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November 2013

### Cortinarius Hygrophanus Notebook 1

L. R. Hesler

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# SOUTHEASTERN CORTINARIUS

List of Species. Numbers in Hesler's December, 1955, Key are given.

264	acutus Fr.	23	callochrous Fr.
51	albiceps Murr.	194	campestris Murr.
50	albidiformis Murr.	131	camphoratus Fr.
181	albidulus Murr.	111	canescens Pk.
155	alboviolaceus Fr.	281	castaneus Fr.
176	amarissimus Murr.	116	castanellus Pk.
165	annulatus Pk.	261	castaneoides Pk.
140	anomalus Fr.	203	cinnabarinus Fr.
158	argentatus Fr.	202	cinnamomeus Fr.
35	arquatus (A. & S.) Fr. sensu Lange (as No. 20159)	55	citriniceps Murr.
177	armillatus Fr.	118	colymbadinus Fr.
6	Arnoldae Murr.	152	compressus A. H. Smith
153	asper Pk.	38	corrugatus Pk.
36	Atkinsonianus Kauff.	81	corruscans Fr.
53	atribadius Murr.	168	croceocolor Kauff.
259a	badius Pk.	267	cuspidatus (Murr.) Singer
63	balteatus Fr.	2	cylindripes Kauff.
112	Birchfieldii Murr.	173	cylindrisporus Murr.
218	bivelus Fr.	54	Davisii Murr.
115	bolaris Fr.	251	deceptivus Kauff.
42	Boudieri Henry	151	deflexus Murr.
132	Brandlei Pk.	17	delibutus Fr.
233	brunneofulvus Fr.	231	distans Pk.
40	caerulescens Fr.	223	duracinus Fr.
41	caesiocyaneus Britz.	4	elatioer Fr.
172b	callisteus Fr.	48	elegantior Fr.

- |     |                                            |     |                                                     |
|-----|--------------------------------------------|-----|-----------------------------------------------------|
| 46  | <i>elegantioides</i> Kauff.                | 227 | <i>livor</i> Fr.                                    |
| 70  | <i>equestriformis</i> Murr.                | 11  | <i>longisporus</i> (Murr.) Singer                   |
| 274 | <i>erythrinus</i> Fr.                      | 18  | <i>luteobrunnescens</i> Smith                       |
| 217 | <i>evernius</i> Fr.                        | 138 | <i>malachius</i> Fr.                                |
| 65  | <i>fimbriatus</i> Murr.                    | 201 | <i>malicorius</i> Fr.                               |
| 191 | <i>flammuliformis</i> Murr.                | 222 | <i>mammosus</i> Kauff.                              |
| 185 | <i>flavifolius</i> Pk.                     | 200 | <i>melleipes</i> (Murr.) Singer                     |
| 283 | <i>flexipes</i> Fr.                        | 24  | <i>michiganensis</i> Kauff.                         |
| 269 | <i>gentilis</i> Fr.                        | 45  | <i>montanus</i> Kauff.                              |
| 247 | <i>glandicolor</i> Fr.                     | 235 | <i>Morrisii</i> Pk.                                 |
| 34  | <i>glaucopus</i> Fr.                       | 8   | <i>mucifluus</i> Fr.                                |
| 107 | <i>glutinosus</i> Pk.                      | 10  | <i>mucosus</i> Fr.                                  |
| 86  | <i>hebelomoides</i> Murr.                  | 61  | <i>multiformis</i> Fr.                              |
| 243 | <i>hemitrichus</i> Fr.                     | 9   | <i>muscigenus</i> Pk.                               |
| 198 | <i>hiemalis</i> Murr.                      | 248 | <i>nigrellus</i> Pk.                                |
| 239 | <i>hinnuleus</i> Fr.                       | 271 | <i>nigrocuspidatus</i> Kauff.                       |
| 183 | <i>humicola</i> (Qué <sup>l</sup> .) Maire | 144 | <i>obliquus</i> Pk.                                 |
| 257 | <i>iliopodius</i> Fr.                      | 276 | <i>obtusus</i> Fr.                                  |
| 108 | <i>infractus</i> Fr.                       | 68  | <i>olivaceus</i> Pk.                                |
| 12  | <i>iodeoides</i> Kauff.                    | 78  | <i>oreades</i> Murr.                                |
| 13  | <i>iodes</i> B. & C.                       | 277 | <i>paleaceus</i> Fr.                                |
| 278 | <i>juberinus</i> Fr.                       | 178 | <i>perferrugineus</i> Murr.                         |
| 113 | <i>lacticeps</i> Murr.                     | 280 | <i>periscelis</i> Fr.                               |
| 109 | <i>laeticolor</i> Murr.                    | 142 | <i>perviolaceus</i> Murr.                           |
| 98  | <i>lanatipes</i> Pk.                       | 205 | <i>phoeniceus</i> var.<br><i>occidentalis</i> Smith |
| 96  | <i>lapidophilus</i>                        | 224 | <i>plumiger</i> Fr.                                 |
| 69  | <i>largiformis</i> Murr.                   | 67  | <i>porphyropus</i> Fr.                              |
| 74  | <i>largus</i> Fr.                          | 33  | <i>praebrevipes</i> Murr.                           |
| 159 | <i>lilacinus</i> Pk.                       | 249 | <i>praepallens</i> Pk.                              |

- |      |                                          |      |                                                |
|------|------------------------------------------|------|------------------------------------------------|
| 182  | privigniformis Murr.                     | 104  | subcaespitosus Murr.                           |
| 253  | privignus Fr.                            | 75   | subcamphoratus Murr.                           |
| 1    | pseudo-salor Lange                       | 76   | subcommunis Murr.                              |
| 125  | pulchrifolius var.<br>odorifer Hesler    | 89   | subfimbriatus Murr.                            |
| 126  | pulchrifolius var.<br>typicus Smith      | 184  | subflavifolius Murr.                           |
| 25   | purpurascens Fr.                         | 279  | subflexipes Pk.                                |
| 139a | pusillus Murr.                           | 49   | subfulmineus Murr.                             |
| 192  | raphanoides Fr.                          | 56   | subglaucopus Murr.                             |
| 225  | renidens Fr.                             | 139  | subglobisporus Murr.                           |
| 245  | rigens Fr.                               | 268  | subjuberinus Murr.                             |
| 127  | rimosus Pk.                              | 95   | sublilacinus Murr.                             |
| 72   | robustus Beardslee                       | 7    | submarginalis Pk.                              |
| 37   | rubens Kauff.                            | 172a | subnotatus Fr.                                 |
| 130  | rubrocinereus Pk.                        | 160  | subpulchrifolius Kauff.                        |
| 14   | salor Fr.                                | 161  | subpulchrifolius var.<br>microsporus var. nov. |
| 204  | sanguineus Fr.                           | 26   | subpurpurascens Fr.                            |
| 275  | scandens Fr.                             | 226  | subrigens Kauff.                               |
| 27   | scaurus Fr.                              | 114  | subrimosus Smith & Hesler                      |
| 252  | scutulatus Fr.                           | 135  | subtabularis Kauff.                            |
| 206  | semisanguineus (Fr.)<br>Kauff.           | 210  | torvus Fr.                                     |
| 17   | sphaerosporus Pk.<br>(see delibutus Fr.) | 265  | uraceus Fr.                                    |
| 5    | splendidus Pk.                           | 73   | variicolor Fr.                                 |
| 87   | squalidiformis Murr.                     | 71   | varius Fr.                                     |
| 147  | squamulosus Pk.                          | 64   | verruculosus (Murr.) Singer                    |
| 88   | straminipes Murr.                        | 19   | vibratilis Fr.                                 |
| 180  | subargentatus Murr.                      | 20   | vibratilis (large-spored<br>form)              |
| 117  | subaustralis Smith & Hesler              | 124  | violaceus Fr.                                  |
|      |                                          | 44   | virentophyllus Kauff.                          |

90	viscibadius Murr.	107a	No. 17195
52	Watsonii Murr.	164	No. 17218
195	Weberi Murr.	190	No. 17219
196	Weberianus (Murr.) Singer	30	No. 17220
272	Westii (Murr.) Singer	15	No. 17229
43	No. 9635	216	No. 17248
3	No. 12320	241	No. 17271
242	No. 12708	230	No. 17298
171	No. 13820	187	No. 17692
121	No. 13917	188	No. 17903
166	No. 13918	16	No. 18045
66	No. 14032	106	No. 18162
263	No. 14776	122	No. 18570
168a	No. 16416	122	No. 18571
179	No. 16426	213	No. 18575
238	No. 16427	207	No. 18582
15	No. 16564	162	No. 18586
47	No. 16565	186	No. 18603
21	No. 16566	189	No. 18606
77	No. 16568	148	No. 18607
197	No. 16617	143	No. 18612
110	No. 17062	32	No. 18640
133	No. 17068	211	No. 18646
128	No. 17072	141	No. 18653
134	No. 17118	137	No. 18661
172a	No. 17135	129	No. 18667
174	No. 17174	99	No. 18695
163	No. 17193	254	No. 19011

209	No. 19012	120	No. 19371	105	No. 20949
212	No. 19170	255	No. 19378	92	No. 20999
82	No. 19215	236	No. 19379	256	No. 21046
79	No. 19223	39	No. 19390	94	No. 21599
119	No. 19224	253	No. 19400	232	No. 21814
219	No. 19252	83	No. 19401	229	No. 21825
220	No. 19253	154	No. 19464	170	No. 21845
285	No. 19254	167	No. 19711	146	No. 21882
258	No. 19256	270	No. 19720	150	No. 21942
100	No. 19262	156	No. 19814	228	No. 22016
101	No. 19275	35	No. 20159	250	No. 22049
62	No. 19276	22	No. 20198	103	No. 22089
262	No. 19279	246	No. 20233	91	No. 22119
193	No. 19280	59	No. 20234	60	No. 22142
221	No. 19281	215	No. 20235	29	No. 22160
136	No. 19286	282	No. 20247	31	No. 22161
260	No. 19288	102	No. 20449	57	No. 22164
244a	No. 19298	97	No. 20450	58	No. 22167
244	No. 19306	240	No. 20452	84	No. 22169
80	No. 19308	208	No. 20524	28	No. 22183
237	No. 19309	273	No. 20525	85	No. 22185
93	No. 19310	149	No. 20537		
259	No. 19326	234	No. 20556		
284	No. 19338	123	No. 20559		
199	No. 19341	145	No. 20560		
214	No. 19342	254	No. 20579		
266	No. 19347	157	No. 20585		
169	No. 19353	175	No. 20596		



CORTINARIUS ACUTUS Fr.  
Epicr. Myc., p. 314. 1838

*Hygrophanus*

Illustration:

Plate

Pileus 10-25 mm., acutely umbonate, conic to conic-campanulate, not viscid, hygrophanous, "ochraceous-tawny" and striate to umbo when wet, pale ashy buff with umbo yellow, and even when dry, white, silky-fibrillose, margin at first straight on stipe. Flesh fragile, thin, concolor; odor slightly unpleasant, taste of radish. Lamellae adnate to emarginate, seceding, "ochraceous tawny," slightly paler (not matched) in very young "buttons," nearly close, ventricose, medium broad, edges entire. Stipe 4-6 cm. x 1.5-2.0 mm., concolor to pileus or paler, flexuous, not viscid, silky, somewhat glabrescent, tubular, equal. Cortina white, rather copious.

Spores  $9-10 \times 4.5-5 \mu$ , ellipsoidal, ~~smooth~~ <sup>punctate</sup>. (Spore print failed.)

Habitat and Distribution. - On soil, in conifer woods, Tennessee and North Carolina, July-September.

~~Herb. C.~~



14358 - *Cortuarius acutus* Fr. (x 1.8)





Cortinarius acutus Fr.

CORTINARIUS AUREIFOLIUS Pk.

N. Y. State Mus. Ann. Rept. 38:89. 1885

*Hygrophanus*

Pileus 18-27 mm., conic-campanulate, acutely umbonate, hygrophanous, fibrillose, "tawny olive" to "buckthorn brown," margin bearing shred of cortina. Flesh thin, brownish; odor and taste mild. Lamellae emarginate-uncinate, rather close, medium broad, pale brown at first, then "argus brown," edges rough. Stipe 3-5 cm. x 3-5 mm., dingy, fibrillose, cortina leaving a median or sub-apical band.

Spores 9-11 x 3.5-3.8  $\mu$ , ellipsoidal, resembling spores of some Boletus or some Inocybe, smooth.

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

Discussion. - Smith (January, 1956) says that C. aureifolius Pk. is as close as he can come. Has peculiar spores but there are some discrepancies in description.



Cortinarius aurcifolius PK. (?)

CORTINARIUS BADIUS Pk.

New York State Mus. Ann. Rept. 41:73. 1888

*Hygrophanus*

Pileus 5-12 mm. broad, slightly umbonate, hygrophanous, brownish-chestnut, paler when dry, umbo darker, silky.

Flesh dingy-brownish; odor and taste mild. Lamellae adnexed, pale yellow then darker-yellow, subdistant, broad. Stipe 1-3 cm. x 1-2 mm., silky, brownish, with patches of veil, equal, hollow.

Spores 10-12 x 6.5-7.5  $\mu$ , ellipsoid, limoniform, punctate.

Habitat and Distribution. - On soil, spruce woods, North Carolina, October.

CORTINARIUS BIVELUS Fr.

Epicr. Myc., p. 292. 1838

*Hygroph*

Pileus 6-9 cm. broad, convex-campanulate, expanded-wavy, umbonate, hygrophanous, pale silvery-gray (dry), dark brown (wet) (not matched), silky-shining, margin even. Flesh thin except on disk, whitish; odor and taste of radish. Lamellae adnate or adnexed, very broad (up to 15 mm. broad), "verona brown" (not observed in young state), face wrinkled, edges conspicuously white, fimbriate. Stipe 7-10 cm. x 14-17 mm., tapering at base to a point, white-silky, violaceous beneath and within, hollow, dry.

Spores ellipsoidal, 8.5-11 (12) x <sup>5</sup>5.5-6.5  $\mu$ , <sup>punctate</sup>~~slightly~~ rough.

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

CORTINARIUS BRUNNEOFULVUS Fries

Epicr. Myc., p. 298. 1838

Hg 9746

Pileus 3-8 cm. broad, convex, expanding plane, obtusely  
or broadly umbonate, <sup>at times with a conic umbo,</sup> disk "cinnamon" to "chestnut," margin  
<sup>^</sup> paler, hoary-canescenscent or appressed silky-white, <sup>"fister" when wet,</sup> glabrescent,  
<sup>with veil-remnants,</sup> hygrophanous, margin substriate or even. Flesh thick on  
<sup>^</sup> the disk, pallid or nearly concolor to pileus; odor mild or  
<sup>of radish, at times slightly nauseating.</sup> faintly ~~fragrant~~, <sup>^</sup> taste mild. Lamellae adnate, becoming  
emarginate, close to subdistant, broad, ~~to moderately broad,~~  
<sup>many short,</sup> broadest behind, <sup>^</sup> at first smoky-brown, then "ferruginous,"  
"tawny," "cinnamon" to "verona brown," edges paler, eroded.  
<sup>± longitudinally streaked,</sup>  
Stipe 4-7 (12) cm. x 8-15 mm., concolor to pileus or paler, <sup>^</sup>  
clavate to clavate-bulbous, scattered-fibrillose, tomentose  
below, with a median or inferior white zone, dry, solid.  
Cortina copious, <sup>webby, white, often leaving a white zone on</sup>  
<sup>the pileus-margin. 5-7.5</sup>  
Spores 9-12 x ~~6-7.5~~ <sup>5-7.5</sup>  $\mu$ , ellipsoid to sub-almond-shaped,  
<sup>wrinkled-rough,</sup> coarsely ~~tuberculate~~, color in mass: "raw sienna" to  
<sup>^</sup> "ochraceous-tawny."

Habitat and Distribution. - On soil, under conifers,  
Tennessee and North Carolina, August-<sup>Oct.</sup> September.



23397 - *Cortinarius brunneofulvus* Fr.  
(*Hygrophanus*)





22684 - *Cordovarius brunneofulvus* Fr.



Cortinarius brunneofulvus Fr.

CORTINARIUS CASTANEOIDES Pk.

*Hygrophanus*

(N.A.F. 10:336)

"Pileus fleshy, campanulate-convex, then expanded, 1-2 cm. broad; surface chestnut-brown to dark-watery-cinnamon, brownish-ochraceous when dry, subumbonate and usually darker on the center, hygrophanous, scarcely silky with a few superficial fibrils, even, the margin sometimes whitish from the veil; context thin, watery-brownish, then pallid, the odor and taste none; lamellae adnate, then emarginate, rather broad, subdistant, yellowish at first, then yellowish-cinnamon to dark-cinnamon, the edge almost entire; stipe equal, slender, 2-5 cm. long, 1.5-3 mm. thick, stuffed, then hollow, subflexuous, pallid, annulate from the cortina and the fugacious universal veil which remains as delicate subannular shreds on the stipe below; spores ellipsoid, smooth, 6-7.5 x 3.5-4.5  $\mu$ ."

CORTINARIUS CASTANEUS Fr.

*Hygroph*

(N.A.F. 10:341)

"Pileus firm, campanulate-convex, expanded or gibbous, even, subumbonate, 2-5 cm. broad; surface scarcely hygrophanous, dark-chestnut-colored, shining when dry, hardly fading, the margin at first white-silky; context thin, rigid-tough, concolorous to pallid, the odor and taste slight; lamellae adnexed, not broad, ventricose, close, violet at first, then rusty-cinnamon, the edge whitish; stipe not truly slender, 2-4 cm. long, 4-6 mm. thick, cartilaginous, stuffed, then hollow, violaceous or pallid-rufescent, silky from the white cortina; spores ellipsoid, rough, 7-9 x 4-5  $\mu$ ."

F 18432

*Cortinarius*

~~NAUGORIA~~ CUSPIDATA<sup>us</sup> (Murr.) Sing.

*Hygroph*

Bull. Torrey Bot. Club 67:280. 1940

Cortinarius cuspidatus (Murr.) Singer, Agaricales in  
Modern Taxonomy, p. 628. 1962.

Type (F 18432)

Pileus 1.5-3 cm broad, campanulate to depressed, with a small conic umbo, hygrophanous, uniformly fulvous, finely innate-fibrillose, margin even. Context very thin, odor not distinctive.

Lamellae emarginate, becoming ferruginous or fulvous, medium distant, plane, rather broad, inserted, edges fringed.

Stipe 4-5 cm long, 3-4 mm thick, isabelline, fleshy, fibrillose, striate, subequal.

Notes by Hesler (*Type*)

Spores 7.5-9.5 x 5-5.5  $\mu$ , a few faintly inequilateral in profile, ellipsoid in face view, germ pore none, minutely tuberculate to punctate-warty, wall rather thin, yellowish brown in H<sub>2</sub>O, slightly darker in KOH, and in Melzer's reagent. Basidia 26-30 x 9-10  $\mu$ , 4-spored. Pleurocystidia none; cheilocystidia 33-50 x 5-11  $\mu$ , clavate, sometimes collapsed against gill-edge and inconspicuous. Gill trama of slender (2-4  $\mu$ ) subparallel hyphae. Pileus cuticle of dry, repent hyphae, the surface bearing numerous

more or less erect epicuticular, brown, incrusting hyphae, singly or in small tufts, the terminal elements sometimes pileocystidioid. Clamp connections on the epicuticular hyphae.

Type collected by West and Murrill, on soil, under hardwood trees, in Sugarfoot Hammock, near Gainesville, Fla., November 23, 1938.

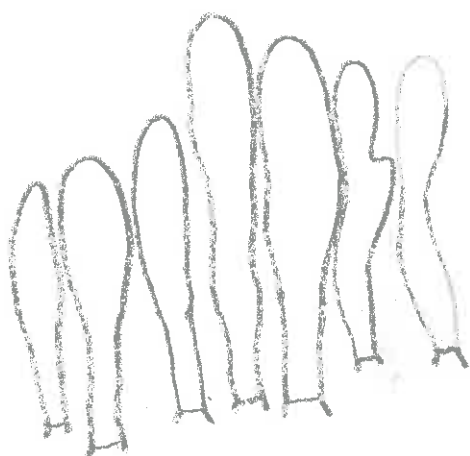
Murrill states that it suggests N. praeumbonata Murr., but is differently colored and has tuberculate spores.

This is Cortinarius cuspidatus (Murr.) Sing.

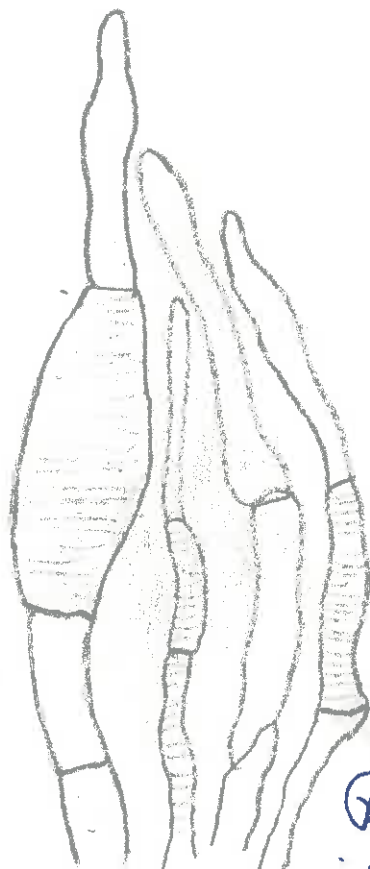
*Naucoria cuspidata* Murr.

Type - 7 <sup>18432</sup> ~~21442~~

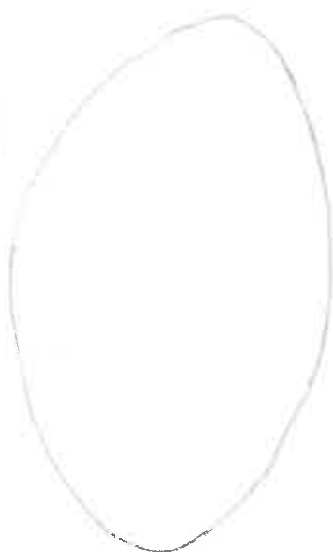
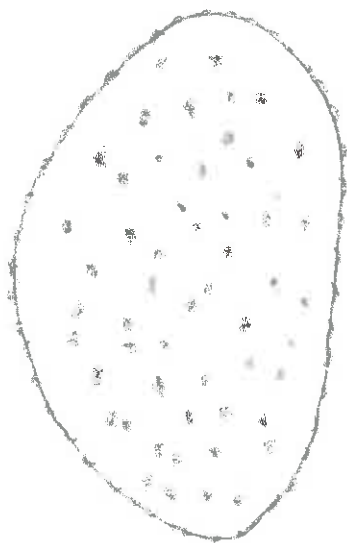
(= *Cortinarium cuspidatum*  
(Murr.) Singer)



Ch x 1000



Pileus epicuticular  
incrustated hyphae x 1000



Spores x 8000



Cortinarius

F 21446

~~NAUCORIA~~ CUSPIDATA<sup>us</sup> (Murr.) Sing.

On soil, under hop hornbeam, near Gainesville, Fla.,

November 5, 1944, leg.-det. Murrill

Notes by Hesler

Spores 7.5-9.5 x 5-5.5  $\mu$ , minutely tuberculate, no germ pore. Pleurocystidia none; cheilocystidia 30-47 x 5-9  $\mu$ , more or less clavate. Pileus cuticle of repent, dry hyphae, surface bearing epicuticular hyphae, singly or in small strands, brownish to nearly colorless, incrustated, terminal element cystidioid.

Agrees with the Type. [Cortinarius cuspidatus (Murr.)  
Singer.

CORTINARIUS CUSPIDATUS (Murrill) Singer

Agar. p. 553, footnote. 1949

*Hygrophanous*

Naucoria cuspidata Murr., Bul. Torrey Bot. Club 67:280. 1940

"Pileus campanulate to depressed with a small conic umbo, gregarious, 1.5-3 cm. broad; surface hygrophanous, smooth, finely innate-fibrillose, uniformly fulvous, margin even, entire to undulate; context very thin, without characteristic odor; lamellae emarginate, medium distant, plane but rather broad, inserted, very thin, fringed on the edges, becoming ferruginous or fulvous; spores ellipsoid, obliquely apiculate, granular, finely but distinctly tuberculate, ferruginous, about  $8-9 \times 5 \mu$ ; cystidia none; stipe fleshy with a tough rind, subequal, striate, fibrillose, isabelline, 4-5 x 0.3-0.4 cm.

"Type collected by E. West and W. A. Murrill on damp ground under hardwood trees in Sugarfoot Hammock, near Gainesville, Fla., November 23, 1938 (F 18432). Suggesting N. praeumbonata Murrill but differently colored and having tuberculate spores."

CORTINARIUS DECEPTIVUS Kauff.

Torrey Bot. Club Bul. 32:325. 1905

*Hygrophanus*

Pileus 2-4 cm. broad, convex, finally expanded-convex, "wood brown," tinged pallid-violaceous, glabrescent, hygrophanous, margin somewhat rugose. Flesh thick on disk, thin on margin, pale violaceous, then dingy; odor and taste mild. Lamellae adnate-decurrent, close, medium broad, at first pale violaceous, then pale brown, finally "snuff brown." Stipe 3-5 cm. x 4-8 mm., at first with a tint of violaceous, soon whitish, solid, slightly subbulbous.

Spores 6.5-8 x 4.5-5  $\mu$ , subglobose to ellipsoid or ovoid, punctate.

Habitat and Distribution. - On soil, under rhododendron and hemlock, North Carolina, September.

CORTINARIUS DISTANS Pk.

N. Y. State Cab. Ann. Rept. 23:111. 1872

*Hygrophorus*

Cortinarius furfurellus Pk., N. Y. State Mus. Ann. Rept.

32:31. 1880

Illustrations:

Plate

Kauffman, Agar. Mich., pl. 88. 1918

<sup>7</sup>  
Pileus 2-~~5~~<sup>7</sup> (10) cm. broad, cespitose, conic at first, then conic-convex to conic-campanulate, finally expanded-convex or plane, <sup>or without</sup> with a prominent conic umbo, not viscid, <sup>"sauff brown"</sup> hygrophanous, <sup>^</sup> "verona brown" to "clay color" or "ochraceous tawny," disk "sayal brown" when dry, promptly "sayal brown" or darker when wet, at first with a white bloom, then minutely white floccose-scaly to furfuraceous scaly, cuticle finally cracked and pileus splitting radially, margin even. Flesh pallid, thick on disk, thin elsewhere; odor slight or spicy, taste slight. Lamellae at first adnate to sinuate, finally emarginate, with a decurrent tooth, at first pallid or pale <sup>to clay brown, when</sup> brown, <sup>^</sup> finally "amber brown" to "argus brown," distant, broad, often transversely rugose, many short, edges even. Stipe 5-12 cm. x 5-18 mm., pallid to dingy brown, with scattered fibrils, base clavate (up to 20 mm. diam.), dry, solid, finally stuffed to hollow. Veil white, webby, leaving a broad, white, nearly median to superior annular zone and scattered, white patches below.

6.5 (9) 6.5  
~~8-8.5 x 5-5.5~~  
Spores ~~6-8 (9) x 5-6~~  $\mu$ , ellipsoid to ovoid, <sup>tuberculate</sup> warty, "snuff  
brown" in mass. Pleurocystidia none; cheilocystidia clavate,  
27-35 x 8-11  $\mu$ .

Habitat and Distribution. - On soil, among fallen leaves  
and moss, in deciduous and coniferous woods, Tennessee and  
North Carolina, May-September.

Observations. - Flesh of all parts turns slowly reddish-  
brown in 15% KOH. My No. 16396, from the Great Smoky Mountains,  
is a form with lavender to violet lamellae; this may be a distinct  
species.

21355 - *Cortinarium distans* PK.



21814 - *Cortinarius distans* PK.



CORTINARIUS DURACINUS Fries

Epicer. Myc., p. 304. 1838

*Hygrographa*

(N.A.F. 10:340)

"Pileus convex, then expanded, obtuse, sometimes gibbous, 4-10 cm. broad; surface hygrophanous, watery-cinnamon-brown when moist, rufous-tinged on the disk, pale-ochraceous-tan to buff when dry, glabrous, even; margin at first incurved, then geniculate and obsoletely silky; context rigid-brittle, then scissile, concolorous, at length pallid, the odor and taste mild; lamellae adnate or slightly subdecurrent, thin, sub-distant, moderately broad, pallid at first but soon watery-cinnamon, the edge even or scarcely crenulate; stipe tapering downward or fusiform-subradicate, 4-12 cm. long, 6-15 mm. thick, glabrous, rigid, stuffed, then hollow, sometimes compressed, at length shining, white, at first cortinate-fibrillose; cortina white; spores ellipsoid, almond-shaped, scarcely rough, 7-9.5 x 5-5.5  $\mu$ ."

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

CORTINARIUS ERYTHRINUS Fr.

Epicr. Myc., p. 312. 1838

*Hygroph*

Pileus 15-25 mm. broad, conic-convex, expanding, umbonate, umbo often acute and prominent, hygrophanous, "bone brown," umbo black, minutely fibrillose, even. Flesh thin, pliant, dark watery brown; odor and taste mild. Lamellae adnexed to sub-emarginate, rather close, broad, pallid at first, finally "brussels brown," edges rough. Stipe 4-6 cm. x 3-4 mm., dingy, shining, with several annular zones, equal, hollow. Veil white, webby, evanescent.

Spores <sup>7-9</sup>~~8-9.5~~ x 5-6  $\mu$ , ellipsoidal, <sup>wrinkled</sup>~~smooth~~.

Habitat and Distribution. - On soil, in coniferous and mixed woods, Tennessee and North Carolina, September-October.

Observations. - Blackish in KOH (pileus, flesh, and lamellae).

CORTINARIUS EVERNIUS Fr.  
Epicr. Myc., p. 294. 1838

*Hygroph*

Illustration:

Plate

Pileus 4-10 cm. broad, umbonate, umbo often prominent, hemispherical then expanding nearly plane, hygrophanous, "Vandyke brown" when young, finally "Hay's brown" to "Mar's brown" (wet), "tawny olive" (dry), losing moisture in radial streaks, white-silky, even. Flesh thin, fragile, brownish; odor and taste raphanoid. Lamellae adnate to emarginate, often seceding, when young (unopened pileus) "brownish drab," finally "sudan brown," edges pale and even, broad (up to 15 mm.), ventricose, face corrugated, subdistant. Stipe 6-13 cm. x 5-<sup>15</sup>~~10~~ mm., cylindrical, equal above the attenuated base, "deep vinaceous gray" (when young), finally paler ("pallid brownish drab"), more deeply colored at base, with <sup>or without</sup> one or two <sup>shreds or</sup> annular bands, spongy to solid, concolorous within. Veil fibrillose, white, evanescent.

<sup>8.5-11 x 5-6  $\mu$</sup>   
Spores ~~4.5-10 x 5.5-6.5  $\mu$~~ , ellipsoidal, <sup>punctate</sup> minutely rough.

Pleurocystidia and cheilocystidia not differentiated.

Habitat and Distribution. - On soil and among deep moss, in coniferous woods, Tennessee and North Carolina, July-September.

Observations. - No color change in KOH.



22590 - *Cortuarius evermius* Fries



25693. *Cortinarius evernius* Fr.



21918 - *Cortinarius enormis* Fr.



21834 - *Cortinarius everminus* Fr.





20963 - *Cortinarius evernius* Fr.



Cortinarius evernius Fr.

CORTINARIUS FLEXIPES Fr.

Epicr. Myc., p. 300. 1838

*Hygroph*

Illustration:

Plate

Pileus 6-20 mm. broad, ovoid-conic, becoming expanded-campanulate, acutely umbonate, umbo blackish, hygrophanous, "verona brown" to "dresden brown" when wet, "buckthorn brown" to "tawny-olive" when dry, white silky-fibrillose, subsquamulose, margin even, incurved. Flesh brownish-violaceous under disk, elsewhere violaceous; odor and taste mild. Lamellae adnate then emarginate, seceding, at first violaceous to "deep brownish-drab," then "snuff brown" to "warm sepia," broad, close, edges even. Stipe 2-3 cm. x 1-2 mm., apex violaceous, brownish downward, with a white, superior, annular band, 2-4 imperfect bands downward, equal, solid.

Spores 7-8 x 4-5  $\mu$ , ellipsoid, punctate to wrinkled, at times nearly smooth.

Habitat and Distribution. - On soil, in mixed woods, Tennessee, August.

CORTINARIUS GENTILIS Fr.  
Epicr. Myc., p. 297. 1838

*Hygroph*

Illustration:

Plate

Pileus 2-4 (5) cm. broad, convex-conic then convex-expanded, with or without an umbo, not viscid, hygrophanous, "antimony yellow" (dry), darker ("cinnamon brown," wet), densely matted-fibrillose, at times rimose. Flesh thin, fragile, yellowish; odor and taste of radish. Lamellae adnate, with a decurrent tooth, seceding, nearly distant, olivaceous ("isabella color") when young, finally "cinnamon-brown" to "sudan brown" (at times corrugated), edges fimbriate. Stipe 3-5 cm. x 5-8 (10) mm., rusty-yellowish, nearly equal, not viscid, fibrillose, solid at first. Veil olive to yellowish, leaving a yellowish evanescent band which is superior, then median.

Spores ellipsoidal, <sup>punctate</sup> ~~slightly rough~~, <sup>7</sup>8-9 x 5-6.5  $\mu$ .

Habitat and Distribution. - On soil, in coniferous woods, Tennessee and North Carolina, July-September.

Observations. - All parts become reddish-black in KOH.

CORTINARIUS GLANDICOLOR Fr.

Epicr. Myc., p. 298. 1838

Hygroph

Pileus 1-4 cm. broad, convex-conic, then expanded-convex, acutely umbonate, glabrous, hygrophanous, "Proutsbrown" when moist, "cinnamon" when dry, becoming blackish-stained in age. Flesh thin, concolorous; odor and taste slight. Lamellae adnate, subdistant, broad, at first cinnamon, then dusky-brown. Stipe 3-7 cm. x 4-8 mm., subclavate or attenuate at the base, hollow, naked above, whitish at first, soon fuscescent, zoned, or with a zone above middle.

Spores 9-10 x 5.5-6.5  $\mu$ , ellipsoid, punctate.

Habitat and Distribution. - On soil, in deep moss, in fir woods, North Carolina, August-September.

CORTINARIUS HEMITRICHUS Fr.

Epicr. Myc., p. 302. 1838

*Hygrophanus*

Illustration:

Plate

Pileus 16-25 mm. broad, convex, umbonate, umbo "army brown," elsewhere "avellaneous," white-silky, hygrophanous, even. Flesh thin, watery-brown; odor and taste mild. Lamellae narrowly emarginate, seceding at first pale buff (not matched), finally "sage brown" to "buckthorn brown," face rugulose, edges rough. Stipe 2.5-5 cm. x 3-4 mm., dingy brown, apex whitish, whitish-fibrillose, with a white annular zone (about median), equal or slightly sub-bulbous, bulb sub-globose to ovoid, hollow.

Spores ~~7-8 (9.5) x (4) 4.5-5.0  $\mu$~~ , ellipsoidal, <sup>6-8 x 4-5  $\mu$ , punctate</sup> ~~smooth~~.

Habitat and Distribution. - On soil, in mixed and coniferous woods, Tennessee and North Carolina, July-October.

Observations. - The above notes are based on a slender form of C. hemitrichus Fr. (No. 20190).



Cortinarius hemitrichus Fr.



12319

Cortinarius hemitrichus Fr.



CORTINARIUS HINNULEUS Fr.  
Epicr. Myc., p. 296. 1838

*Hygrophora*

Illustration:

Plate

Pileus 2.5-4.5 cm., convex, then convex-conic and umbonate, finally expanding-wavy, silky-fibrillose-appressed, shining, hygrophanous, not viscid, "honey yellow" to "yellow ochre," ("sudan brown," wet), substriate and splitting (dry), even (wet). Flesh thin, brittle, "yellow ochre"; odor and taste slight (of raw potatoes or radish). Lamellae emarginate, seceding, at first "buckthorn brown," finally "raw sienna" to "sudan brown," transversely rugulose, edges even, very broad (10 mm.), close or nearly subdistant. Stipe 3-4 cm. x 5-8 mm., concolor to pileus, fibrillose-appressed, dry, equal or tapering downward, stuffed to hollow. Veil webby, sparse, leaving a sub-apical or median, whitish, evanescent ring-zone.

Spores ~~7-8 x 4-5 (6)  $\mu$~~  6.5-8 x 5.5-6.5(7)  $\mu$ , punctate to nearly smooth, broadly ellipsoid or ovoid to subglobose.

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



Cortinarius hinnuleus Fr.

CORTINARIUS ILIOPODIUS Fr.

Epicr. Myc., p. 301. 1838

*Hygroph*

Pileus 1-2 cm. broad, convex-expanding, papillate-umbonate, hygrophanous, umbo black, elsewhere "wood brown," minutely silky. Flesh brownish, thin; odor and taste mild. Lamellae adnate, pallid then cinnamon, rather broad, sub-distant. Stipe 2-4 cm. x 2-3 mm., with white-silky veil-remnants, brownish.

Spores 10-12 (14) x 5.5-7 (8)  $\mu$ , ellipsoid, inequilateral, punctate.

Habitat and Distribution. - Among mosses, in conifer woods, Tennessee, October.

CORTINARIUS JUBERINUS Fr.

Epicr. Myc., p. 309. 1838

*Hygrophila*

Pileus 15-25 mm. broad, convex, expanding, tawny, hygrophanous, radiately fibrillose-rimose. Flesh pallid brownish, thin; odor and taste mild. Lamellae adnate, pallid-buff, finally "buckthorn brown," subdistant. Veil white, webby. Stipe 15-30 mm. x 2-4 mm., dingy brown, dry, equal.

Spores 6-7 x 3-4  $\mu$ , ellipsoid, smooth.

Habitat and Distribution. - On soil, in deciduous and mixed woods, Tennessee, North Carolina, and Florida, June-August, and December.

CORTINARIUS LANIGER Fr.  
Epicr. Myc. p. 292. 1838

*Hygrophanus*

Pileus 5-6 (10) cm. broad, convex-expanded, broadly umbonate, and somewhat depressed around disk, hygrophanous, "sandal brown" to "cinnamon brown" (wet), "cinnamon" (dry), margin paler from fine white fibers, canescent, margin densely fibrillose, even. Flesh thick on disk, thin on margin, whitish; odor and taste slightly of radish or at times alkaline. Lamellae emarginate-adnexed, pale brownish at first, finally "cinnamon brown," broad, 5-9 mm. (up to 13 mm.), broadest behind, narrowed in front, transversely rugulose, close to crowded, edges even. Stipe 7-12 (15) cm. x 5-10 (17) mm., moist, not viscid, streaked brownish and white, silky-fibrillose, clavate bulbous (bulb ovoid, up to 2 cm. diam.), hollow-stuffed.

Spores 8.5-10 (up to 14  $\mu$  in 19309, - a pale form) x 5.5-6.5  $\mu$ , ellipsoidal, minutely tuberculate to wrinkled.

Habitat and Distribution. - In humus, in deciduous woods, under oak-hemlock, Tennessee, September.

Discussion. - Cf. C. laniger Fr. No. 19309 is a pale form.



19309 - *Cortinarius laniger* Fr.  
(Pale form)



20556 - *Cortinarius laniger* Fr.

CORTINARIUS LIVOR Fries  
Epicr. Myc., p. 306. 1838

*Hygrophanus*

Pileus 2-3 cm. broad, campanulate, sooty-brown, disk olive-gray, subtomentose, more or less hygrophanous.

Flesh dingy-brown under disk, pallid elsewhere; odor and taste slight. Lamellae adnate, then emarginate, close, broad, pallid-cinnamon then darker. Stipe 3-5 x 4-8 mm., equal above clavate base, apex violaceous.

Spores 8-10 x 5.5-7  $\mu$ , broadly ellipsoid, tuberculate.

Habitat and Distribution. - On soil, under rhododendron, Tennessee, August.



CORTINARIUS MAMMOSUS Kauff.

Agar. Mich. 1:415. 1918

*Hygrophanus*

Pileus 2-5 cm. broad, conic-campanulate, expanded and umbonate, hygrophanous, "cinnamon" when dry, "syal brown" when moistened, umbo darker ("natal brown" to "verona brown"), silky shining (dry). Flesh thin, thicker on disk, pallid (dry), concolor (moist). Lamellae emarginate, ventricose, broad, moderately close, at first pallid, finally "cinnamon brown," edges even but paler. Stipe 3.5-5.5 cm. x 4-10 mm., rarely equal, usually tapering upward from bulbous or sub-bulbous base, base often pointed below, paler brown (paler than pileus), striate, rarely annulate, stuffed.

Spores 8-9 (<sup>10</sup>~~10.6~~) x <sup>5-6</sup>~~4.5-5.5~~  $\mu$ , <sup>tuberculate</sup>~~slightly rough~~, elliptical, at times inequilateral, one or both ends obtuse.

Habitat and Distribution. - On soil, in mixed woods, Tennessee and North Carolina, July-October.

CORTINARIUS MORRISII Pk.

Torrey Bot. Club Bul. 32:79. 1905

Hygroph

Illustration:

Plate

Pileus 5-8 cm. broad, hemispheric-convex, then convex-expanded, "ochraceous-buff" when young, becoming "ochraceous-orange" and finally "mars yellow," dry, somewhat hygrophanous, sparsely white-fibrillose or canescent at first, glabrescent, shining (dry), finally radiately rugulose, even. Flesh thin, somewhat fragile, pale yellowish; odor and taste slight (not unpleasant). Lamellae adnate with a decurrent tooth, slightly emarginate, seceding, very broad, ventricose, close to crowded, "chamois" to "yellow ochre" (young), "raw sienna" (mature), transversely rivulose, edges eroded. Stipe 5-12 cm. x 7-12 mm., concolor to pileus, dry, dingy-fibrillose, equal, hard, curved, solid, becoming stuffed-hollow. Veil white, webby, sometimes leaving an imperfect annulus.

Spores broadly ellipsoidal to <sup>subglobose,</sup> ~~neatly globose,~~ <sup>6-8 x 4-6.5 μ,</sup> ~~4-6.5 μ,~~ <sup>punctate, "sageal brown" in mass.</sup> ~~slightly rough.~~

Habitat and Distribution. - On soil and in deep moss, in coniferous and mixed woods, North Carolina, August-September.



Cortinarius Morrisii Pk.

CORTINARIUS NIGRELLUS Peck

New York State Mus. Ann. Rept. 26:62. 1874

*Hygroph*

Illustration:

Plate

Pileus 1.5-4 cm. broad, convex or expanded, umbonate or subumbonate, silky, hygrophanous, "walnut-brown" when moist, paler when dry. Flesh thin, pallid; odor and taste mild. Lamellae adnate, then emarginate, "pinkish-buff" then "clay-colored," close, narrow. Stipe 2-6 cm. x 4-7 mm., silky-fibrillose, sometimes annulate, dry, often flexuous, stuffed.

Spores 8-9 x 4.5-5.5  $\mu$ , ellipsoid, echinulate.

Habitat and Distribution. - On soil, in conifer woods, Tennessee and North Carolina.

12308



Cortinarius nigrellus Pk.

CORTINARIUS NIGROCUSPIDATUS Kauff.

*Hygroph*

Michigan Acad. Sci. Papers 1:138. 1923

Pileus 2-3 cm., convex, expanded, broadly umbonate, upturned-wavy, hygrophanous, "cinnamon brown," disk much darker ("bister"), with white scattered fibrils (often cirrhate), even. Flesh watery brown, thin; odor and taste mild or like fresh grass. Lamellae adnate with decurrent tooth, medium broad, close, /at first pale-brownish then "clay color." Stipe 4-5 cm. x 4-6 mm., dingy, more or less zoned, dry, stuffed, fibrillose. Veil leaving 3 or 4 white fibrillose bands along stipe.

Spores 6.5-8 x 4.5-6  $\mu$ , ellipsoidal, minutely punctate.

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

Discussion. - Smith says it does not quite fit as to color.



Cortinarius nigrocuspidatus Kauff.

CORTINARIUS PALEACEUS Fr.  
Epicr. Myc., p. 302. 1838

*Hygroph*

Illustration:

Plate

Pileus 10-25 mm. broad, conic to conic-convex, expanding, dry, acutely umbonate, hygrophanous, "clay color," "prout's brown," to "sage brown" when dry, "fuscous" when wet, umbo darker, minutely silky and canescent to densely fibrillose, margin even rimose, with a white band (veil-remnants). Flesh thick on disk, thin on margin, pale brown; odor and taste mild. Lamellae emarginate, with a decurrent tooth, close, ventricose, rather broad, many short, "cinnamon" at first, then "tawny olive," finally "verona brown" to "warm sepia," edges white-fimbriate. Stipe 2-5 cm. x 2-6 mm., dingy, dry, with one or two obscure bands, equal, flexuous, hollow. Veil whitish, evanescent.

Spores ~~7-8 (9.6) x 4.5-5.5  $\mu$ , smooth, ellipsoidal.~~  
*6-8 x 4.5-5  $\mu$ , minutely wrinkled,*

Habitat and Distribution. - On soil, in pine woods, Tennessee and North Carolina, August and December.





Cortinarius paleaceus Fr.

CORTINARIUS OBTUSUS Fr.  
Epicr. Myc., p. 313. 1838

*Hygroph*

Illustration:

Plate

Pileus 2-3 cm. broad, convex, not fully expanding, hygrophanous, not viscid, "avellaneous" when dry, "verona brown" when wet, silky-canescens, margin fibrillose and spuriously striate. Flesh thin, brown; odor and taste mild. Lamellae emarginate, at first pallid (nearly white), finally "wood brown," close, transversely rivulose-rugose, edge slightly fimbriate. Stipe 3-5 cm. x 8-12 mm., dry, white-shining, striate, equal, base attenuated, solid, but with a "pith-like" region.

Spores ellipsoidal, <sup>punctate</sup> ~~smooth~~, pale (under 'scope), <sup>8-10 x 4.5-5.5  $\mu$</sup>  ~~8-9 x~~ ~~4.8-5.5  $\mu$~~ . Veil white, webby, not copious.

Habitat and Distribution. - On soil, in mixed and coniferous woods, Tennessee and North Carolina, August-December.

Observations. - Smith says that Tennessee No. 17272, from which the above notes were drawn, is an off-color form.



Cortinarius obtusus Fr.

CORTINARIUS PERISCCELIS Fries

Hygroph.

Pileus 1-3 cm. broad, convex, expanding somewhat, obtusely umbonate, "dusky-drab," hygrophanous, fading to "light-buff," silky. Flesh thick on the disk, at first tinged lavender; odor and taste mild. Lamellae adnexed, at length emarginate, close, narrow to moderately broad, at first "vinaceous-brown," finally "russet." Stipe 3-6 cm. x 3-5 mm., grayish-lavender, stuffed, then hollow, silky-fibrillose from the universal veil, the veil turning brownish. Cortina pale-lavender.

Spores 9-10 x 5-6  $\mu$ , ellipsoid, punctate.

Habitat and Distribution. - On soil, in conifer woods, Tennessee and North Carolina, September.

CORTINARIUS PLUMIGER Fr.

Epicr. Myc., p. 294. 1838

*Hygroph*

Pileus 5-7 cm. broad, campanulate-convex, finally convex-plane, obtusely umbonate, not viscid, hygrophanous, "verona brown" (wet), when dry the umbo remaining "verona brown," marginal half with two color zones "cinnamon brown," and on margin "vinaceous drab" with a silvery tint, white scattered-fibrillose hairy, margin thin, decorated with white fibrils. Flesh white, firm; odor and taste mild. Lamellae emarginate, close, <sup>at first palled, rarely faintly caesius,</sup> rather broad, "clay color" to "sage brown" (~~young gills not observed~~), edges rough or crenate. Stipe 4-8 cm. x 7-12 mm. (base 15-30 mm.), grayish violet with a silvery tint, concolorous within, dry, fibrillose-striate, clavate-bulbous, solid. Veil white. Annulus a white band, inferior.

Spores 8-9.5 x <sup>4.5-5</sup>~~5.5-6.5~~  $\mu$ , ellipsoidal, <sup>punctate</sup>~~smooth to~~ ~~slightly rough~~.

Habitat and Distribution. - On soil, in mixed woods, Tennessee, September-October.

CORTINARIUS PRAEPALLENS Peck

New York State Mus. Bul. 1 (2):9. 1888

*Hygroph*

Pileus 2-3 cm. broad, somewhat conic, then convex expanded, hygrophanous, brown (wet), pallid-ochraceous (dry). Flesh pale yellowish, thin; odor and taste mild. Lamellae sub-emarginate, medium narrow, crowded, reddish-umber, then fuscous-cinnamon. Stipe 2-5 cm. x 4-8 mm., subflexuous, somewhat silky, pallid or brownish.

Spores 8-9.5 x 4.5-5.5  $\mu$ , ovoid to sub-ellipsoid, punctate.

Habitat and Distribution. - On soil under hemlock-rhododendron, Tennessee, September.

CORTINARIUS PRIVIGNUS Fr.

Epicr. Myc., p. 304. 1838

*Hygrophanus*

Pileus 2-6 cm. broad, convex-expanded, umbonate, hygrophanous, "cinnamon" (dry), "Van Dyke brown" (wet), glabrous, margin even, at length splitting. <sup>pallid-brownish,</sup> Flesh thick on disk, thin elsewhere; odor and taste slight of radish.

Lamellae adnexed then emarginate, rather broad, "verona brown" then "Van Dyke brown" <sup>to umbil,</sup> close, sides rugose, edges eroded. Stipe 5-8 cm. x 5-10 mm., white-silky, brunnescent, base clavate, veil forming a few irregular rings, dry, hollow.

Spores <sup>8-9.5 x 5.5-7  $\mu$</sup>  ~~8-9 x 6-6.5  $\mu$~~ , ellipsoidal, <sup>punctate</sup> ~~slightly rough~~.

Habitat and Distribution. - On soil and in deep moss, Tennessee and North Carolina, September-November.

CORTINARIUS RENIDENS Fr.  
Epicr. Myc., p. 308. 1838

*Hygroph*

Pileus 2-4 cm. broad, convex, expanded-convex, obtusely umbonate, glabrous, "roods-brown" when moist, hygrophanous and fading, orange-buff when dry. Flesh concolorous, then pallid; odor and taste mild. Lamellae adnate, close, broad, at first pallid, at length cinnamon-tawny. Stipe 3-5 cm. x 4-7 mm., ochraceous-buff, at length pallid, solid, equal or slightly enlarged below.

Spores 6-7 x 4-5  $\mu$ , ellipsoid-ovoid, coarsely punctate.

Habitat and Distribution. - On soil, under hemlock, Tennessee, May.



CORTINARIUS RIGENS Fries  
Epicr. Myc., p. 311. 1838

*Hygrograph*

(N.A.F. 10:345)

"Pileus fleshy, rather rigid when dry, campanulate-expanded, subumbonate, obtuse or broadly gibbous, 2-5 cm. broad; surface glabrous, even, hygrophanous, cinnamon-rufous (R) to Capuchin-brown (R) when moist, fading to ochraceous-buff (R) and then with delicate canescent innate fibrils; margin at first straight; context thin, concolorous, fading to white, the odor somewhat penetrating, subaromatic; cortina scanty, white; lamellae adnate, subdecurrent, broad, close, becoming subdistant, pale-clay-colored, then pale-cinnamon, the edge cremlate-eroded; stipe tapering downward and subradicating, sometimes equal, sometimes fusiform, 5-8 cm. long, 5-9 mm. thick, toughish, more rigid-brittle when dry, the cortex cartilaginous, stuffed, then hollow, pruinose at the apex, at length silky-shining and whitish; spores ellipsoid, almost smooth, 7-9 x 4-5  $\mu$ ."

Habitat and Distribution. - On soil, in conifer and mixed woods, Appalachian Mountains to Tennessee.

CORTINARIUS RIGIDUS Fr.  
Epicr. Myc. p. 302. 1838

*Hygrophanus*

Pileus 1-2 cm. broad, convex-explanate to campanulate, umbonate, hygrophanous, micaceous, "bistre" (moist), drying in radial streaks to pale cinnamon to yellowish-tawny (not matched), silky, striate. Flesh thin, pallid; odor and taste raphanoid. Lamellae emarginate-decurrent, broad, ventricose, "clay color," finally "snuff brown," nearly close to sub-distant, alternately long and short, edges even. Stipe 3-5 cm. x 2-3 mm., dingy to whitish, with one or more white bands, fibrillose, hollow, equal.

Spores 7-8 x 4-5  $\mu$ , punctate, ellipsoidal.

Habitat and Distribution. - On soil, in spruce woods, Tennessee, August.

Discussion. - I found the pileus and gills blue in KOH, but Smith doubts my findings.



Cortinarius *rigidus* Fr.

CORTINARIUS SCANDENS Fries

Epicr. Myc., p. 312. 1838

*Hygroph*

Pileus 1-2.5 cm. broad, convex, expanding, slightly umbonate, glabrous, hygrophanous, rusty-brown, somewhat striatulate when wet. Flesh thin, concolorous; odor and taste mild. Lamellae adnate, at times emarginate, narrow, close to subdistant, pallid-brown, then cinnamon. Stipe 3-5 cm. x 2-5 mm., tapering somewhat downward, flexuous, stuffed, then hollow, fulvous when moist, pallid when dry, scarcely fibrillose at first by the remains of the scanty white cortina.

Spores <sup>6-7.5 x 4-5(6), wrinkled</sup> ~~7-9 x 4.5-5  $\mu$~~ , ellipsoid, ~~punctate~~.

Habitat and Distribution. - On soil, in deciduous and conifer woods, North Carolina, July and September.

CORTINARIUS SCUTULATUS Fr.

Epicr. Myc., p. 294. 1838

*Hygroph*

Illustration:

Plate

*at times ± acutely umbonate,*  
*2-6*  
*Sometimes* Pileus *2.5-4* cm., hemispheric-convex, expanding, ~~at times~~  
wavy, "dark grayish brown" (young), "wood brown" (mature)  
with a violet tint on margin, *disk often "clay color",* zoned as it dries, somewhat  
hygrophanous, densely and delicately tomentose-fibrillose *or silky,*  
margin incurved, even or faintly rugose. Flesh whitish,  
thick on disk, thin on margin; odor and taste mild. Lamellae  
rounded-adnate, finally adnexed, "deep heliotrope gray"  
(young), finally "snuff brown" *or "argus brown"* but retaining a faint tint  
of violet, *to subdistant,* close <sup>rather</sup> broad, edges entire. Stipe  
*3-6* ~~4-5~~ cm. x *4* ~~5~~-8 mm., violaceous (young), finally shining white  
with a violaceous apex, dry, densely white-fibrillose when  
young; veil copious, white, webby, leaving a superior or  
nearly median wellaneous band, slightly clavate when young  
and more or less so at maturity, hollow.

Spores 8-10 x 5.5-7  $\mu$ , minutely tuberculate, ellipsoidal.

Habitat and Distribution. - On soil, under fir *and oak, Tenn. &* North  
Carolina, *July -* September.



20567 - *Cortinarius scutulatus* Fr.

F 18648

*Cortinarius*

~~NAUCORIA~~ SUBCUSPIDATA

u.s.

(Murr.) comb. nov.

*Hygroph* - ?

Lloydia 7: 322. 1944

Cortinarius subcuspidata (Murr.) comb. nov.

Type

Pileus about 1 cm broad, hemispheric with a very small umbo, fulvous, the umbo dark-fulvous, glabrous, margin even. Context very thin.

Lamellae sinuate, pale fulvous, edges white, broad, medium distant, inserted.

Stipe 2 cm long, 1 mm thick, concolorous, slightly fibrillose, crooked, equal.

Notes by Hesler (*Type*)

Spores 8.5-10(11) x 4.5-5.0  $\mu$ , slightly to scarcely inequilateral in profile, rather slender oblong-ellipsoid or subpip-shaped, rough (low-tuberculate), wall medium thick, yellowish brown in water, reddish rusty brown in 2% KOH, and in Melzer's reagent. Pleurocystidia and cheilocystidia none found. Pileus cuticle of repent hyphae, with a few epicuticular hyphae not incrustated. Stipe of repent hyphae, with scattered caulocystidia, 33-46 x 4-5  $\mu$ , variable in shape.

Type (F 18648) collected by Murrill, on dead hardwood, Kelley's Hammock, Gainesville, Fla., August 15, 1943.

The material is sparse, and appears to be old; not

F 18648

N. subcuspidata - 2

satisfactory for critical study. I have reservations as to the genus to which it should be assigned--perhaps Cortinarius.



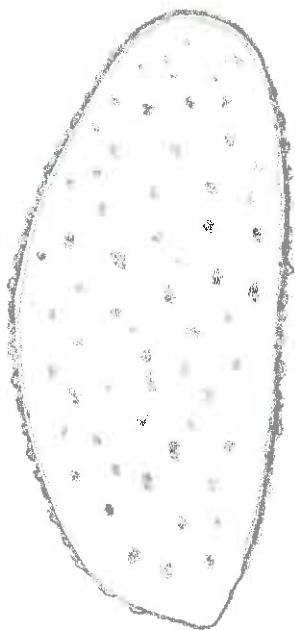
*Naucoria subcaespidata* Murr.

Type - 7 18648

[ = Cortinarinus ? ]



Acaule x 1000



Profile

Face

Spores x 8000

CORTINARIUS SUBFLEXIPES Pk.

N. Y. State Mus. Ann. Rept. 41:73. 1888

Hygroph

Pileus 1.5-3.5 cm. broad, conic-campanulate, umbonate, hygrophanous, disk "snuff brown," elsewhere "sage brown," white-silky, drying in radial streaks, margin at first incurved, even. Flesh thin, fragile, brown; odor and taste mild. Lamellae emarginate, violaceous at first, finally "sudan brown," ventricose, rather broad, nearly subdistant. Stipe 3-5 cm. x 3-5 mm., pale brown, apex tinged violaceous, with one white, median band, silky, faintly sub-bulbous or equal, hollow. Veil white, sparse, leaving a band around pileus margin.

Spores 6-8 x 5-5.5  $\mu$ , ellipsoid, rough.

Habitat and Distribution. - On soil, in mixed woods, Tennessee and North Carolina, July-August.



20545 - *Cortinarius*<sup>sub</sup> *flexipes* Fr. (x 2)



21892 - *Cortinarius subflexipes* PK.



21895 - *Cortinarius subflexipes* PK.

Cortinarius subjuberinus Murrill

*Hygrophana*

Murrill's description (Elisha Mitchell Sci. Soc.

Jour. 55:366. 1939):

"Pileus convex to plane, gregarious, 3-4 cm. broad; surface smooth, glabrous, hygrophanous, isabelline, fulvous in the center, margin even, entire; context thin, pallid, mild; lamellae adnate, broad, inserted, medium distant, undulate on the edges, fulvous, fragile with age; spores ellipsoid, sometimes inequilateral, 1-guttulate, tuberculate, deep-ferruginous, about  $7-8 \times 5 \mu$ ; cystidia none; stipe tapering upward from a clavate base, smooth, lilac-tinted, about  $4 \times 0.5$  cm.; bulb small, immarginate; cortina soon vanishing, leaving a few fibrils on the stipe.

"Type collected by E. West and W. A. Murrill under hardwood trees in South Planera Hammock, eleven miles northwest of Gainesville, Fla., Oct. 26, 1938 (F 18408). A small, slender species with pale-lilac stem and immarginate bulb."

*Spores of No. 16135 (not type),  $8-9.5 \times 5-6.5 \mu$ , ellipsoid, tuberculate.*

CORTINARIUS TORVUS Fries  
Epicr. Myc., p. 293. 1838

Hygroph

Pileus 3-6 cm. broad, convex to plane, obtuse or subumbonate, more or less hygrophanous, at first violaceous, purplish-brown, or copper-brown, finally paler, the disk rusty-fulvous or "cinnamon drab," elsewhere "purple drab," hoary-frosty, sometimes furfuraceous-scaly, glabrescent, at times radiately rugose. Flesh pale, soon dull grayish-purple or "pallid vinaceous drab," finally brownish, at times fading; odor aromatic, spicy (after crushing the flesh), taste slight or mild. Lamellae adnate, becoming emarginate-adnexed, broad, subdistant, alternately long and short, thin, at first dark-purplish or "dark purple drab" to "dark livid brown," finally dark-cinnamon-umber. Stipe 4-8 cm. x 6-9 mm., clavate-bulbous, tapering upward, peronate by the whitish universal veil terminating in a superior flaring membranous ring, dull-violaceous or purplish drab, white-streaked, flesh vinaceous, and silky above the veil, spongy-solid.

Spores 8-11 x 5-6.5  $\mu$ , ellipsoid, punctate-rough, "snuff brown" in mass.

Habitat and Distribution. - On soil, in deciduous and conifer woods, Tennessee and North Carolina, June-September.



Cortinarius torvus Fr.





Cortinarius torvus Fr.

CORTINARIUS URACEUS Fr.  
Epicr. Myc., p. 309. 1838

*Hygroph*

Illustration:

Plate

Pileus 3-5 cm., convex, umbonate, umbo prominent, acute, hygrophanous, pale dull brownish and silky, shining when dry, darker ("walnut brown") and radiately streaked blackish when wet, umbo "army brown" to black, margin incurved at first. Flesh dingy-grayish, thick on disk, thin on margin; odor and taste of radish. Lamellae emarginate, at first ~~sepia~~ <sup>watery brown</sup>, finally "warm sepia," nearly close, broad, thin, markedly rugose on sides. Stipe 4-8 cm. x 6-10 mm., dingy, apex and base tinted violaceous, clavate-enlarged below, dry, fibrillose-striate, hollow. Veil rather sparse, at times leaving a slight apical ring.

Spores 8-9.5 x 5-6.5  $\mu$ , <sup>minutely tuberculate,</sup> ~~slightly rough~~, ellipsoidal.

Habitat and Distribution. - On soil, in spruce woods, North Carolina, <sup>July -</sup> August.



19005 - *Cortinarius wraceus* Fr.



19263 - *Cotularia arvensis* Fr.



Cortinarius ~~gentilis Fr.~~  
*wraccus Fr.*

Hygrophan -

CORTINARIUS WESTII (Murr.) Singer

Agar. in Modern Taxonomy, p. 628. 1962.

Galerula westii Murr., Torrey Bot. Club Bull. 67:280. 1940.

Murrill's Description

Pileus 1-1.5 cm broad, conic to subexpanded, umbonate, hygrophanous, fulvous when moist, isabelline when dry, pruinose, margin even, straight and appressed when young. Context very thin, white; odorless, taste mild.

Lamellae adnate, pallid to subferruginous, broad, distant, inserted.

Stipe 3-4 cm long, 2-3 mm thick, white, glabrous, equal, cartilaginous. Veil slight, whitish, disappearing at a very early age and leaving no annulus.

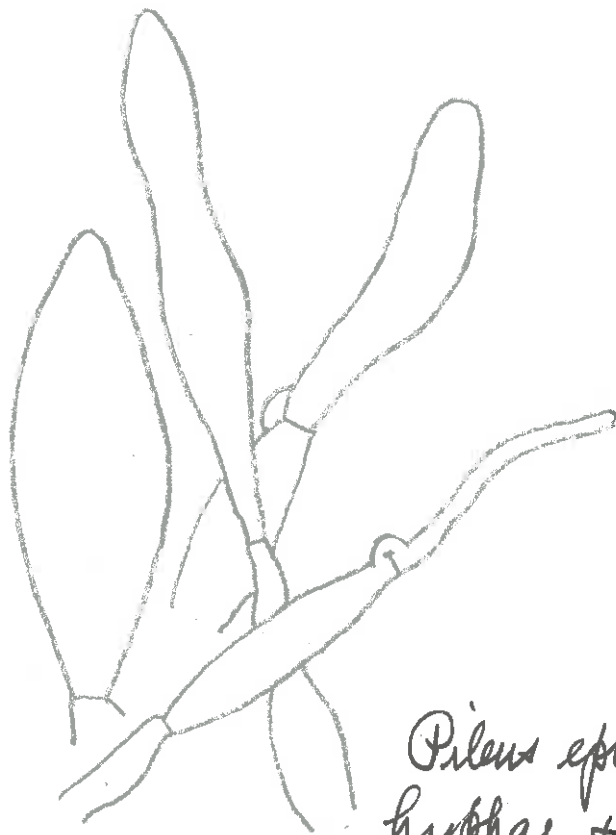
Notes by Hesler (Type)

Spores 7-8.5 x 5-5.5  $\mu$ , ellipsoid, no germ-pore, wall of medium thickness, rugulose-warty, brownish with a faint yellowish tint. Pleurocystidia and cheilocystidia none. Pileus cuticle of dry, repent hyphae; surface bearing colorless, septate, epicuticular hyphae, the terminal elements often as pileocystidia. Stipe cuticle similar and with similar epicuticular elements. Clamp connections on epicuticular hyphae of both pileus and stipe.

Type, F 18428, on soil, under hardwoods, Sugarfoot, near Gainesville, Fla., Nov. 23, 1938.

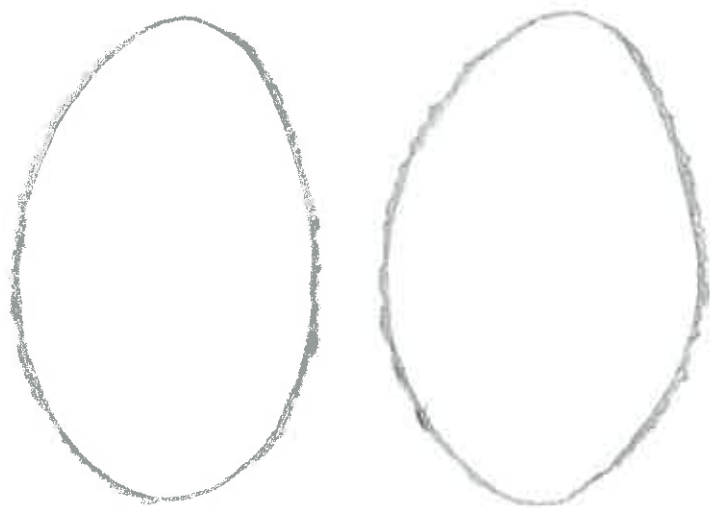
*Cortinarius westii* (Murr.) Sing.  
(Galerula) Type: F 18428

*Hypophanema*



Pileus epicuticular  
hyphae + pileocystidia  
x 1000

[Similar elements also found  
on stipe cuticle]



CORTINARIUS WESTII (Murrill) Singer

Agar. p. 553, footnote. 1949

*Hygrophanus*

Galerula Westii Murr. Torrey Bot. Club Bul. 67:280. 1940

"Pileus conic to subexpanded, umbonate, closely gregarious, 1-1.5 cm. broad; surface hygrophanous, fulvous when moist, isabelline when dry, becoming fulvous again after artificial drying, smooth, pruinose, margin even, straight and appressed when young; context very thin, white, odorless, mild; lamellae adnate, broad, distant, inserted, entire, pallid to subferruginous; spores ellipsoid, smooth, 1-guttulate, pale-ferruginous, about  $8 \times 5 \mu$ ; cystidia none; stipe cartilaginous, equal, smooth, glabrous, white, 3-4 x 0.2-0.3 cm.; veil slight, whitish, disappearing at a very early stage and leaving no annulus.

"Type collected by E. West and W. A. Murrill in damp soil under hardwood trees in Sugarfoot Hammock, near Gainesville, Fla., November 23, 1938 (F 18428). Abundant in the type locality but not found elsewhere. The conic umbo is prominent and rather distinctive."



CORTINARIUS No. 8163

Pileus 2-3 cm. broad, convex-hemispheric, expanding convex, hygrophanous, "tawny olive" (dry), "Saccardo's umber" (wet), densely appressed-fibrillose, margin incurved. Flesh near "citron yellow"; odor and taste of radish. Lamellae adnate, becoming adnexed, at first yellow with a tinge of olive, finally "sage brown," rather close, becoming nearly subdistant, broad, edges pallid, rough. Stipe 3-4 cm. x 5-8 mm., dingy-brownish, flesh greenish-yellow, fibrillose, fibrils reddish and forming a reticulum, clavate-bulbous, becoming hollow. Veil webby, white, evanescent.

Spores 8-9.5 (10) x 5-6  $\mu$ , ellipsoid, minutely warty, near "sage brown" in mass (spore-deposit thin).

Habitat and Distribution. - Near DeSoto State Park, DeKalb County, Alabama, April 4, 1959.

Discussion. - This should be C. raphanoides Fr., but the pileus seemed to be somewhat hygrophanous.

*Hygrocybe*

Pileus 3-4 cm. broad, convex, expanded, slightly umbonate, dry, margin even and finally wavy and upturned, hygrophanous, "cinnamon" (dry), "argus brown" (wet), with scattered white fibrils. Flesh thick on disk, elsewhere thin, brittle, odor and taste mild. Lamellae "ochraceous-tawny," adnate-emarginate then sinuate, broad, ventricose, close, veined on face. Stipe 3-4.5 cm. x 5-6 mm., equal or slightly enlarged at base, solid, dry, whitish but streaked cinnamon, fibrillose-striate.

Spores 6-8 x 4.5-5  $\mu$ , elliptical, punctate. Cheilocystidia 23-30 x 4-7  $\mu$  (Smith).

Habitat and Distribution. - On soil, in woods, base of Mt. LeConte, Tennessee, July.

Discussion. - In his key, Smith says, "Cheilocystidia ventricose at base, with flexuous necks." (p. 51) "I can't tell whether it is a Telamonia or Hydrocybe and it does not run down either way."--Smith, Letter, August 12, 1940.

Cortinarius

(No. 14776)

*Hygrophana*  
(*Graciles-Macrophorae*)

Pileus 2-4 cm. broad, campanulate, with a conic umbo, hygrophanous, "pinkish buff" over disc, paler outward, becoming whitish all over in age, silky, becoming rimose, margin even. Flesh thin, white, fragile; odor and taste mild or slight. Lamellae adnexed, rather broad, ventricose, near "cinnamon," edge paler, nearly close. Stipe 4-9 cm. x 3-4 mm., whitish, silky, shining, equal or tapering downward, hollow. Spores ellipsoidal, ~~9-11 x 6-7  $\mu$~~  <sup>8-10 x 5-6, punctate</sup>, slightly rough.

The same species was collected by L. R. Hesler on  
Clingman's Dome, Sept. 1942, but the collection was lost.

Great Smoky Mountains National Park, Tennessee, October.

Cortinarius

*Hygrophana*

(No. 16423)

Pileus 10-15 cm. broad, convex-expanded, near "cinnamon-brown" to "dark watery brown" (not matched), hygrophanous, canescent at first. Flesh thick, firm, pallid to watery-brown; odor and taste of radish. Lamellae emarginate, "sudan brown," transversely rugose, ventricose, very broad, close, edge fimbriate. Stipe 5-13 cm. x 15-25 mm., dingy-brownish, shining, stuffed with a "pith," equal or slightly bulbous. Spores 6.5-8 x 4.8-5.6  $\mu$ ; ovoid to subpyriform, slightly rough.

Smith does not know it; need young caps.

Highlands, North Carolina, September.

Cortinarius

*Hygrophanus*

(No. 16427)

Pileus 4-7 cm. broad, convex, then expanded plane, hygrophanous, "ochraceous-tawny" (dry), "Rood's brown" (wet), glabrous except marginal one-fourth which is scaly, faintly concentric-zoned, not viscid. Flesh pallid (dry), brown (wet), thick on disk, thin outward; <sup>odor + taste mild.</sup> Lamellae medium broad, crowded, "cinnamon" (at first), finally "auburn," scarcely reaching margin. Stipe 3-7 cm. x 5-10 mm., <sup>pallid,</sup> dry, more or less clavate and tapering upward, pallid; veil leaving a few brownish zones on stipe, with a tubule. Spores short ellipsoidal, 6-7 x 4.5-5  $\mu$ , nearly smooth.

→ Near C. glabrellus Kauff.

Highlands, North Carolina, frondose woods, September.

*Hygrophana*

Pileus 2-4.5 cm. broad, convex-campanulate, umbonate, often acutely-umbonate, somewhat hygrophanous, with an olive tint, "dresden brown" to "olive brown" or "Saccardo's umber," margin "old gold," disk "mummy brown," silky-fibrillose, often fibrillose-scaly on central portion, virgate (under lens), margin even. Flesh thin, rather fragile, olivaceous; odor and taste of radish. Lamellae adnexed, becoming emarginate-uncinate, pale olive-brown "yellow-ocher," becoming near "buckthorn brown," crowded, rather broad, edges denticulate-eroded, face corrugated or crisped. Stipe 5-7 cm. x 4-6 mm., equal or slightly enlarged downward, fibrillose-striate, dingy yellowish-<sup>near</sup>olive,/"olive-ocher," fibrils darker, tubular.

Spores 9-11 x 5-5.5  $\mu$ , ellipsoid, punctate. Basidia 22-30 x 8-10  $\mu$ .

Habitat and Distribution. - On low, wet soil, under hemlock, Cades Cove, November.

Discussion. - Single or caespitose. Smith (May 15, 1946) says it looks like raphanoides but spores and KOH reaction are wrong.

*Hygrophana*

Pileus 2-4 cm. broad, convex, hygrophanous, fibrillose, "saya brown" (dry), "verona brown" (wet). Flesh pallid, thin; odor and taste of radish. Lamellae adnate to adnexed, "tawny olive" at first, then "cinnamon brown," close, edges even. Stipe 3-5 cm. x 8-10 mm., dingy whitish, base "Japan rose" (in every case), fibrillose, stuffed, equal.

Spores 5.5-7 x 4-4.5  $\mu$ , ellipsoidal, minutely wrinkled to nearly smooth.

Habitat and Distribution. - On soil, pine woods, Cades Cove, Tennessee, December.

Discussion. - Smith says it is closest to C. Bulliardii Fr.

Cortinarius

(No. 17298)

*Hygrophana*

Pileus 4-6 cm. broad, convex, expanded plane, somewhat wavy, subviscid (wet), appearing glabrous, hygrophanous, "cinnamon brown" (wet), "ochraceous tawny" (when dry), canescent, even. Flesh thick on disk, thin on margin, white to faintly violaceous; odor and taste mild. Lamellae emarginate, broad, ventricose, "sage brown" when mature (young gills not seen), crowded to close, edge crenulate. Stipe 3-6 cm. x 8-14 mm., dingy, faintly violaceous at apex, clavate-bulbous, tapering upward, stuffed. Spores ellipsoidal,  $7-8 \times 4-4.5$   ~~$7-9 \times 4.5-5$~~  microns,

~~smooth~~  
*punctate*

Knox County, Tennessee, pine woods, December.

*Similar to #21635*

*Hygrophana*



*Hygrophana*

Pileus (3) 4-7 cm. broad, convex-conic, expanding to nearly plane, with a prominent, sharp umbo, hygrophanous, not viscid, "warm sepia" to "verona brown," white-silky or canescent, fibrils finally disposed as minute scales, radiately streaked, somewhat rimose, margin splitting, even. Flesh thin, fragile, dingy brownish; odor and taste mild. Lamellae adnate-decurrent to rounded-adnate, seceding, violaceous ("heliotrope gray") at first, finally "mikado brown" to "snuff brown," very broad, ventricose, rather close, edges rough and paler, transversely rivulose. Stipe 6-12 cm. x 6-8 (10) mm., dry, "deep heliotrope gray" when young, fading at maturity to "light vinaceous gray," concolor within, with a white band (superior or median), somewhat peronate, clavate, not bulbous, hollow.

Spores 10-12 x 5-6  $\mu$ , ellipsoidal, punctate. Cheilocystidia present.

Habitat and Distribution. - On soil, under rhododendron, mixed woods, Highlands, North Carolina, August.

Discussion. - Near C. evernius Fr. Smith does not recognize it. Smith (January 16, 1956) says nearest his No. 24670 which had a purple-drab pileus. Has made a complete description; it has cheilocystidia.



Cortinarius

(same as 19011 ?)

*Hygrophana*

Pileus 3-7 cm., convex, expanding-convex, more or less acutely umbonate, hygrophanous, "verona brown" (wet), "wood brown" to "saya brown" (dry), silky-appressed, canescent, radiately streaked and easily splitting, margin incurved at first. Flesh thick on disk, thin elsewhere, pallid, tinged violaceous; odor and taste slight of radish. Lamellae rounded adnate-decurrent to emarginate, rather close, sides rugulose, broad, broadest behind, "quaker drab" at first, finally "verona brown," edges pallid. Stipe 7-12 cm. x 8-13 mm., basically "plumbago gray," more or less sheathed white, with white bands, twisted, flexuous, solid, becoming stuffed or hollow, base pointed. Inner veil webby.

Spores 8-9 x 5-5.5  $\mu$ , ellipsoidal, wrinkled rough. Cheilocystidia present.

Habitat and Distribution. - On soil, spruce forest, Indian Gap, North Carolina, July.

Discussion. - Smith (January 16, 1956) says it keys out to evernius, but has cheilocystidia like No. 18646, but has rougher spores than No. 18646, a raphanoid odor and taste, and much less incrustation on cuticle-hyphae.



Cortinarius

~~(same as 18646?)~~

*Hygrophana*

Pileus 4-6.5 cm., convex, obtusely umbonate, expanding, densely white-fibrillose, finally fibrils disposed into flat scales, buff color (not well matched), disk "avellaneous," subhygrophanous. Flesh thick and firm on disk, thin elsewhere; odor and taste mild or earthy. Lamellae rounded-adnate, pale brown with a violaceous tint (when young), "snuff brown" when mature, broad, close. Stipe 5-8 cm. x 8-10 mm., dingy with a white fibrillose sheath, violaceous above, tapering upward, clavate-bulbous, bulb 1-2 cm. diam., solid. Veil white, cortinate.

Spores 8.5-11 x 6-7  $\mu$ , ellipsoidal, minutely wrinkled.

Habitat and Distribution. - On soil, under spruce, Indian Gap, North Carolina, July.

Discussion. - Smith says same as his No. 33346 (January, 1956); no name yet.



Cortinarius

Cortinarius

(No. 19170)

*Hygrophana*

Pileus 5-6 cm. convex, broadly umbonate, margin incurved, fibrillose, subhygrophanous, "avellaneous." Flesh thick on disk, thin on margin, concolor to pileus; odor and taste mild. Lamellae rounded-adnate, "sage brown" to "cinnamon brown," edges paler and nearly even, medium broad, broadest behind, close. Stipe 7 cm. x 12 mm., concolor, fibrillose, veil leaving an inferior band, base enlarged. Spores <sup>tuberculate</sup> ellipsoidal, ~~rough~~, 9-10 x 5.5-6.5 microns.

Highlands, North Carolina, frondose woods, August.

Smith says nearest his <sup>#</sup> 31589. Get more data.



Cortinarius



*Hypoglyphana*



Cortinarius

(Compare <sup>\*</sup>19253 + 19281)  
see Notes

*Hypoph*

Pileus 3-6 cm., convex-campanulate, at times umbonate, hygrophanous, "ochraceous tawny" to "cinnamon brown," with a hoary silkiness. Flesh thin, brownish; odor and taste mild, slightly sweet. Lamellae adnate with a decurrent tooth, "drab" when young (scarcely violaceous), finally "sageal brown," edges paler, face rugulose, nearly close to sub-distant, broad behind, narrowed in front. Stipe 7-9 cm. x 6-10 mm., silky white, shining, laved with violaceous tint beneath silkiness, more definitely violet below, spongy to tubular, violaceous within. Cortina white, leaving an apical to medium annular zone.

Spores 9-11 x 5-5.5  $\mu$ , ellipsoidal, wrinkled.

Habitat and Distribution. - On soil, under spruce, Indian Gap, August.

Discussion. - Subcespitose to singly. Smith, January 28, 1956: "Cortinarius - I wrote this one up but am suspicious of the drab gills--don't ask why."

*Hygrophanus*

Pileus 12-17 mm., brownish or dark umber, but covered with a white or grayish silkiness, campanulate, umbonate, hygrophanous. Flesh dingy, firm but thin; odor and taste slight of radish. Lamellae adnate, at first violaceous, then "bister," nearly close, rather broad. Stipe 3-5 cm. x 3-4 mm., shining, dingy, with a flaring, membranous, apical collar (annulus), equal or slightly enlarged below. Cortina white.

Spores 7-8 x 4-4.5  $\mu$ , ellipsoidal, punctate.

Habitat and Distribution. - In humus, in spruce woods, Indian Gap, North Carolina, August.

Discussion. - Smith says near subflexipes but distinct. He has written it up.

*Hypophaea*

Pileus 1-3 cm., convex, expanding, at times umbonate and depressed around umbo, hygrophanous, not viscid, densely fibrillose to subscaly, nearly glabrescent, "buckthorn brown" with a greenish tinge, radiately streaked. Flesh yellowish with a greenish tinge; odor and taste of radish. Lamellae soon emarginate, medium broad, nearly subdistant, pale olive at first then "tawny olive," finally "sudan brown." Stipe 3-4.5 cm. x 4-5 mm., concolor to pileus, fibrillose, dry, solid. Veil olive, not copious.

Spores short ellipsoidal, punctate, 7-8 x 5-6  $\mu$ .

Habitat and Distribution. - On soil, spruce woods, Indian Gap, North Carolina, August.

Discussion. - Smith has written it up.

CORTINARIUS No. 19281

(Same as Nos. 19252 and 19253)

*Hygrophanus*

Fileus 4-6 cm., hygrophanous, "verona brown" (wet), silvery-fibrillose. Flesh fragile, whitish; odor and taste mild or slight. Lamellae adnate, seceding, "drab" (young), then "cinnamon drab," finally "natal brown," ventricose, broad, subdistant, edges whitish. Stipe 4-7 cm. x 1-2 cm., silvery above, "dark lavender" below, concolor within, base at times connate, solid-spongy, equal or subclavate. Cortina white, leaving a faint superior zone or band.

Spores 8-9.5 x 4.5-5.5  $\mu$ , punctate, ellipsoidal.

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

Discussion. - Smith has written it up.



Cortinarius

(compare 19252 and 19253)

*Hygrophana*

Pileus 2.5-3 cm., campanulate-conic, acutely umbonate, silky, hygrophanous, umbo buff, surrounded by white zone, outer half "drab" but covered with white silky fibers. Flesh thick on disk, elsewhere thin, white; odor and taste mild. Lamellae emarginate, drab then "snuff brown," medium broad, close. Stipe 3.5-5 cm. x 4-5 mm., apex white, elsewhere dingy, equal, slightly fibrillose, curved at base, dry, spongy; veil leaving a few white band-like remnants on stipe.

Spores 8-9 x 4.5-6  $\mu$ , minutely rough.

Habitat and Distribution. - On soil, in woods, Cades Cove, Tennessee, September.

Discussion. - Smith says (January, 1956) same as Sm-20517, and fits very well, only his from a sphagnum bog.



Cortinarius



*Hygrophanus*

Pileus 1-2 cm., conic-convex, expanding-convex, often slightly umbonate, hygrophanous, "cinnamon buff," densely fibrillose, radiately ridged. Flesh thin, concolor; odor and taste mild. Lamellae emarginate, moderately close, rather broad, broadest behind, "warm sepia," young gills not seen, even. Stipe 15-25 mm. x 3-5 mm., dingy brownish, fibrillose-striate, dry, equal above the sub-bulbous base, hollow.

Spores 9-12 x 4.5-5  $\mu$ , ellipsoidal, obliquely pointed one end, wrinkled. A few 22-24  $\mu$  long.

Habitat and Distribution. - On soil, mixed woods, Highlands, North Carolina, September.

Discussion. - Smith says it looks good, but no name yet. Same as his Sm-24672 (January, 1956).

*Hygrophanus*

Fileus 1-2.5 cm. broad, conic, then conic-expanded, more or less obtusely umbonate, silky, hygrophanous, "bister" (wet), "clay color" (dry), somewhat violaceous when young, drying in radiating streaks, margin with a white fibrillose band. Flesh pallid, thin; odor and taste mild. Lamellae adnate to adnexed, seceding, violaceous at first, finally "Prout's brown," nearly close, broad, ventricose, transversely rivulose. Stipe 3-5 cm. x 1.5-2.5 mm., dry, flexuous, brownish, 2-3 white band-remnants of veil, hollow. Veil rather sparse, white, fibrous.

Spores 7.5-8.5 x 4.5-5.5  $\mu$ , ellipsoidal, punctate.

Habitat and Distribution. - On soil, fir woods, Tennessee, September.

Discussion. - Smith (January, 1956) says it is the same as his No. 27513; has no name for it yet.

*Hygrophana*



Cortinarius

Cortinarius

(No. 19342)

*Hygrophana*

(wet or dry)

Pileus 4-7 cm., convex, expanding, glabrous, not viscid, hygrophanous, "ochraceous-buff," disk darker, <sup>brown when wet,</sup> obsoletely and obtusely umbonate, even. Flesh medium thick on disk, thin on margin, pale buff; odor mild, taste soon bitter. Lamellae emarginate with a decurrent line, close, broad (10 mm.), broadest behind, "pinkish cinnamon" (rather young), "cinnamon" to "sage brown," edge eroded. Stipe 5-7 cm. x 6-9 mm., dry, dingy brownish, silky, clavate (base up to 15 mm. diam.), tubular. Veil not seen. Spores ~~7.5-9 x 4.5-4.8 (5)  $\mu$~~  <sup>9-11 x 5-6  $\mu$ , subinequilateral,</sup> ellipsoidal, <sup>tuberculate</sup> ~~minutely rough~~, in mass: "ochraceous tawny." <sup>color</sup>

Highlands, North Carolina, frondose woods, September.

Close to C. nigrellus PK, but spores too large; near C. glandicolor which is mammillate.

Smith feels we need more data: color, taste. Says it looks like C. rigens (Jan. '56).



Cortinarius

*Hygrophana*

Pileus 15-25 mm., conic-convex, then convex, expanding, more or less umbonate, hygrophanous, not viscid, drying in radial streaks, at times radiately rugulose, "clay color" (dry), "snuff brown" (wet), silky, with a white marginal band, even. Flesh thin, brown; odor and taste mild. Lamellae adnate, at first "cinnamon buff," finally "sage brown" not broad, close to crowded. Stipe 2.5-4 cm. x 2-4 mm., dingy brown, striate, veil leaving a median or inferior white band, not viscid, more or less bulbous, stuffed-hollow.

Spores 7-9 x 4-5  $\mu$ , minutely tuberculate ellipsoidal.

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

Discussion. - Smith (January 16, 1956) has written it up.



Cortinarius

*Hygrophana*

Pileus 4-7 cm., convex-expanding, not viscid, hygrophanous, "cinnamon," darker when wet, glabrous, even. Flesh thin, fragile, pale orange-cinnamon; odor and taste mild. Lamellae emarginate, "cinnamon" then "sudan brown," transversely rugulose, close, broad. Stipe 4.5-7 cm. x 6-8 mm., equal or sub-bulbous, hollow, dry, "cinnamon" with white silky fibers.

Spores 8.5-10 x 5-5.5  $\mu$ , ellipsoid, punctate.

Habitat and Distribution. - On soil, in deciduous woods, Highlands, North Carolina, September.

Discussion. - Smith (January, 1956) says near angulosus Fr. but does not fade to right color. Flesh color is suggestive.



Cortinarius

*Hygrophana*

(No. 19400)

Pileus 6-9 cm., convex, expanding-plane, not viscid, hygrophanous, silky-appressed, dingy white at first, finally pinkish-gray (not matched), even. Flesh thick on disk, thin on margin, white; odor and taste mild. Lamellae rounded-adnate at first, finally emarginate, broadest behind, narrowed in front, close, "buckthorn brown" (young), finally "Prout's brown." Stipe 4-8 cm. x 10-15 mm., dry, fibrillose, with an ovoid bulb (up to 3 cm. diam.), white or dingy, spongy. Cortina webby, leaving a ring which is median then inferior. Spores  $9-10 \times 5-6.5 \mu$   
~~8-9.5 x 5-6  $\mu$~~ , ~~coarsely fuscate,~~ minutely rough, ellipsoidal.

Knox County, Tennessee, frondose woods, September.

Smith (1-16-56) says data insufficient.



Cortinarius

*Hygrophana*

Pileus 4 cm. broad, hemispheric-convex, then convex-expanded, obtusely umbonate, umbo black, elsewhere rusty-fulvus (dry), "brussels brown" (wet), hygrophanous, silky, glabrescent, striatulate to disk (wet). Flesh thin, brownish; odor and taste mild. Lamellae adnate, with a decurrent tooth, "cinnamon-buff" when young, "ochraceous tawny" to "sudan brown" when mature, nearly subdistant, broad, face rugulose, edges even. Stipe 6 cm. x 5 mm., pallid, with brown fibrils, flexuous, dry, equal, solid.

Spores ellipsoidal, 8-10 x 4.5-5  $\mu$ , punctate.

Habitat and Distribution. - Among moss, pine woods, Cades Cove, Tennessee, November.

*Hygrophana*

Pileus 3-5 cm. broad, hemispheric-conic, becoming convex, finally expanded, more or less umbonate, very hygrophanous, "ochraceous tawny" when dry, "cinnamon brown" to "Prout's brown" when wet, micaceous, white-silky and rimose, margin appearing striatulate (wet), even (dry), at first incurved. Flesh thin, pliant, pale tawny; odor and taste mild. Lamellae rounded-adnate, pallid-brownish when young, finally "cinnamon brown," very broad, ventricose, subdistant, broad, edges eroded or even. Stipe 4-6 cm. x 5-8 (10) mm., dry, brown, fibrillose-rimose, with one or more broad, distinct, white bands on lower half, tapering downward, base often pointed, solid. Cortina white, copious, evanescent.

Spores 9-12 x 3.5-4.5  $\mu$ , fusoid to subcylindric, punctate.

Habitat and Distribution. - On soil, in humus, pine woods, Cades Cove, Tennessee, November.

*Hygrophanus*

Pileus 2-3 cm. broad, convex, expanding-convex, hygrophanous, glabrous, "dusky brown" with a tint of violet, canescent-silky, even, more or less incurved. Lamellae "vinaceous gray" when young, finally "sage brown." Stipe "vinaceous gray" (within and without), peronate with a white sheath, base sub-bulbous. Cortina webby, copious, violaceous.

Spores broadly ellipsoidal, ends rounded-obtuse, 7-9 (10) x 5.5-6.5  $\mu$ , minutely rough.

Habitat and Distribution. - In humus on lawn under pine, Florida, December.

Discussion. - Close to C. castaneus Fr.; ~~compare~~  
also C. scutellatus Fr.

Cortinarius

*Hygrophana*

(No. 20452)

Pileus 3.5-4.5 cm. broad, convex, hygrophanous, zoned when wet, fibrillose, near "honey yellow" with darker tones, margin even but fibrillose-squamulose. Flesh whitish, medium on disk, thin on margin; odor and taste slightly alkaline. Lamellae adnexed, rather broad, close, "ochraceous tawny" when mature, pale clay when younger (earliest stage not seen). Stipe 6-10 cm. x 7-10 mm., equal or tapering downward, whitish, fibrillose, flexuous, stuffed. Spores <sup>5.5-7 x 4-4.5  $\mu$</sup>  ~~4.8-5.5 (6) x 4-4.8 (5)~~ microns, ovoid-ellipsoidal, <sup>punctate</sup> ~~minutely rough.~~

(Cf. Smith No. 27341.)

Great Smoky Mountains National Park, mixed woods,  
August.



20452 - *Cortinarius*

Cortinarius

(No. 20462)

*Hygrophana*  
Color ? young gills ?

Pileus 6-8 cm. broad, expanding wavy, somewhat depressed around disk, appressed-silky, not viscid, hygrophanous, "tawny," with "Kaiser brown" areas, margin with patches (veil-remnants?), even. Flesh whitish, thick on disk, thin on margin; odor and taste mild. Lamellae adnexed, medium-broad, sub-arcuate, close to crowded, transversely rugulose, "Rood's brown" (young stage not seen), edge even. Stipe dry, 7-8 cm. x 9-15 mm., dingy, equal above the ovoid bulb, bulb 15-22 mm. diam., shining, fibrillose-striate, stuffed. Spores ellipsoidal, rough, 8-10 x 4.5-5 microns.

Great Smoky Mountains National Park, North Carolina,  
under hemlock, August.





20462 - *Cortinarius*

*Hygroplava*

Pileus 3-6 cm. broad, conic, expanding, acutely umbonate, hygrophanous, "Saccardo's umber" (wet), "cinnamon-buff" (dry), appressed-silky shining, often depressed around disk, margin incurved when young, even. Flesh pallid, not thick; odor and taste none or mild. Lamellae narrowly adnate, seceding somewhat, brownish-drab when young (not matched), "Prout's brown" when mature, edges whitish and even, broad, close, many short, transversely rugulose. Stipe 4-6 cm. x 4-6 mm., brunnescent-dingy, base clavate-bulbous (or somewhat so), striate, hollow.

Spores variable, 9-11 (12) x 5.5-6.5  $\mu$ , ellipsoidal, tuberculate.

Habitat and Distribution. - On soil, road bank, Smokemont, North Carolina, August.

Discussion. - Smith (January 16, 1956) says it has basidia with vinaceous-red inclusions when KOH is applied. Is it near C. brunneofulvus?



20524 - *Cortinarius*

*Hygrophana*

Pileus 6-14 mm. broad, conic then mammiliform, acutely umbonate, hygrophanous, "rood's brown" (wet), paler (dry), silky, margin white with veil remnant (as bands or fibrils), even. Flesh pallid, thin; odor and taste mild. Lamellae adnexed, at first "snuff brown," finally "buckthorn brown," broad, close, edges even. Stipe 20-25 mm. x 1-2 mm., apex violaceous, pale brownish downward, covered by white fibrils (universal veil), peronate with a median, annular band, band at times flaring, collar-like, hollow, flexuous, usually curved, base often 2-4-connate, base slightly subbulbous.

Spores 7-8.5 x 4-4.5  $\mu$ , ellipsoidal, punctate.

Habitat and Distribution. - On sandy soil, roadbank, Smokemont, North Carolina, August.

Discussion. - Cf. Smith Nos. 27667, 27163, and 26797. Smith (January, 1956) says it is subflexipes (?) except it lacks violet gills. He is writing it up.

20525



20525 - *Cortinarius*

*Hygrophanus*

Pileus 2.5-5 (8) cm., convex, expanded, more or less umbonate, hygrophanous, canescent, glabrescent, "verona brown" (moist), paler (dry), disk dark or even blackish, radiately streaked on drying, margin silky, incurved, even. Flesh thin, white; odor and taste mild. Lamellae emarginate, "wood brown" or brownish-violaceous, finally bright "ochraceous tawny" to "sudan brown," close, broad, broadest behind, ventricose, narrowed in front, edges entire. Stipe 5-9 cm. x 7-10 mm., white-shining, apex violaceous, fibrillose-striate, scarcely bulbous, hollow, dry.

Spores 8-10 x 4.5-5  $\mu$ , ellipsoidal to slightly inequilateral, punctate.

Habitat and Distribution. - On soil, under fir, Clingmans Dome, Tennessee, September.

Discussion. - Near C. castaneus Fr. Cf. also C. periscelis Fr., C. praepallens, and C. privignus Fr. Smith says (January 16, 1956) it is nearest Sm-18358.



20579 - *Cortinarius*

Cortinarius No. 21023

*Hygrophanus*  
Color young gills?

Pileus 5.5 cm. broad, campanulate-convex, with a prominent, acute umbo, "buckthorn brown," hygrophanous, with dark, radial streaks, silky-rimose, even. Flesh white, thick on disk, thin elsewhere; odor and taste mild. Lamellae emarginate-adnexed, broad (up to 12 mm.), "sage brown," nearly subdistant. Stipe 11 cm. x 11 mm., brownish, fibrillose, equal, solid, dry. Veil (not observed when young) forming a median, pallid band.

Spores 8-10 x 5-7  $\mu$ , ellipsoidal, nearly smooth, pale yellowish-brown (under 'scope).

On soil, under spruce, Swain County (Park), North Carolina, September.



*Agaricus*

Pileus 2-3.5 cm. broad, hemispheric-convex, then expanding campanulate-conical with a more or less distinct conic umbo, somewhat hygrophanous, "dark vinaceous brown" at first, then "verona brown," shining, surface rough, not scaly, margin fibrillose, even. Flesh watery brown, tinged violaceous (except under disk); odor and taste mild. Lamellae adnate to adnexed, becoming emarginate, close, rather broad, "vinaceous gray" when young, finally "cameo brown," faces rugulose, edges rough. Stipe 4-6 cm. x 4-7 mm., dingy brownish below, violaceous above (without and within), stuffed-hollow, base sub-bulbous, veil remnants (fibers) scattered over upper half.

~~XXXXXXXXXXXX~~

Spores 7-8.5 (10) x 5-5.5 (7)  $\mu$ , ellipsoidal, punctate.

Habitat and Distribution. - On soil, live-oak woods, Leon County, Florida, December.



21046 - *Cortinarius*

*Hygroph*

Pileus 2-5 cm. broad, convex, expanding, finally plane and upturned-wavy, hygrophanous, "pinkish buff" to "chamois" (dry), "snuff brown" when wet, margin losing moisture last (drying from disk outward), conspicuously radiating-silky, shining, somewhat canescent, margin even. Flesh pallid, medium thick on disk, thin on margin; odor and taste mild or slight. Lamellae adnate-decurrent, emarginate, at first pale brown, then "clay color" to "sage brown," close, rather broad, slightly ventricose, edges even. Stipe 2.5-5.5 cm. x 6-10 mm., pallid-whitish, at times tinged "cinnamon drab," fibrillose-striate, apex white mealy, dry, equal, base sometimes sub-bulbous, stuffed-hollow. Veil sparse, disposed over stipe as brown fiber-aggregates.

Spores 8-9 (10) x 4.5-5  $\mu$ , ellipsoidal, sub-inequilateral, ends pointed, punctate.

Habitat and Distribution. - On soil, under live-oak, Florida, December.

Discussion. - Smith says it is not subrigens because spores are too broad; nearest Sm-27599 (Hygrophanus, Div. 4) (p. 72 in his key).



21054 - *Cortinarius subrigens* Kauff.  
(near Sm-27599)

*Hygroph*

Pileus 3-8 cm. broad, at first conic-campanulate, finally expanding and umbo obsolete, not viscid, hygrophanous, "pinkish buff" or paler when dry, watery-grayish-brown when wet, canescent at first, then densely appressed-fibrillose, margin with veil-remnants, even becoming wavy-upturned. Flesh thick on disk, thin on margin, pallid; odor faintly pungent, taste slight, pleasant. Lamellae sinuate-adnexed, seceding, "clay color" when young, "buckthorn brown" at maturity, rather close, ventricose, broad, edges even. Stipe 4-9 cm. x 5-10 mm., at first violaceous throughout, fading except base remains violaceous, dry, not annulate, solid or finally tubular, equal, with or without a very slight bulb.

Spores 6.5-7.5 x 4.5-5  $\mu$ , ellipsoid, minutely tuberculate, in mass: "ochraceous tawny."

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

Discussion. - A fairy-ring, 8 ft. diam. was formed. Smith has written it up.



21825 - *Cortinarius*

CORTINARIUS No. 21882

(near No. 17298)

*Hygroph*

Fileus 6-10 cm. broad, convex, expanding nearly plane, hygrophanous, "cinnamon buff" to "sayaal brown," much darker brown in age, radially streaked, appressed fibrillose, appearing glabrous, even. Flesh pallid, thick, abruptly thin on margin; odor and taste mild. Lamellae rounded-adnate or adnexed, pale brown when young, finally "sayaal brown" to dark brown, close, rather narrow. Stipe 7-12 cm. x 10-13 mm., brownish below, violaceous above then silvery, fibrillose, dry, bulbous, clavate-bulbous or bulb ovoid to ellipsoid, stuffed then hollow. Cortina sparse, whitish.

Spores 6-7 (8) x 4.5-5  $\mu$ , ellipsoid to ovoid, punctate.

Habitat and Distribution. - In deciduous woods,  
North Carolina, July.



21882 - *Cortinarius*  
(Same as #22016)  
(Same as 22049?)  
cf 20560



*Hygrophana*

Pileus 5-8 cm. broad, convex, expanding, hygrophanous, "Mikado brown" when wet, "cinnamon" or paler when dry, glabrous, drying in radial streaks, even. Flesh pallid-pink, thick on disk, abruptly thin on margin; odor and taste of radish. Lamellae adnate then adnexed, violaceous at first then "Rood's brown," medium close, broad, faces rugulose. Stipe 7-9 cm. x 10-12 mm., pallid, streaked watery brown, dry, fibrillose, shining, clavate-bulbous, spongy.

Spores <sup>ellipsoid</sup> short-ovoid, <sup>6-7 x 4.5-5.5  $\mu$  punctate</sup> ~~5-6 x 4.5-5  $\mu$  minutely rough~~

Habitat and Distribution. - In deciduous-hemlock woods, North Carolina, August.

Discussion. - Similar to No. 21882 collected in July 1955.

cf 17692  
20560

*Bozalei*

This has pale brown  
gills at first

( Smith says it does not key out in his ms.



22049 - Cortinarius

CORTINARIUS No. 22150  
(=Sm-Milford 10-4-45)

*Hygrophanus*

Pileus 1.5-3 cm. broad, conic-campanulate, expanding convex-campanulate to umbonate, often with a blackish umbo, hygrophanous, "cinnamon brown" to "snuff brown," disk much darker, minutely silky-fibrillose, margin pellucid-striate. Flesh thin, fragile, brownish; odor and taste mild. Lamellae uncinata to emarginate, close to nearly subdistant, broad, ventricose, faces rugulose, at first pallid (near "pinkish buff"), finally "cinnamon buff" to "clay color," edges even. Stipe 3-5 cm. x 2.5-6 mm., dry, dingy whitish, equal, stuffed, apex pruinose, elsewhere scattered fibrillose. Cortina leaving 3 or 4 white bands along stipe.

Spores 7-9 x 4.5-5.5  $\mu$ , ellipsoidal, wrinkled to punctate. (under oil). (Smith found spores to be 9-11 x 5  $\mu$ .)

Habitat and Distribution. - On soil, in spruce woods, North Carolina, September-October.

*Hygrophanus*

Pileus 5-6 cm. broad, conic then convex, nearly expanding, hygrophanous, "pinkish buff" (dry), watery "avellaneous" (wet), appressed-fibrillose, margin incurved. Flesh thick on disk, thin on margin, concolor; odor slight of wood, taste raphanoid. Lamellae emarginate, at first "avellaneous," finally "sage brown," subdistant, broad behind, narrowed in front. Stipe 6-8 cm. x 10-13 mm., concolor, fibrillose, clavate-bulbous, solid. Veil white, leaving evanescent traces along stipe (no band).

Spores 8-10 x 6-7  $\mu$ , ellipsoid, rough with low, punctate-warts.

Habitat and Distribution. - In deciduous woods, North Carolina, July.

Discussion. - Cf. C. subrigens, C. laniger, brunneofulvus, brunneus Fr.

*Hygrophorus*

Pileus 2.5-3 cm. broad, convex, finally expanding more or less, "cinnamon buff," slightly darker when young, hygrophanous, margin silky, glabrescent, even. Flesh thick on disk, thin on margin, whitish; odor slight of radish, taste bitter. Lamellae adnate, becoming adnexed, at first pallid-buff, then "avellaneous," finally "sage brown," close, broad behind, narrow in front, edges even. Stipe 4-8 cm. x 6-7 mm., whitish and densely fibrillose at first, brunnescent, rather glabrescent, clavate-subbulbous at first, finally slightly clavate or subequal, solid.

Spores 8-9.5 x 5-6  $\mu$ , ellipsoid to sub-ovoid, densely and minutely punctate.

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

*Hygrophanus*

Pileus 3-7 cm. broad, convex, becoming plane and more or less depressed from upturned margin, hygrophanous, at first marginal third grayish-violaceous, disk "cinnamon," finally margin near cinnamon-brown, central portion "tawny" to almost zinc orange, glabrous. Flesh pallid, pale orange next to cuticle; odor and taste mild. Lamellae adnate to adnexed, close, broad in front, narrowed behind, at first "pale brownish drab," finally "amber brown," edges even. Stipe 4-7 cm. x 8-15 mm., at first the apex grayish-violaceous, fading to whitish elsewhere dingy whitish, fibrillose, glabrescent, equal or clavate-sub-bulbous, solid, dry. Cortina webby, white, leaving an inferior annulus or ring.

Spores 7-8.5 x 4-4.5  $\mu$ , ellipsoid, slightly rough-punctate, "sage brown" in mass.

Habitat and Distribution. - Under pine, Tennessee, November.



22926 - Cortinarius

*Hygrophanus*

CORTINARIUS No. 23139  
under hemlock, dense woods  
Whiteside Road, Highlands, N. C., Aug. 17, 1958

Pileus 8-11 cm., convex, expanding plane, at first "pale pinkish buff" and radiately streaked brownish, finally "pinkish buff" and radiate streaks even more pronounced, the streaks composed of appressed fibrils, hygrophanous, scarcely viscid, margin even. Flesh thick on disk, thin on margin, pallid, tinged buff; odor and taste of radish. Lamellae emarginate, finally deeply so, at first "pinkish cinnamon," finally "mikado brown," at first close then nearly subdistant, very broad (up to 2 cm.), thin, faces rugulose, edges even. Stipe 6-11 cm. x 18-25 mm., pallid becoming dingy, more or less longitudinally streaked, with scattered fibrils, somewhat bulbous, bulb up to 34 mm. in diameter, more or less spongy, dry. Veil scanty, white tinged yellowish, at times leaving an inferior, evanescent ring.

Spores 6-7 x 5-5.5  $\mu$ , ovoid to subellipsoid, punctate-warty, in mass: "snuff brown."



23372

Cortinarius  
on soil, spruce woods  
Clingmans Dome, August 28, 1959

*Hygrophanus*

Pileus 2.2-2.8 cm. broad, conic, with a prominent sharp umbo, hygrophanous, "seal brown" then "walnut brown," umbo black, streaked with pale brown fibrils, margin even. Flesh thin, reddish-brown; odor and taste of radish. Lamellae adnexed, at first pallid tinted pale brown, finally "Kaiser brown," close, broad. Stipe 3-3.5 cm. x 2.5-3 mm., dark reddish brown, fibrillose, fragile, hollow, base more or less clavate.

Spores 8-9 x 4.5-5  $\mu$ , ellipsoid, wrinkled rough.

Hygrophanous

Cortinarius No. 23383  
in spruce woods  
Clingmans Dome, September 4, 1959

Pileus 4-7 cm. broad, convex, expanding, moist or somewhat hygrophanous, "pinkish-cinnamon," disk "sageal brown," with a dense, white silkiness (fibrils distinct under lens), margin wavy-lobed. Flesh pallid-cinnamon, thick, very firm; odor and taste raphanoid. Lamellae adnate becoming slightly adnexed, at first "hazel," slightly darker at maturity, close, broad, ventricose. Stipe 5-6 cm. x 16-22 mm., dingy brown, with a white silkiness, dry, equal or sub-clavate, spongy to hollow. Veil white, copious, leaving a superior annular ring.

Spores 9-11 x 5-5.7  $\mu$ , ellipsoid, wrinkled.

Near Sm-26692; cf. C. bivelus.

23450

Cortinarius  
on soil, deep humus, deciduous woods  
under maple, near Park Office, Gatlinburg  
October 17, 1959

Photo

Pileus 3-6.5 cm. broad, convex, becoming plane, hygrophanous, "warm buff" when dry, margin "pale ecru drab" to "light cinnamon drab" when wet, often zonate, minutely sub-virgate, margin even. Flesh white (dry), thin; odor none, taste slightly fungoid. Lamellae emarginate, pale violaceous, "pallid purple drab," soon "mikado brown," close, medium broad, many short. Stipe 4-8 cm. x 4-9 mm., at first "pallid purple drab," then dingy white, shining, with scattered reddish-brown fibrillöse patches (veil remnants), equal or tapering downward, hollow.



23450 - *Cortinarius*

23491

Cortinarius  
in deep humus, deciduous woods  
Pisgah Forest, October 5, 1959

Pileus 2-5 cm. broad, convex, expanding wavy, viscid, slightly hygrophanous, "lilac gray" to "pallid quaker drab," disk tinged "pinkish buff," minutely silky, edges even. Flesh "deep plumbago gray," in age fading to whitish; odor and taste mild. Lamellae adnexed-subdecurrent, at first "Varley's gray," finally near "sandal brown," close, medium broad, edges fimbriate. Stipe 3-9 cm. x 4-7 mm., at first plumbago gray (inside and outside) with white fibrillose coating, finally pallid violaceous, curved, base clavate, solid. Veil white, webby, copious, at times leaving a superior, evanescent ring on stipe.

23522

*Hygrophanus*  
Cortinarius  
in deciduous woods  
Homer Johnson's woods, Nov. 1, 1959

Photo

Pileus 1-5 cm., convex, soon plane, with a slight dark umbo, hygrophanous, "bister" when wet, margin pallid, "verona brown" when dry, with a slight coat of silky fibrils, margin even. Flesh concolor, thin; odor and taste mild. Lamellae adnexed, pallid-brown, finally "dresden brown," close, rather broad, many short. Stipe 2-4 cm. x 4-8 mm., dingy brown, with whitish silky streaks (veil), more or less striate, bases of 2 or 3 often united, bulbous, stuffed-hollow. Veil webby, white, the remains about the stipe-base. (No annulus).



23522 - *Cortinarius*

23533

Cortinarius  
in pine woods, Cades Cove  
October 26, 1959

*Hygrophanus*

Pileus 4-6 cm. broad, convex-campanulate, umbonate, finally plane, "tilleul buff" with radiately disposed (sub-virgate) brownish fibrils giving a grayish appearance, somewhat hygrophanous, appressed-fibrillose, margin even. Flesh dingy gray-brown, thick and firm; odor and taste mild or slight. Lamellae emarginate, at first pallid, finally "dresden brown," close, broad, edges rough (subserrate). Stipe 4-6 cm. x 8-16 mm., dingy gray-brown, longitudinally water-streaked, appressed-fibrillose, solid, base bulbous. Veil whitish, leaving a fibrillose ring at base of stipe.



23537

Cortinarius  
under pine  
Cades Cove, October 26, 1957

*Hygrophanus*

Pileus 2.5-6 cm. broad, convex, soon plane, at times broadly and obtusely umbonate, hygrophanous, "cinnamon" when dry, "van Dyke brown" when wet, glabrous, margin even. Flesh pallid brown, thick on disk; odor and taste mild. Lamellae adnexed to short-decurrent, at first pallid or nearly white, finally "Mars brown," close, broad, many short. Stipe 3-7 cm. x 6-11 mm., dingy whitish to brownish, fibrillose-striate, equal or enlarged at base, stuffed then hollow. Veil white, not copious, no annulus.



23745- *Cortinarius*  
(*Hygrophanous*)

23774

Cortuarius

*Hygrophanus*

Cades Cove, in deciduous woods

Oct. 18, 1960

Pileus 3-8 cm. broad, convex-conic, expanding-convex, hygrophanous, "cinnamon buff" to "clay color", rather conspicuously radiate-appressed-silky, margin with a white veil-band. Context tinged concolor, thin, fragile; odor and taste mild.

Lamellae rounded-adnate, seceding, at first pallid-brownish, finally "sage brown", close, medium broad.

Stipe 5-9 cm. x 7-18 mm., pallid or dingy, clavate (base up to 3 cm. diam.), fibrillose-striate, dry, spongy then hollow. Veil webby, white.

Spores

23745

Cortinarius

Photo

in oak woods

Oak Ridge, Oct. 21-60

Pileus 1-2.5 cm. broad, convex to sub-conic, then expanding-convex, hygrophanous, "verona brown" when wet, paler when dry, drying in pale radial streaks, with few to numerous, minute, white, silky fibrils, margin striate. Context rather thin, "verona brown"; odor and taste mild.

Lamellae adnexed or adnate, seceding, pallid brown, finally "Mikado brown", sub-close, finally subdistant, medium broad, ventricose, many short.

Stipe 3-8 cm. x 3-6 mm., dingy brown, with whitish fibrils, equal, dry, hollow. Veil remnants as white fibrils on pileus margin.

24154 (C-66) *Cortinarius*

*Hygrophanus*

on soil, deciduous woods  
Cherokee Farm, U.T.  
October 9, 1960  
Coll. T. H. Campbell

Pileus 5-7 cm. broad, convex bullate then applanate bullate, light tan, fibrillose, fibrils tan, background white, margin inflexed, flesh moist hygrophanous, flesh-colored, 5-6 mm. on disc and thinning to 1 mm. at margin. Lamellae close, pinnate, flesh-colored, margin crenate, 4 mm. broad, slightly broader behind, acute. Lamellulae in several series. Stipe 5-6 cm. x 5 mm., white, innately brown fibrillose on lower portion, base bulbous, bulb 1-1.5 cm., solid, flesh white. Odor none, taste none. Spore print light brown.

Pileus umbo more or less acute, hygrophanous, "snuff brown" wet, pale grayish-brown dry, drying in radial streaks, more or less micaceous, substriate. Context brownish; odor and taste mild.

Lamellae emarginate, at maturity "ochraceous tawny", broad, medium close, venose at cap, edges fimbriate.

Stipe dingy brown with dense grayish silky fibrils, equal, hollow. Veil forming an inferior grayish-white fibrillose band.



24360 - *Cortinarius*

CORTINARIUS No. 24610

on soil, pine woods  
near Walland, Dec. 20-'61

Pileus 15-25 mm. broad, convex-umbonate, hygrophanous, disc blackish, elsewhere "bister" to "snuff brown", radiately-appressed, fibrillose, faintly striate. Context dark brown, thick on disc; odor and taste mild.

Lamellae adnate then emarginate, near "ochraceous tawny" (young gills not observed), close, broad.

Stipe 3-4 cm. x 2.5-4 mm., pallid with many brownish fibrils, equal; with veil-remnants forming a medium-velar zone.



Pileus 4-9 cm., convex, expanding nearly plane, more or less umbonate, at times the umbo prominent and sharp, hygrophanous, watery brown (wet), "cinnamon buff" (dry), minutely scaly, striate to disc, incurved. Context thin, toughish, pliant, pale buff; odor and taste mild.

Lamellae emarginate, pallid brown then "cinnamon brown", broad, subdistant, many short.

Stipe 6-10 cm. x 5-9 mm., dingy brown, tapering upward or nearly equal, with a white, superior annular band, hollow.



24825 - *Cortinarius*

(Photo by Alan S. Heilman)



24825 - *Cortinarius*

Pileus 1.5-4 cm. broad, convex, at times umbonate, expanding more or less plane, hygrophanous, disc black, elsewhere "snuff brown" when wet, near "buckthorn brown" when dry, drying in radial streaks, margin with a narrow white zone, minutely pale silky, margin incurved, even or faintly short striatulate when wet. Context thin or medium thin, brown; odor mild, taste slightly unpleasant.

Lamellae adnate to subdecurrent, finally emarginate, at times seceding, pallid or pale brownish at first, "ochraceous tawny", finally "sage brown", broad, close, many short, edges even.

Stipe 3.5-6 cm. x 4-8 mm., pallid, at times faintly tinted brownish, appressed or innately silky, equal, veil not observed.

Spores



25013 - *Cortinarius*

CORTINARIUS NO. 25034

Pileus blue, fading to slightly brownish, dry. Odor and taste of radish.

Lamellae at first blue, finally brownish.

Stipe blue, dry, equal, Veil not seen.

CORTINARIUS No. 25651

PHOTO

In deciduous-coniferous woods, Deep Creek, July 11, 1963.

Pileus conic, acutely umbonate, "tawny olive" to near "buckthorn brown", minutely scaly, hygrophanous, margin even. Context dingy-pallid, firm; odor and taste mild.

Lamellae adnate or adnexed, broad, subdistant, brown from the first.

Stipe dingy-tawny, with scattered fibrils, equal or sub-bulbous, solid. Veil forming a superior medium-broad, white band (annulus).



25651

25651 - *Cortinarius*



*Hygrophanus*

CORTINARIUS No. 26030

Under hemlock, Cade's Cove, Aug. 31, 1963.

Pileus conic, then conic-campanulate, umbonate, hygrophanous, brownish, disc buff. Context thick, fragile; odor slight, taste more or less acidulous.

Lamellae emarginate, pale drab at first, then pallid-brown, finally "verona brown," broad, nearly close.

Stipe clavate, shining, white-silky, striate. Veil white, webby.

*Hygrophanus*

CORTINARIUS No.26038

Under hemlock, Cades Cove, Aug. 31, 1963.

Pileus yellow-brown, hygrophanous, more or less flat-scaly. Odor of radish, taste bitter.

Lamellae emarginate, red-rusty-brown, broad, ventricose.

Stipe dingy; more or less clavate. Veil not seen.

*Hygrophanus*

26060

CORTINARIUS

Under oak-pine, Cades Cove, Sept. 15, 1963.

Pileus dingy whitish, hygrophanous, dingy brown (wet), appressed-fibrillose. Context thick, whitish; odor of ripe pears, taste mild.

Lamellae yellowish-rusty, finally dark brown.

Stipe with a marginate-depressed bulb.

26216

CORTINARIUS

on soil, mixed woods, Cades Cove, June 3, 1964

Pileus convex-plane, rather acutely umbonate; hygrophanous, yellowish-tawny, densely white-silky, even (dry), striatulate to disc (wet). Context brownish, fragile; odor and taste mild.

Lamellae adnate-seceding, "ochraceous tawny", broad, ventricose, medium close.

Stipe pale-tawny, scattered-fibrillose, hollow, equal, no trace of veil on stipe.

26217

CORTINARIUS

on soil, mixed woods, Cades Cove, June 3, 1964

Pileus 3-5.5cm broad, wavy-plane, "ochraceous tawny", densely appressed-white-fibrillose (giving it a grayish pink-brown color), hygrophanous, even. Context concolorous under cuticle, elsewhere paler; odor and taste mild.

Lamellae adnate, close, narrow, at first violaceous, the "sage brown".

Stipe 4-5 cm x 8-11 mm, bulbous, bulb 18-22 mm, not emarginate, dingy pallid, apex violaceous, solid, no veil remnants.

29191

CORTINARIUS

On soil, under hemlock, Cades Cove, July 20, 1966.

Pileus convex, hygrophanous, brown (dark when wet, paler when dry), umbonate (more or less acute), radiately silky, more or less zonate especially along margin, even. Context pallid; odor and taste mild.

Lamellae emarginate, seceding, at first pale brown, finally darker brown (not matched), rather close, broad, ventricose behind.

Stipe pallid, equal. Cotina slight.

29404

CORTINARIUS

PHOTO

On soil, deciduous woods, Cades Cove, Sept. 30, 1966

Pileus "light cinnamon drab" or near "vinaceous fawn,"  
hygrophanous, white appressed-silky, broadly umbonate. Context  
pallid; odor and taste slightly raphanoid.

Lamellae emarginate, yellowish brown, young buttons not  
seen, close, rather broad.

Stipe dry, clavate-enlarged, whitish, veil leaving 2-3  
distant rings below, spongy-solid.



29404 - *Cortinarius*



*Hydrocybe*

29409

CORTINARIUS

PHOTO

On soil, deciduous woods, Cades Cove, Sept. 30, 1966

Pileus 4-8 cm broad, convex, expanding, hygrophanous, "pinkish buff," when dry, "dresden brown" when wet, drying in radial streaks, with minute white appressed fibrils, margin even. Context concolorous; odor and taste mild.

Lamellae emarginate, at first pale brown, finally "cinnamon brown," close, broad, ventricose.

Stipe 3.5-6 cm x 10-14 mm, pallid or whitish, lightly fibrillose-striate, ovoid-bulbous, solid. Veil sparse, white, ephemeral.



29409 - *Cortinarius*

*Hydnoide*

29419

CORTINARIUS

Cades Cove, Sept. 23, 1966

Pileus "cinnamon buff," hygrophanous, fibrillose, more or less conic, then expanded, umbonate, umbo more or less rounded, even. Context whitish; odor and taste faintly raphanoid.

Lamellae emarginate, yellow, nearly subdistant, ventricose, broad.

Stipe whitish-shining, subglabrous, slender-clavate, 3-7 cm x 3-7 mm, solid.

*Hydromyces*

29422

CORTINARIUS

Cades Cove, Sept. 23, 1966

Pileus "light orange yellow" to "capucine buff," hygrophanous, minutely silky, even. Context pallid; odor and taste raphanoid.

Lamellae emarginate, at first yellow, close, medium broad.

Stipe concolor, clavate, solid. Veil white, remnants as unperfect rings along stipe.

*Hydnum* f.c.

29423

CORTINARIUS

PHOTO

In soil, under beech, Hesler's woods, Oct. 2, 1966

Pileus caespitose or gregarious, convex-hemispheric, expanding-convex, white-silky, hygrophanous, disc pale brown, elsewhere tinged violaceous, margin even. Context pallid; odor slight, taste subraphanoid and obscurely bitterish.

Lamellae emarginate, "brownish drab," finally brown, close, rather broad behind, narrowed in front.

Stipe violaceous above, dingy brownish below, white-silky-fibrillose (silvery gray), equal or subclavate, spongy-solid.

Spores dull brown (not matched) in deposit.



29423 - *Cortinarius*

29888

CORTINARIUS

On soil, in pine woods, Walland, July 16, 1967

Pileus conic-umbonate, "buckthorn brown" tinged olive, radiately appressed-fibrillose, slightly hygrophanous. Context greenish; odor and taste mild or slight.

Lamellae adnate to sub-emarginate, olive then "Mars yellow," close, broad behind.

Stipe "pinard yellow," pruinose above, scattered fibrillose below, equal, more or less compressed, hollow. Veil arachnoid, white, fugaceous.

35877

CORTINARIUS (Hygrophanus)

Cades Cove, August 26, 1971

Pileus hygrophanous, "clay color" when dry, darker when wet (not matched), minutely silky-appressed. Context pale brownish; odor slight, taste strongly fungoid.

Lamellae emarginate, at first pallid-brown, soon reddish (near "Hazel"), close, ventricose-broad, lamellulae numerous.

Stipe pallid, longt. ~~streaked~~ streaked, fibrillose, dry, base bulbous. Cortina white, webby, evanescent.

Spores 8-10 x 5.5-6  $\mu$ , ellipsoid to slightly almond-shaped, wrinkled-rough.



*Hygrophanus*

35915

CORTINARIUS

Pine woods, Cades Cove, October 13, 1971

Pileus lilac, then dingy-lilac, finally a watery-brown-lilac.  
Odor mild. Gills lilac then brown. Stipe silvery-lilac, with an  
annulate band, bulbous.

*Hydrocybe*

40103

CORTINARIUS

In hemlock-pine woods, Cades Cove, October 12, 1975.

Pileus 4-8 cm broad, convex, then plane, silvery-violaceous, disc usually with a faint ochraceous tint, hygrophanous, not viscid, even. Context whitish but faintly and distinctly tinted violaceous; odor mild to faintly fruity-fragrant, taste mild.

Lamellae adnexed, at first (in "buttons") "light cinnamon drab", then "light brownish drab", finally tinged brown from spores, close, rather narrow, lamellulae short, numerous.

Stipe 3-7 cm long, 7-10 mm thick, silvery-violaceous, dry, solid, bulb ovoid. Veil white, fugacious.

Spores in deposit: "cinnamon brown".