\mu$  broad, with clamp connections.

Pileus trama of radial hyphae.

HYGROPHORUS CREMICOLOR Murr.

Type: No. 568, on ground, in woods, Seattle, Washington, October 20-November 1, 1911, W. A. Merrill.

Spores 5.5-7 (8) x 3.5-4.5  $\mu$ , ellipsoid, smooth, pale yellow in Melzer's reagent. Basidia 34-46 x 4-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Cuticle of loosely tangled non-gelatinous hyphae. Clamp connections present on the cuticular hyphae.

Sm-50254 HYGROPHORUS CREMICOLOR Murr.

Spores 5-6.5 x 3.5-4.5  $\mu$ , short ellipsoid, subglobose, to ovoid, smooth, yellow in Melzer's reagent. Basidia 38-50 x 5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama intricately interwoven, hyphae 4-9  $\mu$  broad. Cuticle of appressed, non-gelatinous hyphae. Clamp connections present on the cuticular hyphae.

Sm-54279 HYGROPHORUS CREMICOLOR Murr.

Notes by Smith

Pileus pale pinkish buff, margin pale salmon, buff the disk, dry, appressed-fibrillose. Odor fragrant but faint, taste mild. Lamellae subdecurrent, broad, distant, salmon-buff. Stipe dry, pale buff, almost concolor with the pileus, naked, no evidence of a veil.

Notes by Hesler

Spores not many found, 5-6 (7) x 3.5-4.5  $\mu$ , ellipsoid to subglobose, smooth, colorless in Melzer's reagent. Basidia 38-50 x 5-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven, hyphae 2-5  $\mu$  broad. Cuticle of repent hyphae, non-gelatinous. Clamp connections present on the cuticular and gill-trama hyphae.

The dried carpophore resembles that of the type very well.

Sm-58239 HYGROPHORUS CREMICOLOR Murr.

Notes by Smith

Gregarious, Reese's Bog Chev. County, Michigan, September 18, 1957, A. H. Smith 58239. Stature of pratensis but this one is yellow all over.

Pileus 3-4 cm. broad, obtuse with an incurved margin, becoming expanded-umbonate, surface moist and hygrophanous, darker than "chamois" fading to pale yellow (pale cream buff), zonate, moist, azonate faded; flesh yellowish, no odor or taste, no color changes.

Lamellae distant, decurrent, broad, rich "cream buff" (yellow--almost like faded cap).

Stipe 3-4 cm. long, 4-9 mm. thick, narrowed downward, naked evenly "cream color" or paler, unchanging.

Spores 5-6 x 4-5  $\mu$ . Basidia 4-spored. Clamp connections present.

Notes by Hesler

Spores 5-6 x 3.5-4.5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 37-48 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama intricately interwoven, hyphae 3-6  $\mu$  broad. Cuticle of repent, non-gelatinous hyphae. Clamp connections present on the cuticular hyphae.

HYGROPHORUS CREMICOLOR (Murr.) Murr.

(Bigelow-9130)

Notes by Bigelow

Pileus 4 cm., glabrous, "pale yellow-orange." Gills decurrent, "buff yellow," distant, forked. Stipe 5 cm. x 9 mm., "pale yellow-orange," base narrowed.

Notes by Hesler

Spores 4.5-6.5 x 3.5-4.5  $\mu$ , pip-shaped to slender, ovoid, at times subglobose, smooth, pale yellow in Melzer's reagent. Basidia 42-57 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-6  $\mu$  broad. Pileus trama of radial, interwoven hyphae. Cuticle a cutis, with a few more or less erect hyphae. Clamps present.

A good find! The type is from Washington, in 1911; Smith has it from Idaho and Michigan.

UT-23854

HYGROPHORUS FOETENS Phillips

(from Netherlands)

Notes by Bas

Cap dark dingy sepia, somewhat paler when young and then with pale margin, granular at first, surface soon cracking and with peeling scales, two specimens with perforated centre.

Gills at first pale greyish brownish and decurrent, later on dark grey-brown and sometimes more or less ventricose, unciniate.

Stalk yellowish brown to brown, later on dark, especially near base, innate fibrillose, dull, with some scattered superficial fibrils.

Smell reminds one of Tricholoma sulfureum, not the same however.

Notes by Hesler

Spores 4.5-7 x 4.5-5.5  $\mu$ , globose, subglobose, or short-ellipsoid, smooth. Basidia 37-43 x 5-6  $\mu$ . Pleurocystidia and cheilocystidia none. Gill trama somewhat interwoven, hyphae 4-7  $\mu$  broad. Cuticle of cells, 15-30 x 11-18  $\mu$ . Pileus trama of more or less ~~periclinally~~ <sup>radially</sup> disposed hyphae.

UT-23848

HYGROPHORUS FUSCESCENS Bres.

(from Netherlands, Bas-1662)

Notes by Bas

Cap 10-30 mm.  $\emptyset$ , convex to plano-convex, mostly with small papilla, in old specimens centre sometimes flattened, margin slightly incurved at first, constantly isabella-chamois, with slightly darker hyaline spot in centre, slightly paler near margin,  $3/4$  striate, slightly greasy-viscid.

Gills concolor with cap.

Stalk 40-63 x 2-4.5 mm., mostly attenuated downwards, also tinged pale brownish, innate fibrillose, slightly pruinose near apex, becoming fistulose.

Smell very faint, slightly reminding of H. russo-coriaceus.  
Taste mild.

Spores 9-10 x 5-5.5  $\mu$ , basidia 4-spored.

Note: Has not the bright brown colour of H. subradiatus.  
Was growing in isolated fairy ring in meadow with much H. virgineus (= H. niveus). Distinguishable by pale brownish tinge. Central dark spot and smell (more fruity in H. virg.), or herbaceous.

Notes by Hesler

Spores 7-9 x (3.5) 4-5.2  $\mu$ , ellipsoid, smooth, pale yellow

(more)



in Melzer's reagent. Basidia 41-45 x 6-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 3-5  $\mu$  broad. Cuticle a zone of repent, somewhat gelatinous hyphae. Pileus trama of radial hyphae. I have not seen this before.

HYGROPHORUS LACMUS Fr.  
Epicr. Myc., p. 329. 1838.  
(from Wakefield and Dennis)

Omit

~~Camarophyllus~~

Pileus 2.5-5 cm. broad, convex, umbonate, lilac, becoming pale, smooth, disk becoming slightly scurfy or fibrillose, radiately striate when moist, shining when dry. Context greyish, yellowish at the base of the stipe.

Lamellae decurrent, grey, thin, rather distant, venose-connected.

Stipe 2.5-5 cm. long, up to 1.3 mm. thick, white or greyish, often tinged yellow below, narrow at apex and base.

Spores 6.5-7.5 x 5.5-6  $\mu$ , subglobose, white. (Bresadola gives spores as globose-ovoid, 7-9  $\mu$ , rarely 10 x 6-8  $\mu$ .)

Hongo (1958a) reports it from Japan, Nov.

Synonym: H. subradiatus var. lacmus (Schum.) Fr. 1838.  
C. lacmus (Schum. - Fr.) J. Gange, 1938.

HYGROPHORUS LACMUS Fr.

(from Kew Herb. In pasture, Invernessshire, D. A. Reid,  
11-9-57)

Spores 6-8 x 5-5.5  $\mu$ , ovoid to ellipsoid, smooth, pale yellow in Melzer's reagent. Basidia 44-56 x 8-9  $\mu$ . Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-8  $\mu$  broad. Cuticle an ixotrichodermium.

(from Airemore, Scotland, 29-9-53, Reid)

Spores 6-7 x 4.5-5.5  $\mu$ , as above.

(from Killarney, det. A. A. Pearson, 29-8-46)

(from Southampton, J. F. Raynor, 21-8-20)

HYGROPHORUS LACMUS Fr.

(from near Brussels, Belgium, P. Heinemann, Sept. 25, 1960)

Spores 5-6 (7) x 4.5-5  $\mu$ , subglobose to ovoid, smooth, pale yellow in Melzer's reagent. Basidia 43-52 x 6-7  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 2.5-5  $\mu$  broad. Cuticle an ixotrichodermium, hyphae 2.5-5  $\mu$  broad. No hypodermium. Pileus trama of radial hyphae. Clamp connections few, inconspicuous.

J. Lange says Velenovsky has described this under H. globisporus.

(See also U-T 23979, from Heinemann) -

HYGROPHORUS MICROSPORUS Sm. & Hes.

Type (Sm. 15455), La Badie Lake, Oakland County, Michigan,  
September 24, 1940.

Spores (3) 4-4.5 x 2.5-3  $\mu$ , ellipsoid to subglobose, smooth, pale yellowish in Melzer's reagent. Basidia 18-32 x 4-5.5  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama of slightly interwoven hyphae (interwoven in fresh material—see Lloydia 5:11), hyphae 2.5-5 (8)  $\mu$  broad. Cuticle more or less a turf of fuscous, septate pilocystidia, accompanied by occasional darker brown hyphae with clamp connections.

CLITOCYBE NIVEICOLOR Murr.

(=Hygrophorus niveicolor (Murr.) Sm. & Hes.)

Type: On ground, Motzorongo, near Cardoba, Mexico,  
January 15, 1910, W. A. Murrill and Edna L. Murrill.

Spores 10-14 x 7-9  $\mu$ , ellipsoid, smooth, pale yellow in  
Melzer's reagent. Basidia 62-76 x 9-12  $\mu$ , mostly 4-spored, a  
few 2-spored. Pleurocystidia and cheilocystidia none. Gill-trama  
interwoven, hyphae broad, 8-17  $\mu$ . Cuticle fibrillose. Clamps  
present on the gill-trama hyphae.

*lamellae rather narrow in the type.*

HYGROPHORUS (niveus var. roseipes?)

(Bigelow: #7858)

Notes by Bigelow

Pileus 6-15 mm. broad, convex or plane, soon depressed, watery white when moist, not striate, white when faded, glabrous; flesh thin, white, no odor and taste.

Lamellae long decurrent, narrow, arched, subdistant, white, edges even.

Stipe 1-1.5 cm. long, 2-4 mm. at apex, tapering down to narrow base, solid, glabrous, compressed at times, white above, base with pink blush.

Spores 5-6.5 x 2-3.5  $\mu$ , elliptical, smooth, hyaline in KOH, not amyloid. Basidia 31-48 x 3-4.5  $\mu$ , 4-spored. No cystidia.

Pileus tissue surface slightly gelatinous in KOH, no pigment, cuticular hyphae, cylindrical, 1-2.5  $\mu$ , cells short to moderately long, walls thin, clamps present, tramal hyphae cylindrical, 2-6.5  $\mu$ , cells usually short, walls thin; clamps present. Gill trama interwoven, hyphae as in pileus trama.

Notes by Hesler

Spores 5-7 x 3-4  $\mu$ , tear-drop-shaped or slender pyriform, to subellipsoid, smooth, pale yellow in Melzer's reagent. Basidia 30-46 x 3.5-5  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae narrow. Cuticle a thin ixocutis. Clamp connections present.

There is a variety roseipes Masee, attached to H. virgineus.

Orton(1960:247, foot-note) says: "Fruit-body size is no criterion for separating niveus and virginéus; virgineus does seem to be consistently larger and coarser (so far as my few collections show), but I have also found large coarse specimens of niveus, as evidenced by the smaller spores, in company with smaller specimens; niveus, virgineus and berkeleyi are all prone to a pathological condition(not investigated- perhaps, bacterial) in which the stem or cap surface turns pink in places; this is var. roseipes of older authors, a worthless name."



HYGROPHORUS NIVEUS Fr.

(Bigelow-8767)

Notes by Bigelow

Pileus 7-25 mm. broad, watery-white, convex to plane. Lamellae decurrent, white, narrow, subdistant to distant, arched. Stipe 1-3 cm. x 2-7 mm., white, or base incarnate, equal or base enlarged.

Notes by Hesler

Spores (8) 9-12 x 5-6  $\mu$ , variable in same field, ellipsoid, smooth, yellow in Melzer's reagent. Basidia 43-52 x 5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-7  $\mu$  broad. Cuticle a cutis, at times a narrow band of gelatinous hyphae.

Bigelow's label says: cf. card 7858.

HYGROPHORUS NIVEUS Fr.

1) Collection at the New York Botanical Garden from the Bresadola Herbarium, collected and determined by J. Bresadola, 1901.

Spores 7.5-10 (11) x 4.5-5.5  $\mu$ , ellipsoid, smooth, pale yellowish in Melzer's reagent. Basidia 36-44 x 6-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Epicutis composed of gelatinous, loosely-arranged hyphae, at times semi-erect. Clamps present in the epicutis and pileus-trama. Lange and Moser report 2- and 4-spored forms. Bresadola gives the spores 6-8 x 5-6  $\mu$  in his Icon. Myc. 7.

2) Collection at the New York Botanical Garden, collected by Mrs. C. S. Newhall, Woodside, California, January 1934, determined by Elizabeth Morse.

Spores 8-10 (11) x 4-5.5  $\mu$ , ellipsoid, smooth, pale yellowish in Melzer's reagent. Basidia 38-46 x 5-7  $\mu$ , 4-spored. Gill-trama interwoven. Cuticle as in Bresadola collection. Clamps present.

HYGROPHORUS NIVEUS var. FUSCIDULA

Collection from New York Botanical Garden, ex-herbarium of J. Bresadola, collected and determined by J. Bresadola, 1901.

Spores 7.5-10 (11) x 4-5.5  $\mu$ , ellipsoid, smooth, pale yellowish in Melzer's reagent. Basidia 40-54 x 6-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Epicutis as in Bresadola's collection of H. niveus. Clamps present in the epicutis.

Bresadola, in his Icones 7:330, 1928, gives H. niveus var. fuscescens Bres., but I find no var. fuscidula in his work. He gives the spores 9-12 x 5-6.5  $\mu$ , basidia 40-50 x 6-7  $\mu$ . It is probable that in labelling the packet, <sup>in his collection at New York,</sup> Bresadola meant to write fuscescens instead of fuscidula.

HYGROPHORUS NORDMANENSIS sp. nov.

Notes by Smith (SM-54328)

Pileus benzo brown. Odor of green corn. Lamellae benzo brown, distant, decurrent, Stipe pallid.

Notes by Hesler

Spores 7-11 x 4.5-5.5  $\mu$ , ellipsoid, smooth, yellow in Melzer's reagent. Basidia 38-50 x 5-8  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven, hyphae 5-12  $\mu$  broad. Cuticle a narrow (20-40  $\mu$ ) gelatinous zone, the hyphae narrow (1.5-3  $\mu$ ), repent, radial, not differentiated from the pileus trama hyphae. No hypodermium. Pileus trama hyphae radial, subparallel. Clamp connections not found.

HYGROPHORUS OBCONICUS Pk.

Type: on soil, in swamp, in sphagnum, under deciduous trees, collected by Simon Davis, Stow, Massachusetts, September 16, 1907.

Spores 4-6 x 3.5-4.5  $\mu$ , subglobose to short-ellipsoid, smooth, non-amyloid (Davis, in his notes accompanying the type, says spores are white). Basidia 38-51 x 5-6  $\mu$ , 2- and 4-spored. Gill-trama interwoven, hyphae 2.5-4  $\mu$  broad. Pleurocystidia and cheilocystidia none. Cuticle of non-gelatinous hyphae. Clamps <sup>connections rare on</sup> ~~present in the cuticle,~~ <sup>ular hyphae.</sup>

HYGROPHORUS PALLIDUS var. LUTE<sup>1</sup>~~Ø~~FOLIUS var. nov.

(H-23760)

Pileus 2-3 cm. broad, sub-conic then convex, finally plane, "benzo brown", finally fading to "pale ecru-drab", glabrous, moist to subviscid, margin even. Flesh whitish, fragile; odor mild, taste mild becoming slightly bitter to astringent.

Lamellae arcuate-decurrent, white, tinted yellow with a smoky tint, becoming yellowish in age, distant or subdistant, medium-broad, rarely forking, intervenose, alternate long and short.

Stipe 3-7 cm. x 5-7 mm., white, base yellow, in age yellow over all, appressed-fibrillose, more or less rimose, spongy, often curved, equal.

Spores 5.5-7 x 4.5-5  $\mu$ , broadly ellipsoid to broadly ovoid, smooth, colorless in Melzer's reagent. Basidia 44-53 x 7-9  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 8-12  $\mu$  broad. Cuticle of tangled hyphae; clamp connections few.

HYGROPHORUS PALLIDUS Pk.

Type: collected by Simon Davis, Massachusetts, September 11, 1901.

Spores 5-6 x 3.5-5  $\mu$ , subglobose to subvoid, a few short-ellipsoid, smooth, pale yellow in Melzer's reagent. Basidia 37-44 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven, hyphae 4-6  $\mu$  broad. Cuticle fibrillose, often of numerous, non-gelatinous, loosely-tangled hyphae. Clamps present.

In the box is a label: Hygrophorus basidiosus Pk.  
(=H. pallidus Pk.).

The type of H. pallidus is confusing. It is pinkish buff to warm buff, and gives the appearance of never having been smoky-violaceous. Could labels or specimens have gotten switched?

HYGROPHORUS PALLIDUS Pk.

(Notes on Type by Alexander H. Smith)

The other collection is the type of H. pallidus which is clear from the letter in Davis' handwriting and the date 1901. The type of H. basidiosus was described under Clitocybe in 1888. The data I get from this type is as follows: 1. Spores 5-6 x 4.5-5  $\mu$ , sub-globose to broadly ellipsoid, with as short but conspicuous apiculus (sterig-appendage), smooth, thin-walled, non-amyloid. 2. Basidia 34-37 x 5-6  $\mu$ , clavate, hyaline, non-amyloid, 4-spored. 4. Cystidia none on side or edge. 5. Gill trama of hyaline interwoven hyphae 3-7  $\mu$  diam. thin-walled, walls smooth. No gelatinous epicutis present but some hyphae at surface ascending to upright at tip but not well differentiated from the context hyphae, no granules or amyloid (or pseudo amyloid) reactions anywhere in Melzers' sol. Clamps abundant.

The specimens now designated as the type almost certainly were never hygrophanous and never striatulate. Hence we feel certain that somehow the specimens now in the box are not those originally sent by S. Davis. It may be true however that the change from violaceous to pallid on the pileus was merely interpreted by Davis as indicating an hygrophanous condition when actually it did not. At present we are not able to resolve this enigma. H. canescens appears most similar in the dried condition but it



has a dark colored stipe above the ground line, lacks striations on the cap when moist, and apparently much darker colors generally beneath canescence. However, it is a possibility that these two are the same.

Sm-62130

HYGROPHORUS PALLIDUS Pk.

Spores 5-6 x 4-5  $\mu$ , globose to subglobose, at times short-ellipsoid, smooth, yellowish in Melzer's. Basidia 33-40 x 5-6  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama intricately interwoven, hyphae 3-6  $\mu$  broad. Cuticle a well-defined, gelatinous zone, 60-90  $\mu$  thick. Clamp connections on the cuticular hyphae.

HYGROPHORUS PECKIANUS Howe

Notes on Coker's Collections

Coker's No. 5334, on damp soil, deciduous swamp, Chapel Hill, North Carolina, collected by J. N. Couch, July 10, 1922. Collection too fragmentary for study. Coker's notes give the spores  $4.8-6.5 \times 3.6-4.2 \mu$ .

Coker's No. 2798, in mossy grass, on lawn, Chapel Hill, North Carolina, July 28, 1917, collected by W. C. Coker. Collection consists of one carpophore which resembles H. peckianus. Too sparse to section.

Coker's No. 2620, on rocky soil, Chapel Hill, North Carolina, collected by W. C. Coker, July 9, 1917. Photo. Collection consists of parts of two carpophores. Too sparse for sectioning. Coker's notes give the spores  $4-5.5 \times 3.7-4 \mu$ .

HYGROPHORUS PECKIANUS Howe

From New York Botanical Garden, collected by Davis,  
August 30, 1906, Stow, Massachusetts (Not the Type).

Spores 4-5.5 x 3.5-4.5  $\mu$ , globose, subglobose, at times short-ellipsoid, smooth, pale yellowish in Melzer's reagent. Basidia 38-50 x 5-8  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Cuticle of appressed hyphae, at times the free ends more or less erect. Clamps none.

HYGROPHORUS PRATENSIS Fr.

(Bigelow-8801)

Notes by Bigelow

Pileus pale sordid buff, appearing greasy, glabrous, striate. Gills long decurrent, whitish, broad, subdistant to distant. Stipe concolor with pileus, glabrous.

Notes by Hesler

Spores 5.5-8 (9) x (3.5) 4-5.5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 38-54 x (6) 7-8  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-9  $\mu$  broad. Cuticle of repent, non-gelatinous hyphae, -a cutis.

The thin flesh and pileus-striations are not usual in this species. But I can not place it elsewhere.

UT-23857 HYGROPHORUS PRATENSIS (Pers. ex Fr.) Fr.

(from Netherlands, Bas-1656)

Notes by Bas

Cap 3-7 cm. across, broadly conical with slightly involute margin at first, sometimes with faint umbo, later on more or less flat with faint umbo, salmon-orange, always paler near margin, soon fading to very pale salmon-cream, slightly hygrophanous, paler and slightly striped when drying.

Gills pale ochraceous salmon or salmon-cream.

Stalk 4-8 x 0.4-1 cm., equal or attenuated downwards, sometimes very much incrassate at insertion of the gills, creamy white with pale salmon tinge, adpressed fibrillose.

Flesh white with pale salmon tinge, orange-salmon near cuticle. Smell faint, pleasant. Taste faint, slightly bitter.

Notes by Hesler

Nice material. Microscopic characters agree with those of other collections which I have studied.

HYGROPHORUS RAINIERENSIS sp. nov.

Pileus 1-3 cm. latus, convexus demum planus, atropurpureus demum cinereus, viscidus, hygrophanus; odor proprius; lamellae decurrentes, pallido-purpureo-cineraceae demum ochreae, confertae vel subdistantes, angustae; stipes 3-4 cm. <sup>longus,</sup> ~~3-5 mm~~ <sup>crassus,</sup> ~~X~~ siccus, albidus; sporae 5-6.5 (7) x (3.5) 4-5.5  $\mu$ , ellipsoideae vel subglobosae. Specimen typicum in Herb. Univ. Mich.; lectum juxta Lower Tahoma Creek, Mt. Rainier Nat. Park, Wash., Sept. 27, 1955, A. H. Smith n. 47958.

Sm-50850

HYGROPHORUS RAINIERENSIS

Spores 5-6 (7) x (3.5) 4.5-5  $\mu$ , rarely ellipsoid, mostly subglobose or ovoid, smooth, yellowish in Melzer's reagent. Basidia 42-55 x 6-7  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-7  $\mu$  broad. Cuticle a gelatinous zone, 60-85  $\mu$  thick. Clamp connections on the cuticular hyphae.

This fits best in rainierensis, but the dried specimens do not resemble Sm-47958 "type" of rainierensis. Possibly the latter were older when collected, and they dried darker than Sm-50850.

Coll. AHS, <sup>Mich.</sup> Jahnquamenon, Oct 5 - 1955.



HYGROPHORUS RAINIERENSIS sp. nov.

Sm-47958 (type), Lower Tahoma, Mt. Rainier National Park, coll.  
Bigelow, September 27, 1954.

(Notes by Smith)

Pileus dark purple drab, disk tinged cinnamon buff when faded, striate. Odor strong of green corn. Gills pale purple drab. Stipe white, dry.

(Notes by Hesler)

Spores 5-6.5 (7) x 4-5  $\mu$  (an occasional spore 9 x 5.5  $\mu$ ), ovoid or subglobose, rarely globose, smooth, pale yellow in Melzer's reagent. Basidia 34-48 x 4.5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven, hyphae 3.5-6  $\mu$  broad. Cuticle a clear, gelatinous zone, 60-90  $\mu$  thick, with narrow (1-2.5  $\mu$ ) hyphae more or less interwoven. Pileus trama of subparallel, radially disposed hyphae. Clamp connections small, on the cuticular hyphae.

HYGROPHORUS RECURVATUS Pk.

Smith 9447 (U-T 13730), California, December 6, 1937.

Spores 7-9 (10) x 4-5 (6)  $\mu$ , ellipsoid, smooth, yellow in Melzer's reagent. Basidia 38-47 x 6-8  $\mu$ , 4-spored, occasionally 2-spored, sterigmata 4-8  $\mu$  long. Pleurocystidia and cheilocystidia none. Gill-trama intricately interwoven, hyphae 3-7  $\mu$  broad. Cuticle of colorless, subgelatinous hyphae beneath which are hyphae which are brownish-yellow in Melzer's reagent. Clamp connections present on the cuticular and gill-trama hyphae.

HYGROPHORUS RECURVATUS Pk.

Type: collected by Miss E. C. Webster, Canandaigua,  
New York, October 1911.

Spores 7.5-9 (10) x 4.5-5.5 (6)  $\mu$ , ellipsoid, smooth,  
yellowish in Melzer's reagent. Basidia 44-55 x 6-8  $\mu$ , 4-spored.  
Pleurocystidia and cheilocystidia none. Gill-trama interwoven,  
hyphae 4-7  $\mu$  broad. Cuticle well-defined, composed of parallel  
hyphae (radially disposed), showing an innermost brown zone  
and an outer, thin slightly gelatinous layer. Clamps absent.

HYGROPHORUS RECURVATUS Pk.

Notes by Smith

Gregarious on moss, Grant Creek, Priest Lake, Idaho, October 18, 1956. A. H. Smith 54976 (Photo.).

Pileus 1-3 cm. broad, convex expanding to plane or slightly depressed, surface glabrous, viscid, widely striate, color (not in Ridgway) near "mummy brown" to near "cinnamon brown" on disk paler over striate margin, (near "snuff brown" but grayer); flesh white, soft, odor none, taste mild.

Gills distant, decurrent, broad, white young, becoming grayish in age, soft and waxy, edges even.

Stipe 3-6 cm. long, 3-5 mm. thick, equal or nearly so, solid, soft and fragile, pallid to white, surface dry and no veil present, in age brownish but base usually remaining pallid.

Spores 8-10 x 5-6  $\mu$ . Gill-trama intricately interwoven. Clamps present.

Notes by Hesler

Spores 7-9 x 4-5.5  $\mu$ , ellipsoid, smooth, pale yellow in Melzer's reagent. Basidia 43-56 x 5-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama intricately interwoven, hyphae 2-4  $\mu$  broad. Cuticle a narrow (40-50  $\mu$  broad), gelatinous zone. Clamp connections present.

Same as Sm-55132.

OMPHALINA AUSTRALIS Murrill

Florida Acad. Sci. Proc. 7:111. 1945

*H. recurvatus*

"Pileus convex, umbilicate, gregarious, reaching 1.7 cm. broad; surface dry, glabrous, hygrophanous, very pale avellaneous-isabelline with fuliginous center, reddish-brown when dry, margin entire, striate; context very thin, odorless; lamellae arcuate-decurrent, inserted, distant, medium broad, white, entire; spores ellipsoid, smooth, hyaline, uniguttulate, 7-8 x 4-5  $\mu$ ; cystidia none; stipe slightly tapering downward, cartilaginous, smooth, glabrous, white, drying pale-reddish-brown, about 3 x 0.2 cm.

"Type collected by W. A. Murrill in leaf-mold in low frondose woods at Gulf Hammock, Levy Co., Fla., Jan. 14, 1940 (F 19334). Not collected elsewhere."

Discussion. - Singer (p. 148) says this is a form of Hygrophorus (Camarophyllus) recurvatus, as is also Clitocybe praticola Murr.

Notes on Type

Spores 7-9 x 3.5-4.5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Basidia 33-40 x 6-7  $\mu$ .

Hygrophorus recurvatus Pk.

( = CLITOCYBE PRATICOLA Murrill )  
Lloydia 5:136. 1942

"Pileus convex to depressed, gregarious, 1.5-2.5 cm. broad; surface dry, smooth, glabrous, dark-avellaneous, paler on drying; margin even, entire to undulate, strongly deflexed until maturity; context thin, pallid, hygrophanous, odorless, mild; lamellae decurrent, distant, rather narrow, with short narrower ones inserted near the margin, entire, white, grayish when dry; spores pip-shaped, slightly curved at times, obliquely apiculate, 1-guttulate, smooth, hyaline, 7-8 x 3-4  $\mu$ ; cystidia none; stipe fleshy, usually much enlarged upward, smooth, glabrous, pale-avellaneous or pallid, about 1.5-2 x 0.1-0.4 cm."

Habitat and Distribution. - On lawn, Florida, January.

Discussion. - Singer (p. 148) says this is a form of Hygrophorus recurvatus Pk.

CLITOCYBE PRATICOLA Murr.

(=Hygrophorus recurvatus Pk.)

Part of Type: on lawn, Gainesville, Florida, W. A.  
Murrill, January 8, 1940.

Spores 7-9 x 3.5-4  $\mu$ , oblong-ellipsoid, obliquely apiculate, smooth, pale yellow in Melzer's reagent. Basidia 37-48 x 5-7  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama interwoven. Cuticle fibrillose. Clamps present in cuticle and gill-trama.

UT-23855

HYGROPHORUS RUSSOCORIACEUS

(from Netherlands, Bas-1661)

Notes by Bas

Cap 12-33 mm. across, ivory yellow with darker centre. 2/3 to 3/4 striate when moist, slightly viscid, at last becoming faintly umbilicate.

Gills white to white-cream.

Stalk 30-45 x 2-3.5 mm., hollow equal or slightly thickened downwards, white or dingy white, sometimes pinkish at base, innate fibrillose, glabrous; apex slightly granulose.

Flesh yellowish white.

Smell strong like Russian leather or wood of cedar.

Notes by Hesler

Spores 9-13 x 4.5-6  $\mu$ , highly variable in a given mount, ellipsoid, often irregularly inequilateral, smooth, pale yellow in Melzer's. Basidia 45-54 x 5-7  $\mu$ , 1-, 2-, and 4-spored (mostly 2-spored in those basidia observed). Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 3-6  $\mu$  broad. Cuticle a very thin zone of gelatinous hyphae. Pileus trama more or less radial.



HYGROPHORUS SUBFUSCESCENS Sm. & Hes.

(on moss, low, wet conifer woods, Aroostook Co., Maine, Aug. 27,  
1956, Bigelow-4424)

Notes by Bigelow

Pileus: 8-15 mm. broad, convex at first with an incurved margin, expanding somewhat to broadly convex with the disc flattened, not striate, surface dry, somewhat canescent under a lens, color a grayish pale ochraceous buff (nearest 014 & 15-4<sup>o</sup>), flesh pale ochraceous buff, moderately thick, firm but brittle, no odor and taste.

Lamellae: moderately decurrent (unevenly), distant, 2-3 mm. broad, arched, color near "light ochraceous salmon" but duller (00S 15 & 16-5<sup>o</sup>) edges even and straight.

Stipe: 2.5-3 cm. broad, 3-5 cm. at apex, apex enlarged and gradually tapered down, hollow, curved or flexuous at times, glabrous, somewhat cartilaginous-appearing, pale "salmon buff" at apex, "pale ochraceous buff" below.

Notes by Hesler

Spores 5-5.8 x 4-5  $\mu$ , subglobose to short-ellipsoid, smooth, pale yellowish in Melzer's. Basidia 35-42 x 5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama of interwoven hyphae, 2.5-5 (8)  $\mu$  broad. Cuticle of vesiculose cells 12-30 (60) x 12-22  $\mu$ , non-gelatinous. Pileus trama of radial hyphae. Clamp connections none.

HYGROPHORUS SUBRADIATUS Fr.

(from Switzerland. Coll. & det. HSC Huijsman, Oct. 30, 1960)

Spores 7.5-9 (10) x 4-5.5 (6)  $\mu$ , ellipsoid, smooth, pale yellow in Melzer's. Basidia 43-56 x 6-8 (9)  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven. Cuticle an undifferentiated cutis. Pileus trama of radially disposed, interwoven hyphae.

HYGROPHORUS SUBRADIATUS Fr.

Dennis No. 184A, Trinidad, Nov. 25, 1949

Spores 7-9.5 x 4-5  $\mu$ , ellipsoid, smooth, yellowish in Melzer's reagent. Basidia 35-44 x 6-8  $\mu$ , 4-spored. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 4-7  $\mu$  broad. Lactifers present in pileus trama, 5-7  $\mu$  broad. Cuticle not differentiated, hyphae on the surface non-gelatinous, repent, brownish. Clamp connections present on surface hyphae.

UT-23840

HYGROPHORUS SUBRADIATUS

(from Czechoslovakia, Bas 2100)

Notes by Bas

Cap reddish brown (Expo F<sup>44</sup>-43, centre M<sup>44</sup>), without grey, outmost margin pale "cape-au-lait", vaguely striate, greasy-subviscid, some slender specimens pale "cafe-au-lait" with distinct dark central spot, belonging however, to the same species without doubt. Basidia 2- and 4-spored.

Gills pale greyish brown already when young.

Stalk white, slightly brownish tinged, innate fibrillose, somewhat shiny, base slightly whitish toment.

Context white, brownish in cap centre.

Fits very well pl. 378, Konrad & Maublanc (H. colemannius). With facts available at present, I think there is no reason to separate H. colemannius and H. subradiatus.

Notes by Hesler

The spores in our material at times are a bit longer. Spores 7-8.5 x 4.5-5  $\mu$ , ellipsoid, smooth. Basidia 41-48 x 6-8  $\mu$ , 4-spored, sterigmata often long (up to 8  $\mu$ ). Pleurocystidia and cheilocystidia none. Gill trama intricately interwoven, hyphae 5-8  $\mu$  broad. Cuticle of repent, non-gelatinous hyphae. In our material, H. colemannianus has a viscid pileus.

HYGROPHORUS SUBVIOLACEUS Pk.

Peck's Type, from Meadowdale, October

Spores 7-8 (9) x 4.5-6  $\mu$ , ellipsoid to ovoid, smooth, yellowish in Melzer's reagent. Basidia 42-48 x 6-8  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama intricately interwoven, hyphae 3-7  $\mu$  broad. Cuticle of colorless, gelatinous hyphae. Clamp connections present on the cuticular hyphae.

The pileus is "saya brown" to "verona brown."

HYGROPHORUS SUBVIOLACEUS Pk.

(Notes on Type by Alexander H. Smith)

This collection is authentic and here are my data:

1. Clamps present. 2. Pileus epicutis of narrow gelatinous hyphae 3-5 " diam., hyaline, thin-walled, no incrustations.
3. Pileus context interwoven, hyaline, non-gelatinous hyphae 5-10  $\mu$  diam. thin walled and smooth, no Melzer's reaction and no dark granules in any hyphae anywhere. 4. Gill trama interwoven, hyphae more or less like those of context, subhymenium of narrower more intricately interwoven narrow hyphae. 5. Basidia narrowly clavate, 33-37 x 5-7  $\mu$ , 4-spored (only ones seen - 3 in all). 6. Spores 7-8 x 5  $\mu$  broadly ellipsoid to nearly subglobose, smooth, thin-walled, non-amyloid. This species is exactly as we described it so we have nothing to change.

HYGROPHORUS SUBVIOLACEUS Pk.

(Bigelow-9412)

Notes by Bigelow

Pileus 1.3-2.8 cm. broad, plane with broad umbo, glabrous, greasy-appearing but not viscid to touch when moist "clove brown" on disc and striations when moist, "wood brown" between striations; cap fading to "tilleul buff", disc outward; flesh thin, concolor with moist cap, fading to whitish, no odor or taste.

Lamellae decurrent, subdistant to distant, anastomosed and intervenose, narrow (2-4 mm.), ends acuminate, "light-drab" young, "benzo brown" older, edges even.

Stipe 2-4 cm. long, 4-5 mm. thick at apex, tapering downward, eccentric at times, slightly compressed at times, solid, glabrous, "tilleul buff."

Notes by Hesler

Spores 6-8 x 4-5  $\mu$ , ellipsoid, smooth, yellow in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill trama interwoven, hyphae 5-8  $\mu$  broad. Cuticle a gelatinous zone 30-50  $\mu$  broad.

The taste is not always bitter. I confess in calling this subviolaceus that it is close to cinereus the type of which I have of course not seen. The viscidness of the pileus varies, but in the cap sectioned there was a gelatinous cuticle.



UT-23844

HYGROPHORUS VIRGINEUS

(from Netherlands, Bas-1674)

Notes by Bas

Cap 18-42 mm. across, convex or plano-convex to plane or even irregularly concave, centre sometimes faintly umbilicate, sometimes papillate, white to cream or pale ivory yellow, without dark centre, fatty, 1/2 striate when moist, sometimes white pruinose from parasitic fungus (Acremonium?)

Gills white to cream-white.

Stalk 30-60 x 2-8 mm., equal or slightly attenuated downwards, nearly smooth, faintly shining, white or white-cream, sometimes pink at base.

Flesh white to cream.

Smell herbaceous when bruised, of cocos in parasitised specimens.

I consider H. niveus and H. virgineus identical.

Notes by Hesler

Spores 7-10 (11) x 4-5.5  $\mu$ , ellipsoid, at times inequilateral, smooth, pale yellow in Melzer's reagent. Basidia 36-52 x 5-6  $\mu$ , 2- and 4-spored. Pleurocystidia and cheilocystidia none. Gill trama intricately interwoven, hyphae 4-9  $\mu$  broad. Cuticle a narrow zone of slender, gelatinous hyphae.

HYGROPHORUS VENTRICOSUS B. & Br. = H. virgineus

Dennis, R. W. G. Some little-known British species of Agaricaceae. British Myc. Soc. Trans. 31:191-209. 1948.

*by Dennis*

A study of the type <sup>^</sup>led to the following conclusions:  
No distinct pileus-cuticle, the surface consists of closely interwoven hyphae about 4-5  $\mu$  diam., with no mucilaginous outer covering. Basidia seem to be two-spored, spores hyaline, non-amyloid, 7-10 x 4-5  $\mu$ , with a well-developed basal apiculus. The upper figures in Cooke's pl. 897 (901) no doubt represent the above collection and were thought by Maire in Pearson (1935: Trans. Brit. Myc. Soc. 20:33-95) to be virgineus. This seems likely enough for, according to Lange, 2-spored forms of that species do exist.