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Tricholoma Notebook 1

L. R. Hesler

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Tricholoma

1. Clamps absent
2. Ch. rare, usually none
3. Terrestrial

Tricholomopsis

1. Clamps present, numerous
2. Ch. prominent, large to voluminous
(soon collapsing)
3. Siquicolous

Tricholoma

Murrill, W.A. A new fungus part of North
American Flora. Mycologia 6: 268-269. 1914.
(Synonyms of some Tricholomas - Melanoleucas)

Smith, Alexander H. Tricholomopsis (Agaricales)
in the Western Hemisphere. Brittonia 12: 41-
70. 1960.

O. M. Moser, Amst., says Dr. ^{Neuhoff,} ~~Matthes~~ ^{Rellingen,}
Rellingen, Holstein, is working on Tricholoma
(Oct 1960).

Key to Species of Tricholoma
of Southeastern United States

L. R. Hesler

November, 1957

TRICHOLOMA

List of Southeastern Species

(Numbers are those assigned in this Key)

- 33 acre Pk.
67 adustum Murr.
88 alabamense Murr.
3alachuanum Murr.
* albissimus floridanus Murr. - LEUCOPAXILLUS
21 albobrunneum (Fr.) Kummer
* alboflavida Pk. - MELANOLEUCA
17 aurantium Fr.
68 australe Murr.
60 calceifolium Murr.
* cartilagineum Fr. - LYOPHYLLUM
83 chrysenteroides (Pk.) Sacc.
43 cinnamomeum Murr.
97 citrinifolium Murr.
57 columbetta (Fr.) Kummer
75 compressipes Murr.
25 coryphaeum Fr. sensu Bres.
29 Davisiae Pk.
32 decorum (Fr.) Qué1.
79 Earleae Murr.
111 entoloma Murr. (see subrimosum)
24 equestre Qué1. (see flavovirens)
94 ferruginescens Murr.
35 flavescens Pk. (see Thompsonianum)
19 flavobrunneum (Fr.) Kummer
24 flavovirens (Fr.) Lundell

*Excluded from the genus Tricholoma.

- 80 floridanum Murr.
 40 formosum Murr.
 * fuliginum Pk. - LYOPHYLLUM
 86 fulvidiscum Murr.
 * fumescens Pk. - LYOPHYLLUM
 65 fumidellum (Pk.) comb. nov.
 23 fumosifolium Hesler
 41 hirtellum Pk.
 16 hygrophorum Murr.
 46 imbricatum (Fr.) Kummer
 47 imbricatum var. felleum Murr.
 90 impolitum Lasch
 99 intermedium Pk.
 * lasciviforme Murr. - MELANOLEUCA
 98 luteomaculans Atk.
 92 maculatum Murr.
 83 malodorum Murr. (see chrysenteroides)
 58 margaritum Murr.
 * melaleuca (Fr.) Pat. - MELANOLEUCA
 76 melaleuciforme Murr.
 * melaleucum (Pers.) Pat. var. caespitosum Murr. -
 MELANOLEUCA
 53 Memmingeri Murr.
 72 microspermum Murr.
 44 mutifolium Murr.
 48 myomyces Lange
 81 niveipes var. australis Coker
 * nudum (Fr.) W. G. Smith - LEPISTA
 108 odorum Pk.

*Excluded from the genus Tricholoma.

- 28 palustre A. H. Smith
 * panaeoliformis Murr. - LEPISTA
 6 peralbum Murr.
 * personatum (Fr.) W. G. Smith - LEPISTA
 18 pessundatum (Fr.) Quél.
 66 piperatiforme Murr.
 49 platyphylloides Murr.
 12 portentosum (Fr.) Quél.
 73 praebulbosum Murr.
 * praemagnum Murr. - LEPISTA
 91 pseudosordidum Singer
 74 quercicolum Murr.
 9 resplendens Fr.
 * russuloides Murr. - MELANOLEUCA
 31 rutilans (Fr.) Kummer
 100 saponaceum (Fr.) Kummer
 26 sejunctum (Fr.) Quél.
 5 silvaticoides Murr.
 * sordidum (Fr.) Kummer - LEPISTA
 64 striatifolium (Pk.) comb. nov.
 95 subacidum Murr.
 34 subacre Murr.
 71 subargillaceum Murr.
 * subcinereum Pk. - MELANOLEUCA
 11 subcylindrisporum Murr.
 42 subdecorosum Murr.
 84 subfulvidiscum Murr.
 61 subluteum Pk.

*Excluded from the genus Tricholoma.

- 111 subrimosum Murr. (see entoloma)
- 27 subsejunctum Pk.
- 52 subsilvaticum Murr.
- 38 subterreiforme Murr.
- 13 subterreum Murr.
- 22 subtransmutans Murr.
- 77 subvolkertii Murr.
- 109 sulphureum (Fr.) Kummer
- 30 terreum (Fr.) Kummer
- 35 Thompsonianum Murr. (see flavescens)
- 87 totilividum Murr.
- 70 tottenii Murr.
- 69 tumidum (Fr.) Gill.
- 102 unakense Murr.
- 20 ustale (Fr.) Kummer
- 93 ustaliforme Murr.
- 45 vaccinum (Fr.) Kummer
- 37 virgatum (Fr.) Kummer
- 107 virgineum Murr.
- 96 viriditinctum (Pk.) Sacc.
- 106 Watsonii Murr.
- 62 Westianum Murr.
- 110 No. 7114
- 7 No. 12958
- * No. 14092 - LYOPHYLLUM
- 104 No. 14101
- * No. 14137 - LYOPHYLLUM
- 82 No. 17259

*Excluded from the genus Tricholoma.

- | | | |
|---------------------------|----|-----------|
| * No. 17273 - LYOPHYLLUM | 39 | No. 22679 |
| * No. 18862 - LYOPHYLLUM | 15 | No. 22714 |
| 59 No. 19166 | 56 | No. 22924 |
| 101 No. 19321 | ? | No. 22932 |
| ? No. 19349 | | |
| 9 No. 19479 | | |
| 78 No. 19517 | | |
| 1 No. 19639 | | |
| 89 No. 19708 | | |
| * No. 19952 - LYOPHYLLUM | | |
| 14 No. 20167 | | |
| 36 No. 20221 | | |
| 8 No. 20242 | | |
| 105 No. 20252 | | |
| 2 No. 20587 | | |
| 59 No. 20927 | | |
| 59 No. 20937 | | |
| 51 No. 21067 | | |
| 85 No. 21370 | | |
| * No. 21486 - MELANOLEUCA | | |
| 55 No. 21609 | | |
| 103 No. 21610 | | |
| 54 No. 21883 | | |
| 59 No. 22047 | | |
| 50 No. 22165 | | |
| 4 No. 22231 | | |
| 63 No. 22421 | | |
| 10 No. 22433 | | |

*Excluded from the genus Tricholoma.

TRICHOLOMA

Key to Groups

1. Cuticle cellular.....Group I
1. Cuticle not cellular; hyphae parallel or interwoven..... 2
 2. Cuticle hyphae gelatinous, pileus viscid or at times glutinous.....Group II
 2. Cuticle hyphae non-gelatinous, pileus dry or only slightly viscid..... 3
3. Cuticle hyphae parallel or subparallel.....Group III
3. Cuticle hyphae interwoven, and not greatly different from those of the pileus-flesh.....Group IV

TRICHOLOMA

Group I: Cuticle of pileus cellular

Key to Species

1. Pileus 2-4 cm. broad, "mouse gray," disk darker, radiately rugose, glabrous, atomate; lamellae ashy; epicutis composed of large cells, variable in shape..... 1. No. 19639
1. Pileus 10-15 mm. broad, tinted lilac, disk darker, velvety; lamellae olivaceous; epicutis cells variable..... 2. No. 20587

TRICHOLOMA

Group II: Cuticle fibrillose, pileus viscid or glutinous

Key to Species

1. Pileus entirely white, or white with tints of gray,
yellow, green, isabelline, or brown..... 2
1. Pileus wholly colored..... 9
2. Gill-trama interwoven..... 3
2. Gill-trama parallel or subparallel..... 4
3. Gill-trama composed of large-celled, sub-divergent hyphae;
stipe viscid; pileus at times isabelline, disk
fuliginous, not virgate..... 3. alachuanum Murr.
3. Gill-trama not as above; stipe dry; pileus white, virgate
with brown fibrils..... 4. No. 22231
4. Spores 9-11 μ long; pileus white or partly
cream..... 5. silvaticoides Murr.
4. Spores up to 7 μ long..... 5
5. Cheilocystidia present..... 6
5. Cheilocystidia absent..... 7
6. Pileus milk-white, odor earthy; lamellae subdistant;
stipe tapering downward; spores 5-7 μ long;
cheilocystidia cylindric, 35-45 x 2-4 μ 6. peralbum Murr.
6. Pileus white with yellow streaks and stains, odor
farinaceous; lamellae close; stipe base enlarged;
spores 4-5 μ long; cheilocystidia 28-60 x 6-15 μ 7. No. 12958
7. Odor mild; stipe white, apex flushed yellow; pileus
entirely white..... 8. No. 20242
7. Odor farinaceous or unpleasant; pileus white or tinged
ashy, yellowish, or yellowish-green..... 8
8. Pileus white, at times tinged ashy, smoky, or
yellowish, margin even; flesh white; epicutis hyphae
subparallel..... 9. resplendens Fr.
(also No. 19479)
8. Pileus white tinged yellowish or greenish-yellow,
margin lobed; flesh pale greenish-yellow; epicutis
hyphae interwoven..... 10. No. 22433
9. Pileus fuliginous, grayish, or olive-gray..... 10
9. Pileus with other colors..... 14

10. Spores sub-cylindric, 6-9 x 2.5-3 μ ; pileus dark-griseus, not virgate.. 11. subcylindrisporum Murr.
 10. Spores ellipsoid or ovoid, not subcylindric..... 11
11. Odor and taste mild; pileus fuliginous; epicutis hyphae often spirally thickened..... 12. portentosum (Fr.) Quel.
 11. Odor and taste farinaceous..... 12
12. Pileus grayish, no olive; lamellae white with a yellow tint; spores 4.5-6 x 2-4 μ ; cheilocystidia none..... 13. subterreum Murr.
 12. Pileus olive-gray or greenish-olive; lamellae white, unchanging; spores 4-5 μ broad..... 13
13. Pileus olive-gray; cheilocystidia present..... 14. No. 20167
 13. Pileus greenish-olive, "light-brownish-olive" or "Saccardo's olive"; cheilocystidia absent..... 15. No. 22714
14. Pileus slimy-viscid, avellaneous, blackening with age or on drying; lamellae white, unchanging..... 16. hygrophorum Murr.
 14. Not with the above characters..... 15
15. Lamellae becoming reddish-brown spotted in age or on bruising; gill-trama more or less parallel..... 16
 15. Lamellae not becoming reddish-brown spotted..... 21
16. Pileus tawny to zinc-orange; stipe peronate-scaly..... 17. aurantium (Fr.) Ricken
 16. Pileus and stipe not as above..... 17
17. Odor and taste farinaceous; epicutis vinaceous or pinkish in 2% KOH..... 18
 17. Odor mild; epicutis not so..... 19
18. Cheilocystidia present; flesh thick and firm; pileus sayal-brown with purplish tints or streaks..
 18. pessundatum (Fr.) Quel.
 18. Cheilocystidia absent; flesh rather thin; pileus reddish-brown or reddish-tawny.....
 19. flavobrunneum (Fr.) Kummer
19. Taste mild or fungoid..... 20
 19. Taste bitter; pileus reddish-bay to dark chestnut, margin even..... 20. ustale (Fr.) Kummer
20. Stipe bulbous; pileus pinkish-buff (dry), darker (when wet), margin even.. 21. albobrunneum (Fr.) Kummer
 20. Stipe equal; pileus light pinkish brown (shaded), dark brown (exposed), margin at length slightly sulcate..... 22. subtransmutans Murr.

21. Stipe viscid; pileus isabelline..... 3. alachuanum Murr.
 21. Stipe not viscid..... 22
22. Spores 8-10.5 μ long, fusiform; pileus ochraceous-
 tawny to tawny-olive; lamellae smoky.....
 23. fumosifolium Hes.
 22. Spores 7 μ or less in length; pileus yellow..... 23
23. Epicutis vinaceous in 2% KOH..... 24
 23. Epicutis not so colored..... 25
24. Lamellae white becoming yellow; gill-trama
 subparallel to parallel.. 24. flavovirens (Fr.) Lundell
 (equestre Quel.)
 24. Lamellae white, unchanging, trama subparallel
 to slightly interwoven.. 25. coryphaeum Fr. sensu Bres.
25. Pleurocystidia and cheilocystidia conspicuous, sub-
 clavate with a pointed apex; pileus margin even;
 odor mild, taste bitter..... 26. sejunctum (Fr.) Quel.
 25. Pleurocystidia and cheilocystidia none; pileus margin
 somewhat lobed; odor and taste farinaceous.....
 27. subsejunctum Pk.

TRICHOLOMA

Group III: Cuticle fibrillose, pileus dry or only slightly viscid; epicutis hyphae parallel or subparallel

Key to Sub-Groups

- 1. Spores 3.5-7 (8) μ long..... MICROSPORAE
- 1. Spores (7) 8-11 μ long..... MACROSPORAE

MICROSPORAE

- 1. Both pleurocystidia and cheilocystidia present..... Key A
- 1. Pleurocystidia absent, cheilocystidia only present..... Key B
- 1. Neither pleurocystidia nor cheilocystidia present..... Key C

Key A: Key to Species

1. Pileus yellowish, olive-ochre, or light yellowish-
olive..... 2
1. Pileus with other colors, fibrillose-scaly..... 3
2. Pileus light yellowish olive (greenish), virgate with
olive fibrils; flesh mild then acrid; lamellae
whitish to olive-buff, edges greenish; epicutis some-
what vinaceous in 2% KOH..... 28. palustre Smith
2. Pileus yellow to olive, not virgate; flesh
farinaceous then bitter; lamellae white, edges
concolor; epicutis not vinaceous in KOH.. 29. Davisiae Pk.
3. Lamellae yellow; carpophores lignicolous..... 4
3. Lamellae pallid, then smoky; terrestrial; pileus dark
gray..... 30. terreum (Fr.) Kummer
4. Pileus with pinkish to purple scales.....
4. Pileus with fuscous to grayish scales..... 31. rutilans (Fr.) Kummer
- 32. decorum (Fr.) Quéf.

Group III: MICROSPORAE

Key B: Key to Species:

(Pleurocystidia absent; cheilocystidia present)

1. Pileus glabrous or slightly fibrillose, not
conspicuously scaly..... 2
1. Pileus conspicuously scaly, spiny, or hairy..... 7
2. Pileus white or pale-grayish..... 3
2. Pileus not as above..... 4
3. Spores subglobose or short-ellipsoid; stipe equal or
tapering downward; pileus whitish or pale-gray (see
No. 34, below)..... 33. acre Pk.*
3. Spores ellipsoid; stipe sub-bulbous; pileus uniformly
white (see No. 33, above)..... 34. subacre Murr.*
4. Pileus flavous or yellow-buff..... 5
4. Pileus lacking yellow tints..... 6
5. Lamellae narrow; flesh rather thin... 35. Thompsonianum Murr.
5. Lamellae broad; flesh thick..... 36. No. 20221
6. Pileus conspicuously virgate, blackish, taste
slowly acrid; lamellae edges purplish-brown; some
hyphae of epicutis spirally thickened..... 37. virgatum (Fr.) Kummer
6. Pileus scarcely virgate, margin pallid, disk
umbrinous; taste farinaceous; lamellae white, edges
concolor; epicutis hyphae lacking spiral
thickenings..... 38. subterreiforme Murr.
7. Pileus yellow-ochre, scales brownish to black; taste
farinaceous..... 39. No. 22679
7. Pileus color and taste not as above..... 8
8. Pileus pale-testaceous, scales lateritious; taste
strong, earthy; stipe 10-20 mm. thick. 40. formosum Murr.
8. Pileus and stipe with different characters..... 9
9. Pileus pale-brown, fasciculate-hairy; spores
6-7.5 x 5.5-7 μ 41. hirtellum Pk.
9. Pileus and spores not as above..... 10
10. Pileus fulvous, umbo slightly darker, with long,
slender spines; spores 4-5.5 x 3.5-4.5 μ ;
cheilocystidia 40-76 x 6-18 μ ... 42. subdecorosum Murr.
10. Pileus bright reddish-cinnamon, imbricate-squamose;
spores 6-7.5 x 4.5-5.5 μ ; cheilocystidia 25-50 x
5-16 μ , agglutinated..... 43. cinnamomeum Murr.

*Singer concludes these are the same.

Group III: MICROSPORAE

Key C: Key to Species

(Neither pleurocystidia nor cheilocystidia present)

1. Pileus scaly or hispid..... 2
 1. Pileus glabrous or fibrillose, not conspicuously scaly... 9
2. Pileus color in the brown-series..... 3
 2. Pileus with other colors..... 6
3. Lamellae reddish-brown spotted..... 4
 3. Lamellae not spotted, sordid-white drying bay.....
 44. mutifolium Murr.
4. Cortina present in young stage; pileus-margin
 fibrillose (cortina-remnants).. 45. vaccinum (Fr.) Kummer
 4. Cortina none; pileus imbricate-scaly..... 5
5. Taste mild to slightly farinaceous.....
 46. imbricatum (Fr.) Kummer
 5. Taste bitter..... 47. imbricatum var. felleum Murr.
6. Cortina present; pileus margin woolly-fibrillose
 (cortina-remnants)..... 48. myomyces Lange
 6. Cortina none..... 7
7. Pileus pale-avellaneous, hispid; stipe tapering downward;
 spores globose to ovoid..... 49. platyphylloides Murr.
 7. Pileus, stipe, and spores not as above..... 8
8. Pileus white with brown to black scales; lamellae
 medium broad..... 50. No. 22165
 8. Pileus tinged red, scales appressed blackish
 fibrillose..... 51. No. 21067
9. Pileus white or whitish, or disk colored, or lightly
 tinted elsewhere..... 10
 9. Pileus neither white nor whitish (colors various)..... 18
10. Pileus uniformly white; odor and taste strongly
 farinaceous; spores 4-6 x 2-3 μ .. 52. subsilvaticum Murr.
 10. Pileus tinted on the disk or elsewhere..... 11
11. Pileus colors (tints) confined to the disk..... 12
 11. Pileus white but with tints throughout..... 15
12. Disk tawny or brown; flesh white, when cut changing
 quickly to bright yellow then brown, odor and taste
 earthy..... 53. Memmingeri Murr.
 12. Disk and flesh not as above..... 13

13. Disk fuliginous..... 14
 13. Disk buff or avellaneous; flesh white, unchanging; taste slight or none..... 54. No. 21883
14. Flesh pallid, odor mild, taste mild to somewhat bitter..... 55. No. 21609
 14. Flesh white, odor and taste musty..... 56. No. 22924
15. Spores 5.5-7 μ long; pileus often with red, yellow, or blue spots..... 57. columbetta (Fr.) Kummer
 15. Spores 3.5-5.5 μ long..... 16
16. Pileus pearly-white with a bluish tint; flesh taste bitter..... 58. margaritum Murr.
 16. Pileus and flesh not as above..... 17
17. Pileus white, tinged pale pinkish buff, drying apricot-buff; lamellae whitish becoming buff..... 59. No. 19166
 (also Nos. 20927, 20987, & 22047)
17. Pileus white with an avellaneous tint; lamellae chalk-white, unchanging..... 60. calceifolium Murr.
18. Pileus color in the yellow-series..... 19
 18. Pileus lacking yellow colors..... 20
19. Odor and taste mild; pileus umbonate; spores 6-7 x 4-6 μ .
 61. subluteum Pk.
19. Odor of anise, taste farinaceous; pileus convex; spores 5-6 x 3-4 μ .
 62. Westianum Murr.
20. Spores 3.5-5.5 (6) μ long..... 21
 20. Spores 5-8 μ long..... 30
21. Pileus "light buff," disk "sage brown" with an olive tint, faintly streaked radially; spores globose to subglobose..... 63. No. 22421
21. Pileus with different colors..... 22
22. Pileus color in the gray or smoky series..... 23
 22. Pileus color in the pinkish-brown, grayish-tawny, pinkish-cinnamon, or clay series..... 28
23. Pileus gray to grayish-brown, at times tinged red; lamellae striate or venose.. 64. striatifolium (Pk.) comb. nov.
 23. Pileus and lamellae not as above..... 24
24. Odor fragrant..... 25
 24. Odor mild or none..... 26
25. Lamellae close, broad; disk of pileus minutely scaly.....
 65. fumidellum (Pk.) comb. nov.
25. Lamellae subdistant, rather narrow; pileus glabrous.....
 66. piperatiforme Murr.*

*Further study may prove piperatiforme and australe to be the same.

26. Gill-trama interwoven; pileus isabelline (dry),
pale umbrinous (wet)..... 67. adustum Murr.
26. Gill-trama parallel or subparallel..... 27
27. Pileus 5-6 cm. broad, uniformly fuliginous; stipe 2 cm.
long..... 68. australe Murr.*
27. Pileus 7-12 cm. broad, pale smoky-gray, disk blackish;
stipe 6-9 cm. long..... 69. tumidum (Fr.) Gill.
28. Pileus pale grayish-tawny, disk tawny, lilac tints
in pileus and stipe; flesh rosy-tinted.....
..... 70. Tottenii Murr.
28. Pileus, stipe, and flesh not as above..... 29
29. Pileus pale-argillaceous (clay), glabrous, pileocystidia
none; taste disagreeable; lamellae broad; stipe bulbous;
spores 4.5-6 x 3-3.5 μ 71. subargillaceum Murr.
29. Pileus avellaneous, disk fumose, finely tomentose,
pileocystidia present and septate-constricted; taste
farinaceous; lamellae narrow; stipe equal; spores
3.5-4.5 x 2-2.8 μ 72. microspermum Murr.
30. Stipe bulbous..... 31
30. Stipe not bulbous..... 32
31. Taste farinaceous, then bitter; pileus pallid, disk
fuliginous; lamellae white..... 73. praebulbosum Murr.
31. Taste mild; pileus "pinkish-buff" (dry), darker (wet);
lamellae white becoming "vinaceous fawn".....
..... 21. albobrunneum (Fr.) Kummer
32. Pileus long-striate, umbo submammillate; stipe
enlarged upward; gill-trama mostly of vesiculose
cells with a few subparallel hyphae.....
..... 74. quercicolum Murr.
32. Not with the above combination of characters..... 33
33. Odor and taste mild or none; pileus umbrinous..... 34
33. Odor and taste distinctive..... 35
34. Lamellae close, narrow, pallid becoming cinereous;
stipe often compressed; spores 4.5-5.5 μ broad.....
..... 75. compressipes Murr.
34. Lamellae distant, broad, pallid, not cinereous;
stipe not compressed; spores 3-3.5 μ broad.....
..... 76. melaleuciforme Murr.
35. Pileus avellaneous, glabrous; epicutis hyphae 2-5 μ
broad; odor and taste farinaceous..... 77. subvolkertii Murr.
35. Pileus smoke-gray, blackish-fibrillose; epicutis-hyphae
6-12 μ broad, some with spiral thickenings; odor of coal-
tar, taste unpleasant..... 78. No. 19517
(=Sm. -3634)

*Further study may prove piperatifforme and australe to be the same.

Group III: MACROSPORAE

Spores (7) 8-11 μ longKey to Species

1. Cheilocystidia present..... 2
 1. Cheilocystidia absent..... 3
2. Pileus rosy-avellaneous, becoming brown when injured; flesh white, tinted rosy, becoming brown; stipe concolor to pileus, bulbous, 7 cm. x 30-40 mm.; pleurocystidia and cheilocystidia long (up to 100 μ); spores 7-9 x 5-7 μ 79. Earleae Murr.
 2. Pileus isabelline, disk darker; stipe cremeous, clavate; spores oblong, subreniform; cheilocystidia agglutinated, nodulose; spores 8-10 x 3.5-4.5 μ 80. floridanum Murr.
3. Spores 3-4 μ broad..... 4
 3. Spores 4.5-6.5 μ broad; taste farinaceous, at times becoming bitter..... 5
4. Odor and taste none; pileus blackish-gray; spores slightly curved..... 81. niveipes var. australis Coker
 4. Odor and taste of coal-tar; pileus mouse-gray; spores not curved; some epicutis hyphae with spirally thickened walls..... 82. No. 17259 (near triste (Fr.) Lange)
5. Odor of coal-tar; pileus colonial buff, disk chamois, all parts vinaceous in KOH... 83. chrysenderoides (Pk.) Sacc.
 5. Odor, if any, not of coal-tar..... 6
6. Cheilocystidia present; pileus yellow, disk rosy-isabelline; odor musty, taste strongly farinaceous; spores slightly curved..... 84. subfulvidiscum Murr.
 6. Cheilocystidia absent..... 7
7. Spores 7.5-11 x 5-6.5 μ , broadly fusoid; pileus grayish to olive-buff..... 85. No. 21370
 7. Spores 8-10 x 4.5-5.5 μ , ellipsoid, inequilateral; pileus pallid with a fulvous disk..... 86. fulvidiscum Murr.

Group IV: Cuticle dry or slightly viscid, hyphae interwoven

Key to Sub-Groups

1. Spores 3-7 μ long..... MICROSPORAE
 1. Spores 8-12 μ long..... MACROSPORAE

MICROSPORAE

Key to Species

1. Cheilocystidia present..... 2
 1. Cheilocystidia absent..... 8
 2. Pleurocystidia present..... 3
 2. Pleurocystidia absent..... 5
 3. Pileus, lamellae, and stipe lividous... 87. totilividum Murr. 4
 3. Not as above..... 4
 4. Pileus sub-olivaceous to olive-gray; epicutis
 vinaceous in KOH; pleurocystidia cylindric.....
 88. alabamense Murr.
 4. Pileus "olive-lake" to "dark olive-buff," "finally
 "reed yellow," disk fumose; pleurocystidia clavate,
 some appendiculate..... 89. No. 19708
 5. Pileus pallid or tawny-olive, fibrillose-scaly; all parts
 becoming yellow then greenish when bruised.....
 90. impolitum Lasch
 5. Pileus, lamellae, and stipe lacking these characters..... 6
 6. Taste distinctive..... 7
 6. Taste mild, not distinctive; pileus "litho purple"
 or "Saccardo's violet"..... 91. pseudosordidum Singer
 7. Taste bitter; pileus and lamellae white, becoming rusty-
 spotted..... 92. maculatum Murr.
 7. Taste farinaceous; pileus purple-avellaneous, disk
 fuliginous; lamellae dingy-white, not spotted.....
 93. ustaliforme Murr.
 8. Pileus entirely white..... 9
 8. Pileus not entirely white..... 10
 9. Flesh, lamellae, and stipe white, becoming ferruginous
 when bruised..... 94. ferruginescens Murr.
 9. Flesh, lamellae, and stipe white, unchanging; odor of
 sour dough, taste unpleasant..... 95. subacidum Murr.

10. Pileus and stipe dingy-green..... 96. viriditinctum (Pk.) Sacc.
 10. Pileus and stipe not green; or if pileus
 olivaceous then the stipe white..... 11
11. Pileus pale rosy-isabelline; lamellae and stipe lemon-
 yellow..... 97. citrinifolium Murr.
 11. Lamellae and stipe not lemon-yellow..... 12
12. Pileus white, tinged yellow, becoming sulfur-yellow
 when bruised; stipe white, tinted yellow, with
 yellowish scales..... 98. luteomaculans Atk.
 12. Pileus and stipe not as above..... 13
13. Pileus greenish-yellow, brownish-olive, or smoke-gray;
 stipe white..... 14
 13. Pileus not so colored..... 15
14. Pileus uniformly greenish-yellow throughout;
 lamellae rather yellow..... 99. intermedium Pk.
 14. Pileus greenish-yellow, brownish-olive, or smoke-
 gray, disk darker; lamellae rather broad.....
 100. saponaceum (Fr.) Kummer
15. Pileus yellow to "Saccardo's olive," lamellae white
 101. No. 19321
 15. Not with the above color-combinations..... 16
16. Pileus isabelline, disk fulvous; lamellae white
 with a rosy-isabelline tint, narrow, crowded.....
 102. unakense Murr.
 16. Not as above..... 17
17. Pileus avellaneous, disk reddish-brown; flesh, lamellae,
 and stipe reddish-brown when bruised. 94. ferruginescens Murr.
 17. Pileus grayish or fuliginous, at least on the disk..... 18
18. Spores 3-5.5 μ long..... 19
 18. Spores 5-7 x 4.5-5.5 μ ; pileus fuliginous with an
 olive tint, watery-spotted; walls of some epicutis
 hyphae verrucose..... 103. No. 21610
19. Gill-trama interwoven; pileus griseus or umbrinous..... 20
 19. Gill-trama subparallel; pileus tawny or buff, disk
 fuliginous..... 104. No. 14101
20. Pileus plush-like; odor and taste slightly oily.....
 105. No. 20252
 20. Pileus smooth; odor farinaceous; taste bitter-
 farinaceous..... 106. Watsonii Murr.

MACROSPORAE

(Spores 8-12 μ long)Key to Species

1. Pileus, lamellae, and stipe white; odor and taste farinaceous; gill-trama interwoven..... 107. virgineum Murr.
1. Pileus colored, at least on the disk; gill-trama parallel to subparallel..... 2
2. Odor of coal-tar..... 3
2. Odor not so..... 4
3. Pileus disk "pinkish-buff," margin whitish; lamellae "pale pinkish buff"..... 108. odorum Pk.
3. Pileus "cream-buff," disk "honey-yellow"; lamellae "citron-yellow" becoming "cartridge buff"..... 109. sulphureum (Fr.) Kummer
4. Cheilocystidia present; epicutis hyphae vinaceous in KOH; pileus pallid (dry), tawny (wet); odor farinaceous..... 110. No. 7114
4. Cheilocystidia absent; epicutis not vinaceous in KOH; pileus umbrinous; odor earthy... 111. entoloma Murr. (= subrimosum Murr.)

TRICHOLOMA ACRE Pk.

Torrey Bot. Club Bul. 24:139. 1897

Tricholoma subacre Murr. Lloydia 5:157. 1942

Pileus 2-6 cm. broad, convex, expanding plane or wavy, more or less sub-umbonate, entirely white or at times tinted smoky, slightly or not at all virgate, not at all viscid, slightly or not at all hygrophanous, silky-appressed. Flesh white, rather firm; odor strongly oily-farinaceous, taste unpleasant (not farinaceous). Lamellae emarginate, white, unchanging, broad, close, edges slightly fimbriate. Stipe 3-7 cm. x 7-15 mm., white, unchanging, dry, apex mealy, elsewhere fibrillose, equal or slightly enlarged at base, hollow.

Spores 5-7 x 4-5 μ , ^{subglobose to short-} ellipsoid, smooth, white in mass, yellowish in Melzer's reagent. Pleurocystidia none; cheilocystidia not always conspicuous, variable, cylindric, ventricose, clavate, 20-35 x 7-10 μ . Gill-trama subparallel. Epicutis parallel, hyphae, 5-7 μ broad.

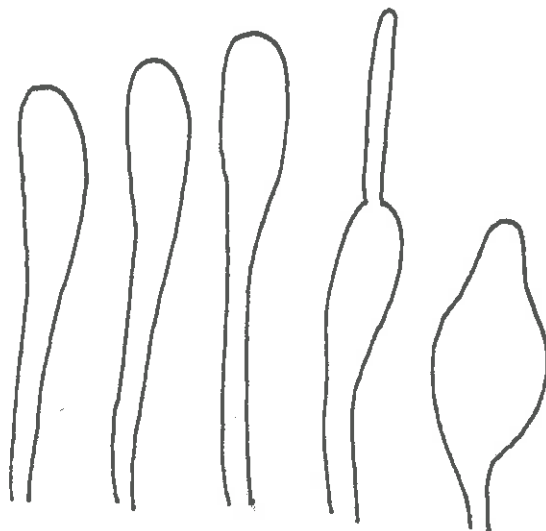
Habitat and Distribution. - In pine woods, Tennessee November.

Discussion. - No. 22932 agrees with the type.

(more, next page)

Notes on Type

Spores 5.5-7 x 4.5-5.5 μ , subglobose to short ellipsoid, smooth, yellowish in Melzer's. Pleurocystidia none; cheilocystidia inconspicuous, cylindric, 35-45 x 2-5 μ , absent in some sections. Gill-trama subparallel. Epicutis of subparallel hyphae, 4-7 μ broad. The lamellae are broad to moderately broad.



Ch. (No. 22932)

TRICHOLOMA ADUSTUM Murrill

Elisha Mitchell Soc. Jour. 55:372. 1939

Melanoleuca adusta Murr., Elisha Mitchell Sci. Soc. Jour.
55:370. 1939

"Pileus convex to plane or umbilicate, gregarious, 2-3 cm. broad; surface pale-umbrinous when moist, isabelline when dry, subglabrous, smooth, margin even, entire, becoming reddish-brown or darker as though scorched; context thin, opaque-whitish, odorless, mild; lamellae sinuate, varying to adnexed, ventricose, medium broad, inserted, medium distant, undulate, pallid, scarcely changing when dried; spores ovoid, smooth, hyaline, 1-guttulate, about $5 \times 3 \mu$; cystidia none; stipe tapering upward, fleshy, hollow, finely striate, glabrous, reddish-brown, about $3 \times 0.2-0.3$ cm.

"Type collected by E. West and W. A. Murrill in soil under gallberry bushes by a lake in Cary Memorial Forest, Alachua Co., Fla., Nov. 19, 1938 (F 18401). Having the appearance of Collybia but with fleshy stem and very fragile cap. The dark margin is quite distinctive."

Notes on Type (U.T. No. 21263)

Spores $4-5 \times 3-3.5 \mu$, ellipsoid, smooth, pale yellow in Melzer's. Pleurocystidia and cheilocystidia none. Epicutis of parallel hyphae, $5-7 \mu$ broad. Gill-trama somewhat interwoven.

TRICHOLOMA ALABAMENSE Murrill

Mycologia 6:269. 1914

Pileus 4-6 cm., convex, expanding-convex, dry, appressed-fibrillose, "cream color" to subolivaceous. Flesh whitish; odor and taste mild or very slight, not unpleasant. Lamellae emarginate, "straw yellow" then yellowish-white, medium broad, crowded, somewhat ventricose, edges rough or fimbriate. Stipe 6-10 cm. x 8-12 mm., "cream color," fibrillose, equal or clavate-bulbous, dry, stuffed-hollow.

Spores 7-9 x 4.5-6 μ , ellipsoid, smooth, pale yellow in Melzer's. Pleurocystidia none; cheilocystidia 35-75 x 2-4 μ , absent in some sections. Gill-trama subparallel. Epicutis interwoven, hyphae 2.5-5 μ broad, a few hyphae more or less erect, vinaceous-pink in 2% KOH.

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

Discussion. - My No. 18604 agrees well with the Type, although apparently the Type showed a sub-olivaceous tint.

Notes on Type

Spores 7-8.5 x 4-5 μ , ellipsoid, smooth, yellowish in Melzer's reagent. Pleurocystidia none; cheilocystidia few, variable: ventricose, cylindric, clavate, 30-50 x 3-6 μ . Gill-trama subparallel. Epicutis composed of interwoven, narrow, hyphae which stain pinkish-vinaceous in 2% KOH.

TRICHOLOMA ALACHUANUM Murrill

Mycologia 30:371. 1938

Melanoleuca alachuana Murr., Mycologia 30:365. 1938

"Pileus convex to plane, gregarious to subcespitate, 2.5-4 cm. broad; surface viscid, white or isabelline, pale fuliginous on the disk, margin entire, concolorous; context white, unchanging, both odor and taste strongly farinaceous; lamellae slightly adnexed, rounded behind, medium distant, broad, entire, white; spores not examined; stipe white, equal, smooth, glabrous, viscid except at the apex, about 5-6 cm. long and 2-4 mm. thick.

"Type collected by W. A. Murrill on a partly shaded lawn in Gainesville, Florida, Sept. 18, 1932 (No. F9856). Also collected by the author under a live-oak in Gainesville, Aug. 12, 1937 (No. 16031). A viscid species suggesting T. resplendens and also certain species of Hygrophorus."

Notes on Type

Spores very few, 6-7 x 4.5-5 μ , ellipsoid to ovoid, smooth, yellowish in Melzer's. ^{Basidia 30-40 x 7-8 μ .} Pleurocystidia and cheilocystidia none. ^{of} Epicutis [^] undulating-parallel, ^{gelatinous} hyphae 2.5-5 μ broad. Gill-trama ~~interwoven-subdivergent~~, ^{with a definite medietate,} ~~chiefly~~ of large subglobose to ~~short-cylindric~~ cells, 10-30 μ broad.

TRICHOLOMA ALBOBRUNNEUM (Fr.) Kummer

Der Führer in die Pilzk., p. 130. 1871

Pileus 4-7 cm. broad, convex-expanding, slightly viscid or sub-lubricous, slightly hygrophanous, glabrous, "pinkish-buff" when dry, "cinnamon brown" to "fawn color" or "wood brown" wet, margin naked, extending slightly beyond lamellae, even. Flesh soft, pallid, thick on disk, thin on margin; odor and taste mild or fungoid. Lamellae rounded-emarginate, free or nearly so, white, becoming "vinaceous buff" to "vinaceous fawn," crowded, medium-broad to narrow, edges entire. Stipe 3-5 cm. x 9-15 mm., equal, base enlarged (or bulbous, the bulb up to 25 mm. diameter), pale brown, flesh watery brown, densely white-fibrillose, moist, spongy-solid.

Spores 5.5-7 x 3-4 μ , ellipsoid, at times subreniform or slightly inequilateral, smooth or some faintly rough, color in mass: "light ochraceous buff," yellowish-brown in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis nearly parallel, hyphae 2-4 μ broad, with a narrow surface layer of gelatinous hyphae.

Habitat and Distribution. - On soil, in pine and deciduous woods, Tennessee and North Carolina, September-January.

Discussion. - Smith says T. albobrunneum (Fr.) Kummer shows many variants.



19602 - *Tricholoma albobrunneum* (Fr.) Kummer

TRICHOLOMA AURANTIUM (Fr.) *Licken*

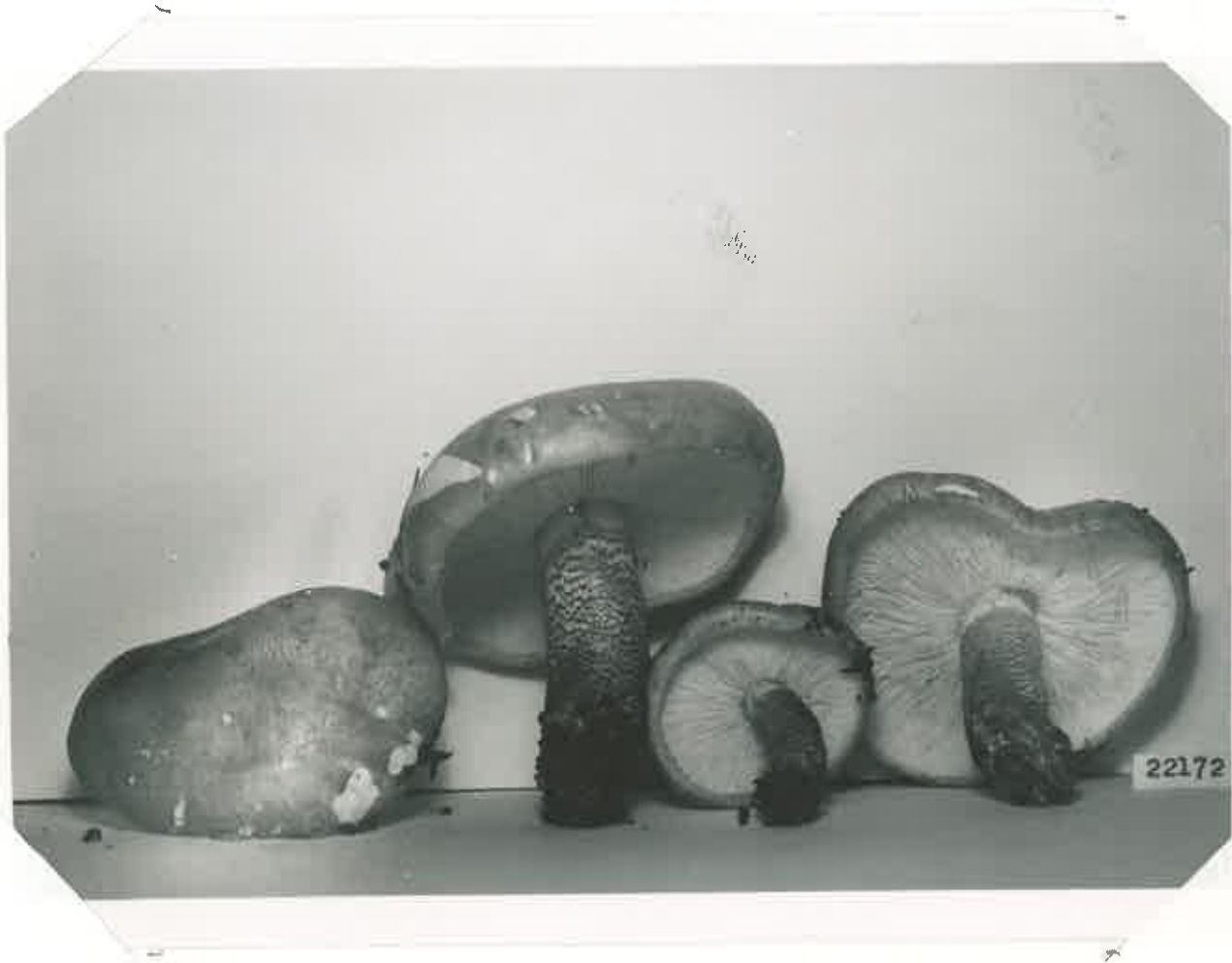
~~Hymen. Eur., p. 41. 1874~~

Armillaria aurantia (Fr.) Kummer, Der Führer in die Pilzk.,
p. 134. 1871

Pileus 5-13 cm. broad, convex, expanding-plane and sometimes wavy, viscid, "tawny" (young), "zinc orange" (mature), minutely fibrillose or granular scaly, glabrescent, margin even and glutinous. Flesh white, firm, thick on disk, thin on margin; odor farinaceous, taste ^{farinaceous to} of raw cucumber then bitter. Lamellae adnate, adnexed or emarginate, white, finally red-brown spotted, crowded, medium brown^{ad}, edges even. Stipe 3-11 cm. x 12-17 mm., densely covered with "orange cinnamon" scales to apex, terminated abruptly by a "ring," apex white or pale, solid, dry.

Spores 4-5 x 2.8-3.5 μ , ellipsoid to ovoid, smooth, white in mass, yellowish in Melzer's reagent. Pleurocystidia none; cheilocystidia slender-cylindric, 20-28 x 2-2.5 μ . Gill-trama undulating-parallel. Epicutis of more or less parallel hyphae, 2-4.5 μ broad.

Habitat and Distribution. - On soil, often in troops, arcs, or fairy-rings, in conifer and mixed woods, Tennessee and North Carolina, August-December.



22172 - *Tricholoma aurantium* Fr.



19311 - *Tricholoma aurantium* (^{Fr.}~~Quél.~~) Ricken



12312 - *Tricholoma aurantium* (^{F.}~~Fr.~~) Reichen



12300 - *Tricholoma aurantium* (^{Fr.} Quel.) Ricken



20598 - *Tricholoma aurantium* (^{Fr.} ~~Quil.~~) Rickes

TRICHOLOMA AUSTRALE Murrill

Lloydia 7:306. 1944

"Pileus convex to slightly depressed, irregularly circular, gregarious to cespitose, 5-6 cm. broad; surface dull, glabrous, fuliginous, shining when dry, margin entire or lobed, even, concolorous; context thin, white, unchanging, odorless, mild; lamellae sinuate, medium broad, medium close, entire, pallid, darker with age; spores ellipsoid, smooth, hyaline, 1-guttulate, about 4-5 x 3 μ ; stipe short, often eccentric, solid, equal or tapering downward, glabrous, white, unchanging, about 2 x 1-1.5 cm.

"Type collected by W. A. Murrill under a laurel oak in woods in Gainesville, Fla., Dec. 31, 1941 (F 20072). Also found nearby in a yard near a live-oak (F 18010), with stipe much longer than in the type. Suggesting certain color-forms of M. terrea but glabrous."

Notes on Type

Spores (very few found) ⁴4.5-5 x 2.8-3 μ , ellipsoid, ^{smooth,} yellowish in ¹¹ ~~non-amylid~~, smooth. Pleurocystidia and cheilocystidia none.

Gill-trama subparallel. Epicutis of parallel or nearly parallel hyphae, 1.5-4 μ broad.

T. piperatiforme Murr.

The type resembles that of

TRICHOLOMA CALCEIFOLIUM Murrill

Lloydia 8:275. 1945

"Pileus convex to subexpanded with broad umbo, solitary, 6 cm. broad; surface dry, white with avellaneous tint, drying grayish, slightly silky, shining, margin very thin, even, subfimbriate, undulate to splitting; context very thin, white, unchanging, with distinct farinaceous odor and taste; lamellae sinuate, inserted, broad, close, chalk-white, unchanging, undulate; spores ellipsoid, smooth, hyaline, about $3 \times 2 \mu$; stipe slightly enlarged above, solid, smooth, glabrous, white and unchanging without and within, $5 \times 0.8-1.2$ cm.

"Type collected by W. A. Murrill in leaf-mold under a laurel oak at Gainesville, Fla., Apr. 9, 1944 (F 19948). Remarkable for its chalk-white gills and small spores. Young caps are avellaneous and innate-fibrillose."

Notes on Type

Spores $3.5-5.5 \times 2.3-2.8 \mu$, oblong-ellipsoid, smooth, pale yellow in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama parallel or nearly so. Epicutis of parallel, narrow hyphae, $2.5-4 \mu$ broad.

TRICHOLOMA CHRYSENTEROIDES (Pk.) Sacc.

Syll. Fung. 5:115. 1887

Melanoleuca malodora Murr., Lloydia 5:141. 1942 (see
Singer, Agar. p. 225. 1949)

Pileus 3.5-4.5 cm. broad, expanded, "colonial buff,"
disk "chamois," glabrous, dry, not hygrophanous, even. Flesh
thin, pale yellow; odor faintly of coal-tar, taste
farinaceous. Lamellae emarginate, narrow to medium broad,
crowded, "colonial buff," veined above. Stipe 3-7 cm. x
6-8 mm., concolor, fibrillose-striate, equal, dry.

Spores 8-10 x 5-5.5 μ , ellipsoid, subinequilateral,
faintly wrinkled-rough (oil), yellowish in Melzer's.
Pleurocystidia and cheilocystidia none. Gill-trama sub-
parallel. Epicutis of slightly interwoven or nearly
parallel hyphae, narrow, 3-4 μ broad. All parts of pileus
vinaceous in 2% KOH.

Habitat and Distribution. - On soil, in mixed woods,
North Carolina and Florida, September and January.

Notes on Type

Spores 8-10 x 4.5-6 μ , ellipsoid, subinequilateral,
smooth, yellowish in Melzer's. Pleurocystidia and
cheilocystidia none. Gill-trama subparallel. Epicutis
subparallel to slightly interwoven, 3-6 μ broad.

My No. 17946 agrees with the Type.

See notes on Murrill's Type of T. malodora

TRICHOLOMA CINNAMOMEUM Merrill

Mycologia 6:269. 1914

Cortinellus cinnamomeus Murr. N. A. Flora 10:33. 1914

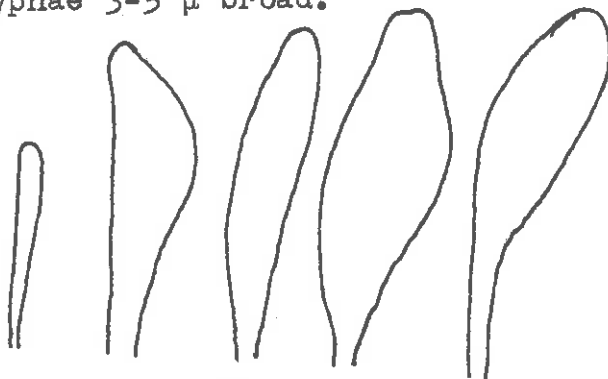
"Pileus firm, thin, convex to expanded, obtuse, cespitose, 3-7 cm. broad; surface bright-reddish-cinnamon, dry, imbricate-squamose, scales linear-appressed, acute, margin fimbriate; lamellae broadly adnexed, crowded, narrow, thin, light-chestnut-colored; spores subglobose, colorless, about $7 \times 6 \mu$; stipe cylindric, hirsute-squamulose, concolorous or slightly paler, hollow, 3-6 cm. long, 4-8 mm. thick."

Habitat and Distribution. - On rotten pine wood, Mississippi, September.

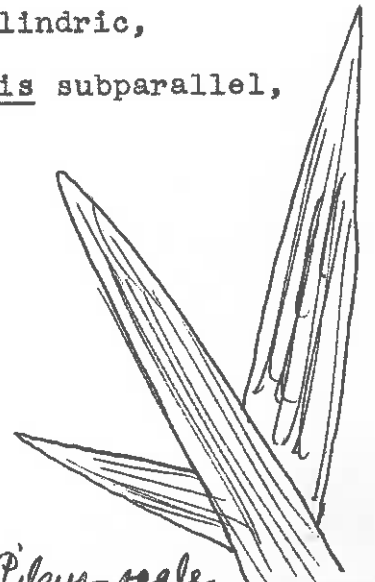
Notes on Type

(The collection studied was not marked type. However, the notes accompanying the collection indicate beyond doubt that it is the type.)

Spores $6-7.5 \times 4.5-5.5 \mu$, broadly ellipsoid, few subglobose, smooth, yellowish in Melzer's. Basidia $42-53 \times 11-14 \mu$. Pleurocystidia none; cheilocystidia agglutinated, conspicuous, variable: ventricose, clavate, cylindric, $25-50 \times 5-16 \mu$. Gill-trama interwoven. Epicutis subparallel, hyphae $3-5 \mu$ broad.



ch.



Pileus-scale

TRICHOLOMA CITRINIFOLIUM Murrill

Mycologia 30:371. 1938

Melanoleuca citrinifolia Murr., Mycologia 30:365. 1938

"Pileus convex to subexpanded, solitary, 5 cm. broad; surface dry, smooth, glabrous, uniformly pale rosy-isabelline, margin entire, concolorous; context white, taste bitter; lamellae sinuate-adnexed, rather narrow and crowded, lemon-yellow, entire on the edges; spores not examined; stipe equal, smooth, subglabrous, lemon-yellow, about 5-7 cm. long and 5-7 mm. thick."

Habitat and Distribution. - On soil, in woods, Florida, February.

Notes on Type

Spores 5-6 x 3.5-4.5 μ , ovoid, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of interwoven, narrow hyphae, 2.5-4 μ broad.

TRICHOLOMA COLUMBETTA (Fr.) Kummer

Die Führer in die Pilzk., p. 131. 1871

¹⁰
Pileus 4-~~6~~ cm. broad, ^{more or less} convex, expanding plane, ^{dry, pellicle separable,} ~~sub-~~
~~viscid along the margin,~~ white with ^{or without} yellowish areas, [^] ~~silky~~ [^] ~~unchanging,~~ [^] ~~odor~~ [^] ~~thick on~~ [^] ~~margin,~~
 and shining, margin even, ~~and~~ fibrillose. Flesh white, [^] ~~odor~~ [^] ~~thin on~~
 and taste mild. Lamellae emarginate, narrowly attached, [^] ~~with or without yellowish tints,~~
 rather close, ^{broad or} medium broad, white, ~~and~~ unchanging in age or
 when bruised, ^{edges even.} Stipe 5-8 cm., x 7-~~12~~¹⁸ mm., equal, white, [^] ~~with or without~~
[^] ~~yellowish areas, dingy or avellaneous below,~~ [^] ~~shining, not viscid, solid.~~

[^] ~~silky, equal, spongy or solid.~~

Spores ~~5.5-7 x 3-4.5 μ,~~ ^{5-7 x 3-4.5 μ,} ellipsoid to ovoid, smooth ~~or~~
~~(mostly) faintly rough-wrinkled, at times sub-angular,~~
 yellowish in Melzer's. Pleurocystidia and cheilocystidia
 none. Gill-trama parallel or ^{subparallel} ~~nearly so.~~ Epicutis parallel
 or ^{subparallel} ~~nearly so,~~ hyphae narrow, 3-5 μ, ^{some spirally thickened.}

Habitat and Distribution. -- On soil, in oak-pine woods, Tennessee, December.



22930 - *Ficcholoma columbetta* (Fr.) Kummer

TRICHOLOMA COMPRESSIPES Merrill

Mycologia 6:269. 1914

Melanoleuca compressipes Murr. N. A. Flora 10:19. 1914

(N.A.F. 10:19. 1914)

"Pileus convex to expanded, gregarious, 4-8 cm. broad; surface smooth, hygrophanous, moist, not viscid, dark-umber-brown becoming lighter on drying, usually darker on the disk, margin thin, entire; context thin, grayish or watery-brown, mild, without distinct odor; lamellae obscurely sinuate to nearly adnate, subcrowded, rather narrow, unequal, sordid-white becoming cinereous and at length dark-brown, not changing color when cut or bruised; spores subglobose, smooth, hyaline, 6-7.5 μ ; stipe equal or tapering upward, often compressed, subglabrous, dirty-white, hollow or stuffed, 3-5 cm. long, 5-10 mm. thick."

Habitat and Distribution. - On soil, in mixed woods, Alabama, December.

Notes on Type

Spores 5-7 x 4.5-5.5 μ , ellipsoid, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of subparallel (or a few hyphae interwoven), hyphae 2.5-4 μ broad.

TRICHOLOMA CORYPHEUM Fr. sensu Bres.

Illustration:

Plate

Pileus (4) 6-12 cm. broad, hemispheric at first, then convex to convex-expanded, broadly umbonate, viscid (wet), appressed-fibrillose, at times virgate, "straw yellow," tinged "ochraceous tawny" on disk or all over, at times "saya brown," paler when covered by humus, margin even or ridged. Flesh thick, thin on margin, white, unchanging, firm; odor farinaceous, taste mildly farinaceous to bitterish. Lamellae emarginate, free or nearly so, broad (up to 12 mm.), tapering both ends, close, white, edges even or eroded. Stipe 5-9 cm. x ~~1.0-2.5 cm.~~^{10-25 mm.}, white above, tinted yellowish or dingy brownish below, fibrillose, becoming glabrous or nearly so, dry, solid becoming cavernous, equal. Veil none, even in young buttons.

Spores short-ellipsoid to ovoid-ellipsoid, 5.5-7 x 3.5-5 μ , smooth, yellowish in Melzer's, white in mass. Basidia 32-36 x 8-9 μ . Gill-trama subparallel or slightly interwoven. Pleurocystidia and cheilocystidia none. Cuticle of pileus of somewhat interwoven, at times, strands of parallel hyphae observed, 2.5-4 μ broad, vinaceous in 2% KOH.

Habitat and Distribution. - On soil, in pine woods, at times in arcs of "fairy rings," Tennessee, November-December.

Discussion. - This species resembles T. equestre Fr. which, however, has yellow gills. Apparently T. coryphaeum Fr. is rarely collected, having been reported but once (see abstract attached, Conant, 1903).

Conant, Jennie F. (No title). Boston Mycol. Club Bul.
19:(not paged). 1903.

The pamphlet gives (1) a list of species of fungi exhibited at Horticultural Hall, Boston, during the summer and fall of 1902; (2) list of fungi taken (by the author) from an article published in American Kitchen Magazine, giving an account of the edible fungi collected and eaten by members of the Boston Mycological Club, during mainly 1896 - including Tricholoma coryphaeum Fr.



21038 - *Tricholoma coryphaeum* Fr.?



21038 - *Tricholoma coryphaeum* Fr.

TRICHOLOMA DAVISIAE Pk.

Torrey Bot. Club Bul. 27:611. 1900

Pileus 4-9 cm. broad, convex, expanding convex or nearly plane, at times more or less umbonate, "aniline yellow," "yellow ocher," "olive ochre" or "mustard yellow," tinged green, disk darker, not viscid, not hygrophanous, glabrous or indistinctly and slightly fibrillose, cuticle separable to near disk, margin even. Flesh whitish or tinged greenish-yellow, medium thick on disk, thin on margin; odor slight or none; taste farinaceous, soon bitter. Lamellae uncinata to emarginate, very broad, ventricose, nearly close or sub-distant, white, becoming flesh-tinted, edges even. Stipe 4-8 cm. x 8-12 mm., whitish, dry, apex pruinose, elsewhere scattered-fibrillose, solid finally hollow, equal or tapering downward.

Spores 5-7 x 5-5.5 (6) μ , ellipsoid to sub-ovoid or subglobose, smooth, yellowish to rusty-brown in Melzer's reagent, white in mass. Basidia 36-45 x 6-9 μ . Pleurocystidia 38-43 x 6-7.5 μ , clavate-appendiculate, few, buried; cheilocystidia clavate-cylindric, 22-28 x 5-6 μ . Gill-trama undulating-parallel. Epicutis undulating-subparallel, 3-6 μ broad.

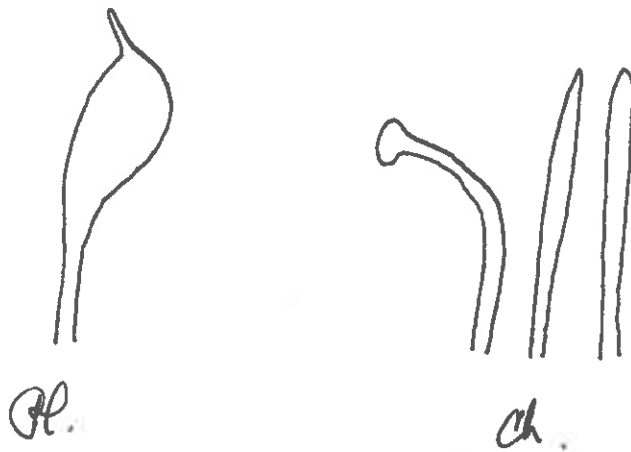
Habitat and Distribution. - On soil, at times in deep moss, spruce and fir wood, North Carolina, September-October.

(more, next page)

Notes on Type

Spores 5.5-~~6~~⁷ x 4-5 μ , ellipsoid, ~~a few sub-~~
~~globose~~, smooth, yellowish in Melzer's. Pleurocystidia
and cheilocystidia clavate to pyriform, 37-60 x 12-18 μ ,
~~erratic in occurrence~~ ^{inconspicuous or apparently} (absent in some sections). Gill-trama
more or less undulating parallel. Epicutis parallel, hyphae
5-8 μ broad.

My No. 22137 agrees with the Type, except for some
variation in cystidia.





22137 - *Tricholoma Davisiae* PK.

26318

TRICHOLOMA DECORUM (Fr.) Quel.

PHOTO

On Abies log, near Clingmans Dome, July 9, 1965

Pileus 2.5-11 cm broad, convex, expanding-convex, yellowish, with numerous pale greenish fibrillose-erect scales, hygrophane, even. Context soft, dark orange-yellow; odor and taste mild.

Lamellae emarginate, "cadmium yellow" then near "raw sienna" (orange-brown), medium narrow, close.

Stipe 2-6 cm x 4-10 mm, yellow, tubular, lightly fibrillose, equal or enlarged below.

Spores colorless under scope, smooth; spore print failed.

TRICHOLOMA DECORUM (Fr.) Qué!.

Champ. Jura et Vosges, Suppl. 11, p. 389. 1882

(Smith: Mushrooms, pp. 388-389)

"Pileus (3) 4-6 (8) cm. broad, convex with an incurved tomentose margin, surface appearing moist beneath a coating of fibrillose scales, the tips of the scales grayish to sordid brown at least over the disc, ground color some shade of yellow ('yellow ocher') and fading to paler yellow ('antimony yellow'); flesh yellow, thin to moderately thick, watery, often near 'Isabella color' and fading to near 'Naples yellow,' firm but becoming flabby, odor not distinctive, taste mild; lamellae broadly adnate to adnexed or with a decurrent tooth, often readily seceding, moderately broad (5-7 mm.) and close, bright yellow ('apricot yellow') or finally tinged orange, 1-3 tiers of lamellulae, edges even or becoming slightly crenulate; stipe 4-6 (8) cm. long, 5-10 mm. thick, equal or nearly so, hollow, yellow within (near 'apricot yellow'), surface a paler tint (near 'Naples yellow'), glabrous or nearly so, when perfectly fresh with scattered grayish fibrils toward the base and the apex faintly yellow-pruinose.

"Spore deposit white; spores 6-7.5 x 4.5-5 μ , subellipsoid, smooth, hyaline in KOH, not amyloid (yellow in iodine); basidia two- and four-spored, hyaline but with oil drops in KOH, slightly enlarged apices; pleuro- 28-34 x 6-7 μ , subcylindric with ~~thin wavy walls~~ and cystidia rare, 34-42 x 7-8 μ , subcylindric with thin wavy walls/hardly projecting beyond the basidia; cheilocystidia abundant, clavate, saccate to fusoid ventricose 36-62 x 9-20 μ , yellowish

(more, next page)

to orange as revived in KOH, thin-walled; gill trama regular or nearly so, the subhymenium of very narrow compactly interwoven hyphae, yellowish when first revived in KOH; pileus trama homogeneous, the scales caused by fascicles of innate fibrils and the hyphae composing them of about the same diameter as those of the flesh proper, the walls slightly encrusted (S-19459)."

Habitat and Distribution. - On conifer logs, Florida (doubtless generally scattered over the Southeast).

35161

TRICHOLOMOPSIS DECORA

On log, Clingman's Dome, July 25, 1969.

Pileus yellowish with black, hairy scales. Gills
and stipe greenish yellow.

TRICHOLOMOPSIS DECORA (Fr.) Sing.

35143

~~TRICHOLOMOPSIS DECORA~~

Cades Cove, on log, July 16, 1969.

Pileus old gold, scaly, tips blackish; stipe yellow.
No veil remnants seen. Lamellae brownish.

Suggests Gymnopilus, but spores white.

TRICHOLOMA EARLEAE Murrill

Mycologia 6:269. 1914

(N.A.F. 10:18. 1914)

"Pileus very large, thick, fleshy, gregarious, reaching 12 cm. broad; surface slightly viscid when moist, smooth, glabrous, pale-rosy-avellaneous becoming brownish when injured, margin incurved, silky-tomentose; lamellae deeply sinuate, broad, crowded, white tinged with rose, becoming fulvous with age after drying; spores broadly ellipsoid, smooth, hyaline, granular, 7-8 x 6-7 μ ; stipe very thick and heavy, somewhat bulbous, concolorous, becoming glabrous, solid, about 7 cm. long, 3-4 cm. thick."

Habitat and Distribution. - On soil, among needles, in pine woods, Alabama, November.

Notes on Type

Spores 7-9 x 5-6 (7) μ , ellipsoid, smooth, brownish in Melzer's reagent. Pleurocystidia of 2 types: (a) long, cylindrical, conspicuous, projecting, 75-100 x 9-12 μ , colorless; (b) fusoid and appendiculate, some clavate, colorless; cheilocystidia conspicuous, clustered, with brown contents, variable: ventricose, cylindrical, clavate, 43-85 x 5-10 μ . Gill-trama wavy-parallel. Epicutis of narrow, parallel hyphae, 2.5-4 μ broad, no evident gelatinous surface-layer.

(over)

TRICHOLOMA ENTOLOMA Murrill

Lloydia 5:157. 1942

Melanoleuca entoloma Murr., Lloydia 5:140. 1942

Melanoleuca subrimosa Murr., Lloydia 5:143. 1942 (see
Mycologia 36:122. 1944)

"Pileus convex to nearly plane, slightly depressed, gregarious, 4-5 cm. broad; surface dull, smooth, glabrous, uniformly umbrinous, shining when dry, margin even, undulate to lobed; context rather thin and watery, whitish, odor slightly earthy, taste at first strongly farinaceous and mild, becoming slightly unpleasant; lamellae slightly ventricose, sinuate, medium broad, rather crowded, inserted, entire, pallid, unchanged on drying; spores somewhat pip-shaped to subovoid, smooth, hyaline, 1-guttulate, about 7-8 x 4-4.5 μ ; cystidia none; stipe short and thick, fleshy, stuffed, equal or enlarged upward, compressed, smooth, glabrous, finely scurfy at the apex, dull, pallid, 3 x 0.7-1 cm."

Habitat and Distribution. - In leaf-mold, under hardwoods, Florida, January.

Notes on Type

Spores 8-9 x 4-4.5 μ , subfusoid to somewhat pip-shaped, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama nearly parallel or slightly interwoven. Epicutis of interwoven hyphae, 2-4 μ broad, with nearly parallel hyphae just below.

TRICHOLOMA FERRUGINESCENS Murrill

Lloydia 7:327. 1944

Melanoleuca ferruginescens Murr., Lloydia 7:306. 1944

"Pileus convex to plane, gregarious, 4-5 cm. broad; surface smooth, glabrous, white or avellaneous, usually reddish-brown on the disk, margin pallid, even, entire; context thick, white, odorless, mild, ferruginous when bruised; lamellae sinuate, inserted, rather crowded, broad, entire, white, drying dirty-white, ferruginous when bruised; spores ellipsoid, smooth, hyaline, about $3 \times 1.5 \mu$; cystidia none; stipe short, equal, solid, radicate, smooth, glabrous, white, ferruginous when bruised, $2-4 \times 1-1.5$ cm."

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

Discussion. - Singer (Agar., p. 223) suggests this is a synonym of T. saponaceum (Fr.) Qué1.

Notes on Type

Spores $4-5 \times 2.5-3 \mu$, ellipsoid, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama of subparallel narrow hyphae. Epicutis of interwoven, narrow hyphae, $1-1.5 \mu$ broad.

TRICHOLOMA FLAVOBRUNNEUM (Fr.) Kummer

Der Führer in die Pilzk., p. 130. 1871

Tricholoma transmutans (Pk.) Sacc., Syll. Fung. 5:91. 1887

Pileus 4-10 cm. broad, convex-expanded or plane, whitish at first, soon stained brown, reddish-brown or tawny-red, finally "Prout's brown," viscid when wet, glabrous or nearly so, margin even. Flesh white, rufescent in age, thin on margin; odor farinaceous, taste bitter-farinaceous. Lamellae adnexed to emarginate, narrow to medium-broad, ventricose, close, whitish or pale-yellowish becoming dingy, at length rufescent or reddish-spotted, finally dark-brown, edges rough or even. Stipe 4-⁸ cm. x 5-12 mm., dry, glabrous or subfibrillose, whitish or rufescent, equal or nearly so, stuffed or solid.

Spores 4-5.5 x 2.8-4 μ , ellipsoid to slightly ovoid, smooth, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of two layers: (1) an outer, interwoven, somewhat gelatinous, colorless layer hyphae 4-5 μ broad, some with free ends (pilocystidia); (2) an inner parallel layer, staining vinaceous-pink in 2% KOH.

Habitat and Distribution. - On soil, under conifers, Tennessee, North Carolina, and Florida, September-December.

Discussion. - Singer (Agar., p. 227) regards T. transmutans (Pk.) Sacc. as a synonym.

24563

TRICHOLOMA flavobrunneum (Fr.) Kummer

Photo

on lawn, under pine
Lakemoor Hills, Nov. 15, '61

Pileus 3-8 cm. broad, convex, expanding convex-plane, "snuff brown", often with a reddish-brown tint, margin often paler ("syal brown"), viscid, minutely reticulate (under lens), otherwise glabrous, margin with a zone of small watery-areas, even. Context white, firm; odor farinaceous, taste farinaceous with a bitterish after-taste.

Lamellae emarginate, white, becoming brown-spotted, brownish where bruised, close, medium broad, many short.

Stipe 3-5 cm. x 9-16 mm., dingy below, staining brownish where handled, apex silky-white, elsewhere fibrillose-scaly or glabrescent, equal or sub-bulbous, pinched below bulb, solid.

Spore-print failed. Microscopic characters not yet studied.



24563 - *Tricholoma flavobrunneum* (Fr.) Kummer

21578 - *Tricholoma flavobrunneum* (Fr.) Kummer



12317- *Tricholoma flavobrunneum* (Fr.) Kummer

TRICHOLOMA FLAVOVIRENS (Fr.) Lundell

Fungi Exsiccati Suecici, fasc. 23, No. 1102. 1942

Tricholoma equestre ^(Fr.) Qué!., Champ. Jura et Vosges, p. 76. 1872

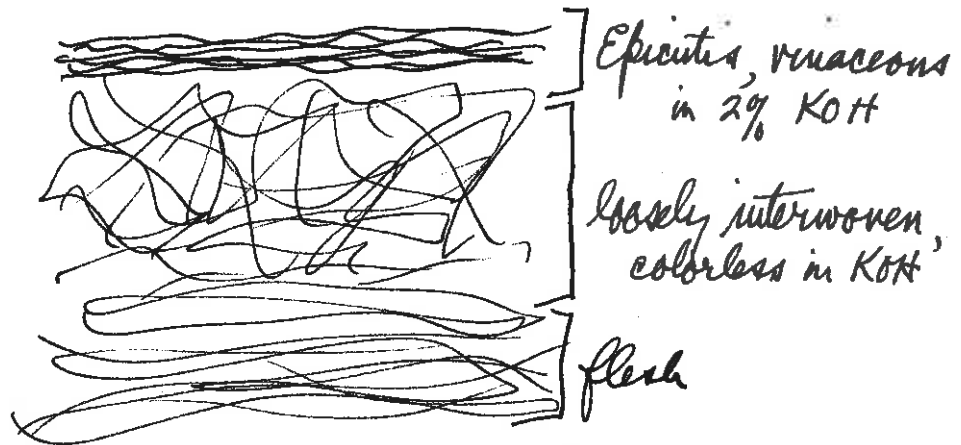
Pileus 5-12 cm. broad, [^] ± globose, finally expanding-convex, viscid, glabrous or scaly on disk, scales dark brown, appressed-fibrillose, "reed yellow" to "primrose yellow," at times "tawny-olive" with a yellow tint, disk usually "tawny," at times tinted "tawny" throughout, margin obtuse, even. Flesh white, pale yellow under cuticle, firm, thick on disk, thin on margin; odor mild to farinaceous, taste at first farinaceous, finally unpleasant. Lamellae sinuate to emarginate or adnexed, ~~whitish at first,~~ ~~becoming shades of yellow,~~ "sea-foam yellow," "pale grass green," "chartreuse yellow," "strontium yellow," unchanging, crowded or close, medium broad, tapering either way, edges even. Stipe 2-10 cm. x 7-22 (30) mm., dry, white or tinted pale yellow, fibrillose, flabrescent, apex mealy, equal or enlarged downward, at times sub-bulbous, solid.

Spores 6-7 x 4.5-5 μ , ellipsoid to more or less ovoid, smooth, yellowish in Melzer's reagent, white in mass. Pleurocystidia and cheilocystidia none. Epicutis of sub-parallel hyphae (Singer says parallel!) 3-5 μ broad, vinaceous in 2% KOH. As surface hyphae loosen they appear more or less interwoven. Gill-trama subparallel to slightly interwoven; trama vinaceous in 2% KOH.

(more, next page)

Habitat and Distribution. - On soil, at times in arcs or fairy rings, in conifer woods, Tennessee, Alabama, Georgia, and Florida, November-January.

Discussion. - In No. 19562, the base of the stipe is 4-5 cm. diam., and the pileus up to 17 cm. broad. In No. 21063, from Tallahassee, Florida, the disk was darker and more scaly than usual.





24605 - *Tricholoma flavovirens* (Fr.) Fundell



24585

24585 - *Tricholoma flavovirens* (Fr.) Fundell



21585 - *Tricholema flavovirens* (Fr.) Tundell

21587 - *Tricholoma flavovirens* (Fr.) Lindell



22221 - *Tricholoma flavovirens* (Fr.) Fendell



13078 - *Tricholoma flavovirens* (Fr.) Mündell
~~*aqueum* Fr.~~



18857 - *Tricholoma flavovirens* (Fr.) Kündell
~~*flavovirens* Fr.~~



20766 - *Tricholoma flavovirens* (Fr.) ^{Fr.} ~~*squarrosum* Fr.~~ ^{Hindell}

TRICHOLOMA FLORIDANUM Murrill

Lloydia 7:327. 1944

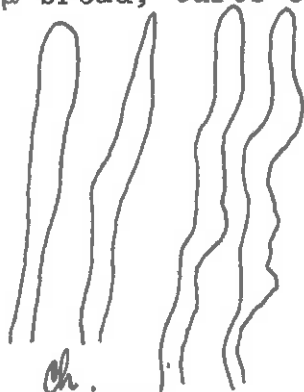
Melanoleuca floridana Murr., Lloydia 7:306. 1944

"Pileus conic-convex to subexpanded, cespitose, about 3.5 cm. broad; surface dry, smooth, subtomentose, isabelline, slightly darker on the disk, margin even, undulate to lobed; context pale isabelline, mild, odorless; lamellae sinuate, arcuate, narrow, medium distant, inserted, eroded, pallid with a rosy-isabelline tint; spores ellipsoid, smooth, hyaline, granular, about 6-8 x 4 μ ; stipe smooth, finely fibrillose, cremeous, fleshy, solid, with clavate base, 5 x 0.8-1.3 cm."

Habitat and Distribution. - On soil, in Sanchez Hammock, Florida, July.

Notes on Type

Spores 8-10 x 3.5-4.5 μ , ellipsoid, slightly elongate and subreniform, smooth, yellowish in Melzer's. Pleurocystidia none; cheilocystidia clustered, at times more or less agglutinated, cylindrical, at times subcapitate and slightly nodulose, some septate, 38-55 x 3-5 μ . Gill-trama slightly interwoven. Epicutis of undulating-subparallel hyphae, 5-8 μ broad; tufts of tomentum of hyphae 6-10 μ broad.



TRICHOLOMA FORMOSUM Murrill

Elisha Mitchell Sci. Soc. Jour. 55:372. 1939

Cortinellus formosus Murr., Elisha Mitchell Sci. Soc. Jour.
55:370. 1939

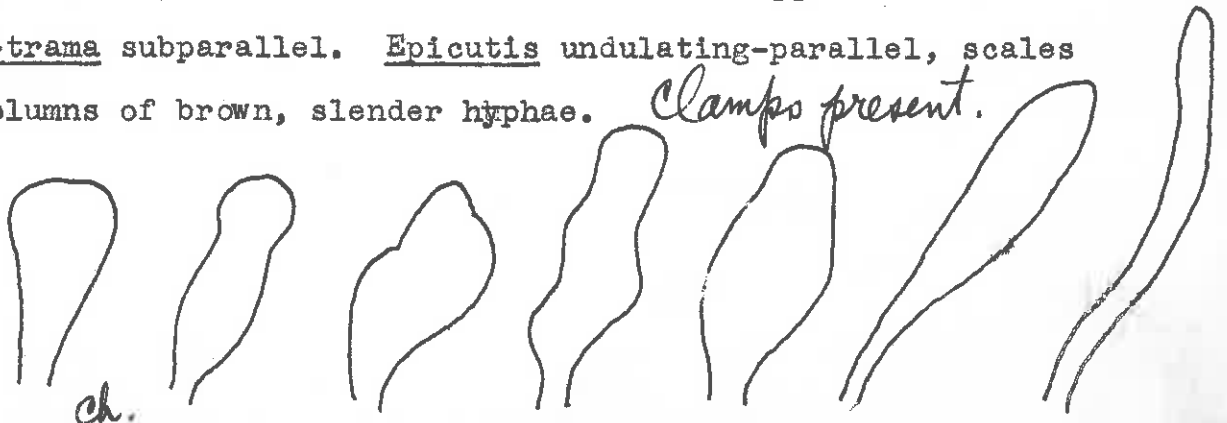
"Pileus convex to slightly depressed, densely cespitose, 5-8 cm. broad; surface dry, pale-testaceous, conspicuously and densely decorated with elongate, latericious scales upturned and setose at the tip; context thick, firm, pallid, with a strong, disagreeable, earthy odor and taste; lamellae sinuate, inserted, narrow, about 5 mm., crowded, white to dull-yellowish, beautifully fringed on the edges; spores subglobose to broadly ovoid, smooth, hyaline, finely granular, 5-7 μ long; sterile marginal cells fusoid, smooth, hyaline, abundant, cespitose, obtuse at the tapering tip, about 60-70 x 15-20 μ ; stipe enlarged below, hollow, clothed and colored like the pileus, about 6-8 x 1-2 cm."

Habitat and Distribution. - On sawdust, Florida, November.

Notes on Type

Spores 6-7 x 4.5-5.5 μ , subglobose or short-ellipsoid, smooth, very pale yellow in Melzer's. Pleurocystidia none; cheilocystidia 30-76 x 7-18 μ , irregularly clavate, some cylindrical or ventricose, often more or less agglutinated.

Gill-trama subparallel. Epicutis undulating-parallel, scales of columns of brown, slender hyphae. *Clamps present.*



TRICHOLOMA FULVIDISCUM Murrill

Lloydia 7:327. 1944

Melanoleuca fulvidisca Murr., Lloydia 7:307. 1944

"Pileus convex to subexpanded, 6-7 cm. broad; surface dry, smooth, glabrous, pallid with fulvous disk, margin even, entire; context thin, white, farinaceous, very slightly bitterish, odor unpleasant; lamellae sinuate, broad, distant, inserted, entire, pale-yellow; spores subovoid, smooth, hyaline, granular, 6-8 x 4-5 μ ; stipe equal or tapering downward, smooth, glabrous, pallid, 4-5 x 0.8-1 cm."

Habitat and Distribution. - On soil, in mixed woods, Florida, February.

Notes on Type

Spores 8-10 x 4.5-5.5 μ , ellipsoid, inequilateral, smooth, apiculate, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of parallel hyphae, 2.5-4 μ broad.

UM ✓

TRICHOLOMA FUMIDELLA^{UM} (Pk.) comb. nov.

Buffalo Soc. Nat. Hist. Bul. 1:44. 1873

Fileus 4-8 cm., neither viscid nor hygrophanous, smoky-brownish, margin whitish, disk minutely scaly, even. Flesh white, brittle; odor fragrant, taste mild. Lamellae emarginate, white, unchanging, broad, close. Stipe 3-6 cm. x 8-1¼ mm., dingy, curved, equal, base abruptly pointed, dry, solid.

Spores 3.5-4.5 x 3-3.5 μ , short-ellipsoidal or subglobose, smooth, pale yellowish or colorless in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel, Epicutis subparallel, hyphae 2-3 μ broad.

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

Discussion. - My No. 19474 agrees with the Type.

Notes on Type

Spores 4-5 x 3-3.5 μ , ellipsoid, smooth, pale yellow to colorless in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama parallel or slightly subparallel. Epicutis subparallel, hyphae 1-3 μ broad.

TRICHOLOMA FUMOSIFOLIUM Hesler

Lloydia 6:266. 1943

Illustration:

Smith and Hesler, Lloydia 6, fig. 5. 1943

Fileus 5-9 cm. broad, convex, somewhat gibbous, scattered, gregarious, to subcespitose, "tawny olive" or "ochraceous tawny" to "buckthorn brown," viscid glutinous in some, appearing glabrous, but with appressed fibrils, hygrophanous, more or less watery-spotted and with a conspicuous watery zone near margin (when wet), margin with coarse short striae, often wavy. Flesh white, medium thick on disk, thin toward margin; odor and taste fungoid. Lamellae emarginate and slightly uncinata, somewhat arcuate, close, rather broad, scarcely reaching margin, many short (about 5 ranks), smoky, "wood brown," then "light drab," unchanging, edges even. Stipe 6-9 cm. x ^{10-20 mm.}~~1-2 cm.~~, slightly compressed, pallid whitish, apex fibrillose, elsewhere more or less fibrillose and striate, base somewhat strigose and white mycelioid, curved, equal, spongy-solid then hollow, dry, at first with a slight fibrillose "ring."

Spores 8-10.5 x 2.8-3.5 (4) μ , fusiform, white in mass, non-amyloid, yellowish in Melzer's reagent, smooth or faintly wrinkled. Basidia 34-38 x 5.5-6.5 μ . Pleurocystidia and

cheilocystidia none. Gill trama of rather narrow hyphae, undulating-parallel. Epicutis of interwoven hyphae, 2.5-5 μ broad.

Habitat and Distribution. - On soil, in pine and mixed woods, Tennessee, December-January.

Discussion. - See T. fuisporum Singer (Agar., p. 224. 1949.).



12960 - *Tricholoma fumosifolium* H. S. Gentry



22560 - *Tricholoma fumosifolium* Hesler



21624 - *Tricholoma fumosifolium* Strobil.



23567 - *Tricholoma fumosifolium* Hesler

TRICHOLOMA HIRTELLUM Pk.

New York State Mus. Bul. 116:38. 1907

(N.A.F. 10:34. 1914)

"Pileus fleshy, thin, convex, subumbonate, solitary or cespitose, 2.5-4 cm. broad; surface pale-brown, dry, hairy, the hairs sometimes minutely fasciculate; context white, taste mild; lamellae thin, narrow, close, slightly sinuate-adnexed, minutely floccose on the edges, yellowish-white or pallid; spores subglobose, 6-7.5 x 5-6 μ ; stipe slender, equal, stuffed or hollow, with a very small cavity, fibrillose or subsquamulose, concolorous or a little paler, 2.5-4 cm. broad, 4-6 mm. thick."

Habitat and Distribution. - On or about pine stumps, Alabama.

Notes on Type

Spores 6-7.5 x 5.5-7 μ , ovoid or subglobose, smooth, yellowish in Melzer's. Pleurocystidia none; cheilocystidia clustered, clavate, often more or less collapsed, 36-50 x 7-12 μ . Gill-trama subparallel. Epicutis of subparallel, brownish or fuscous, more or less spirally thickened hyphae, 6-10 μ broad; the scales composed of spirally thickened, erect, parallel, brown hyphae, 6-12 μ broad.

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M
TRICHOLOMA HYGROPHORUS^M Murrill

Lloydia 7:327. 1944

Melanoleuca hygrophorus Murr., Lloydia 7:307. 1944

"Pileus plane with slight umbo, solitary, 4 cm. broad; surface uneven, slimy-viscid, glabrous, striate, avellaneous, blackening with age or on drying, margin irregular and slightly lobed; context membranous, odorless; lamellae sinuate-adnexed, distant, ventricose, inserted, very broad, pure-white, not darkening on drying, edges undulate; spores ellipsoid, smooth, hyaline, granular, 6-8 x 3-5 μ ; stipe equal, smooth, glabrous, not viscid, white, 4.5 x 0.7 cm."

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

Notes on Type

Spores 8-11 x 4-5 μ , ellipsoid, smooth, very pale yellow in Meizer's. Baidia 35-46 x 8-11 μ .

Pleurocystidia and cheilocystidia none. Gill trama of narrow, parallel to subparallel hyphae.

Epicutis of parallel hyphae, 2-4 μ broad.

This resembles Hygrophorus spadicens closely, + may be that, except for white gills.

TRICHOLOMA IMBRICATUM (Fr.) Kummer

Der Führer in die Pilzk., p. 133. 1871

Illustration:

Plate

Pileus 4-7 cm. broad, convex-plane or wavy, umbonate, brown, "saya brown," "warm sepia," "russet," "burnt umber," "natal brown" to "Hay's brown," fibrillose, finally imbricate-scaly, at times gibbous, dry, not hygrophanous, margin even. Flesh thick on disk, thin elsewhere, white, slowly reddish when cut; odor and taste mild ^{slightly} or farinaceous. Lamellae emarginate-uncinate, white to "avellaneous," stained or spotted reddish brown, crowded, broad behind, narrowed in front, or ventricose, edges even or slightly eroded. Stipe 4-8 cm. x 8-18 mm., white, stained brownish, white fibrillose, apex densely white mealy-squamulose or scaly, base blunt or tapering, at times curved, dry, solid. Cortina none.

Spores 4.5-6 x 3.5-4 μ , short ellipsoid to subglobose, white in mass, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill trama undulating-parallel. Epicutis of parallel hyphae, 5-7 (8) μ broad.

Habitat and Distribution. - On soil and in humus, in pine woods, Tennessee, November-January. At times forming a fairy-ring.

Differs from T. vaccinum which has a cortina
* larger spores (6-9 x 4.5-5).



12961 - *Tricholoma imbricatum* Fr.



21492 - *Tricholoma imbricatum* Fr.

✓

127.
TRICHOLOMA IMBRICATUM FELLEUM Murrill

Florida Acad. Sci. Jour. 8:198. 1945

Cortinellus imbricatus felleus Murr., Florida Acad. Sci.

Jour. 8:176. 1945

"Resembling Tricholoma imbricatum (Fr.) in scaly surface and color but the context is decidedly bitter, though without odor. The spores are ovoid, smooth, hyaline, about 5-6 x 3-4 μ , some larger.

"Type collected by W. A. Murrill on the ground in a pine grove at Gainesville, Fla., Jan. 10, 1938 (F 15957). Rare in the vicinity. I at first referred it tentatively to T. vaccinus (Schaeff.) Roze, but soon decided it was not scaly enough for that species. Since the context is white it is nearer T. imbricatus than T. flavobrunneus."

Notes on Type

Spores 4.5-6 x 2.8-3.5 μ , ellipsoid to ovoid, smooth, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of subparallel, narrow hyphae, 2-3 μ broad.

TRICHOLOMA IMPOLITUM Lasch ✓

Melanoleuca Memmingeri Murr., N. A. Flora 10:13. 1914 (?)

Tricholoma Memmingeri Murr. Mycologia 6:269. 1914 (?)

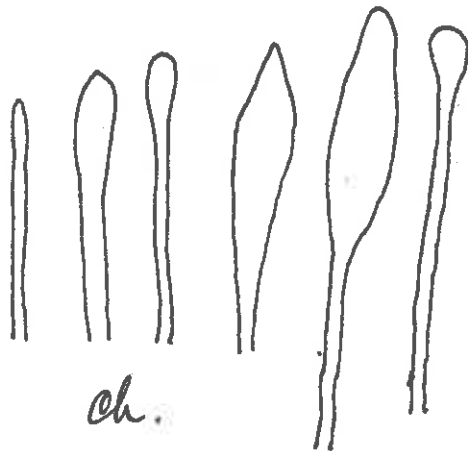
Fileus 4-10 cm. broad, convex, then plano-convex, color varying from whitish or pallid to "tawny olive," "pinard yellow" then greenish when rubbed, margin often paler, matted-tomentose, fibrils often aggregated into scales, neither viscid nor hygrophanous, pellicle separable half-way, margin even, incurved, finally explanate, cuticle fibrillose. Flesh white, changing to "pinard yellow" when cut, no color change in 15% KOH, thick, compact, abruptly thin on margin; odor and taste mild or slight of radish. Lamellae emarginate, crowded, narrow to medium broad, whitish, "ivory yellow," or "cartridge buff," "pinard yellow" when bruised, many short, some scattered forking, edges even. Stipe 5-11 cm. x 10-18 mm., apex white, changing to "pinard yellow" (at times tinged greenish-yellow) when ~~bruised~~ rubbed, elsewhere stained "ochraceous tawny," matted-fibrillose, more or less tapering upward and enlarged downward, at times clavate or base clavate-bulbous (bulb 2-3.5 cm. diam.), dry, solid, flesh white, changing to "pinard yellow" when cut or bruised.

Spores 4-5.5 x 3.5-4.5 μ , ovoid to subglobose, smooth (under oil-immersion), white in mass, pale in Melzer's.

Pleurocystidia none; cheilocystidia few, cylindrical, a few bottle-shaped to clavate, 25-43 x 3-7 μ . Gill-trama undulating-parallel. Epicutis of interwoven hyphae, 4-6 μ broad.

Habitat and Distribution. - On soil, deep humus, mixed woods, Tennessee, October.

Discussion. - Seems close to Melanoleuca Memmingeri Murr. (N.A.F. 10:13. 1914) which is described as having an earthy taste and smooth spores. Murrill says flesh, when cut or bruised, turns quickly to bright yellow and finally to brown. The type was in leaf-mold in deciduous woods, Flat Rock, North Carolina, 1911.





21562 - *Tricholoma* ~~*Memmingeri* (Murr.) comb. nov.~~
impolitum Rastel



21562 - *Tricholoma Memmingeri* (Murr) comb. nov.
impolatum Sacc

TRICHOLOMA INTERMEDIUM Pk.

New York State Mus. Ann. Rept. 41:60. 1888

(N.A.F. 10:22. 1914)

"Pileus thin, campanulate, obtuse, 5-7.5 cm. broad; surface glabrous, slightly viscid when moist, greenish-yellow; context white; lamellae crowded, free or slightly adnexed, white; spores broadly ellipsoid, 5 x 4 μ ; stipe equal, firm, glabrous, white, 2.5-5 cm. long, 6-10 mm. thick."

Habitat and Distribution. - On soil, in woods, New York.

Notes on Type

Spores 4.5-6 (7) x 3.5-4.5 μ , ellipsoid, smooth, pale yellow in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of interwoven, ^{slightly} brown, gelatinous, hyphae which stain vinaceous in 2% KOH, 2.5-4 μ broad.

Lamellae rather narrow.

TRICHOLOMA LUTEOMACULANS Atk.

Ann. Myc. 7:376. 1909

(N.A.F. 10:8. 1914)

"Pileus convex to expanded, depressed, somewhat undulate, solitary, 5-7 cm. broad; surface white tinged yellow, changing to sulfur-yellow when bruised, margin with short, distant, radiating furrows; context firm, taste rather unpleasant; lamellae emarginate, crowded, white becoming dingy; spores subglobose, smooth, granular, 4-5 x 3.5-4.5 μ ; stipe enlarged below, whitish tinged with yellow, floccose-scaly with sordid-yellow scales, 4-5 cm. long, about 1 cm. thick."

Habitat and Distribution. - On soil, among leaves, North Carolina.

Notes on Type

Spores 4-5.5 x 3-4.5 μ , subglobose to ovoid, smooth, yellowish-brown in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama undulating subparallel. Epicutis of interwoven hyphae, 3-6 μ broad.

TRICHOLOMA MACULATUM Murrill

Torrey Bot. Club Bul. 67:145. 1940

Melanoleuca maculata Murr., Torr. Bot. Club Bul. 67:147. 1940

"Pileus convex to plane, gregarious, 9 cm. broad; surface smooth, glabrous, white with ferruginous spots and stains, margin incurved when young, even, entire, white, becoming lemon-yellow on drying; context white, unchanging, odorless, bitter, sweating profusely in drying; lamellae sinuate or adnexed, broad behind, much crowded, thin, fleshy, white, rusty-spotted, entire, drying slowly with exudation of much water; spores ovoid, smooth, hyaline, about $5 \times 3 \mu$; cystidia none; stipe equal, smooth, finely scurfy, becoming glabrous, milk-white changing to lemon-yellow on drying, 6×1.2 cm."

Habitat and Distribution. - On decayed pine log, Florida, October.

Notes on Type

Spores $5-5.5 \times 3-3.5 \mu$, ellipsoid to sub-ovoid, smooth, yellowish in Melzer's. Pleurocystidia none; cheilocystidia few, cylindric, $25-30 \times 2-3 \mu$. Gill-trama of undulating-subparallel hyphae. Epicutis of interwoven hyphae, $2-4 \mu$ broad.

TRICHOLOMA MALODORA Murrill

Lloydia 5:141. 1942

✓
Same as *T. chrysenteroides*

"Pileus conic to plane or depressed, gregarious, 6-8 cm. broad; surface slightly viscid, smooth, glabrous, uniformly pallid to isabelline; margin even, entire to reflexed and rimose; context thin, white, with a strong earthy odor and a very farinaceous taste; lamellae deeply sinuate with decurrent tooth, rather close, inserted, 1 cm. or more broad, entire, whitish to discolored; spores ovoid, smooth, hyaline, obliquely apiculate, 1-guttulate, about 8-9 x 4-5 μ ; cystidia none; stipe equal or tapering downward, smooth, glabrous, pallid, 6-8 x 1.4-1.8 cm.

"Type collected by J. R. Watson and W. A. Murrill under live-oaks southwest of Gainesville, Fla., Jan. 21, 1940 (F 20102). A rather large species with pronounced odor and taste."

Notes on Type

Spores 8-10 x 4.5-5.5 μ , ellipsoid, ^{slightly inequilateral,} smooth, ~~to~~ slightly rough (under oil), yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of subparallel hyphae to faintly interwoven, 2.5-4 μ broad. Parts not vinaceous in 2% KOH, ~~xxxx~~

Discussion. - My No. 17946 (labelled T. chrysenteroides) is similar but the epicutis stains vinaceous in 2% KOH. Singer says T. malodora is a synonym of T. chrysenteroides.

Although the Type of T. malodora has a slightly more robust ^{stipe} than that of T. chrysenteroides, they agree in essential characters (as Singer says).

✓

TRICHOLOMA MARGARITA^{mm} Murrill

Torrey Bot. Club Bul. 67:281. 1940

Melanoleuca margarita Murr., Torrey Bot. Club Bul. 67:279. 1940

"Pileus convex, not expanding, gregarious, 1.5-2 cm. broad; surface smooth, dry, finely fibrillose, pearly-white with a bluish tint, margin even, entire to undulate; context white, odorless, not acrid but becoming slightly bitter; lamellae sinuate, plane, close, medium broad, inserted, entire, white, unchanging; spores ovoid, smooth, hyaline, 1-guttulate, 3-4 x 1.5-2 μ ; cystidia none; stipe above ground subequal, smooth, slightly fibrillose, solid, white, mostly fulvous when dried, 2-3 x 0.4-0.6 cm.; buried portion clavate, not definitely radicate, 2-3 x 0.8 cm."

Habitat and Distribution. - On soil, under hardwoods, Florida, November.

Notes on Type

Spores 4.5-5.5 x 2-3.5 μ , ovoid, smooth, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of parallel or nearly parallel hyphae, 1-2 μ broad, with a few broad hyphae, 7-12 μ wide.

TRICHOLOMA MELALEUCIFORME Murrill ✓

Lloydia 8:290. 1945

Melanoleuca melaleuciformis Murr., Lloydia 8:275. 1945

"Pileus convex to deeply depressed, gregarious, 4-5 cm. broad; surface dry, smooth, glabrous, shining, uniformly umbrinous to dark-avellaneous, margin deflexed when young, even, entire to slightly undulate or rimose; context very thin, pallid, unchanging, 1 mm. or less thick, odorless, mild; lamellae emarginate with broad adnate base, plane, inserted, distant, 1 cm. broad, entire, white to pallid; spores oblong-ellipsoid, smooth, hyaline, white in mass, about $6 \times 3 \mu$; cystidia none; stipe fleshy, hollow, subequal, smooth or slightly furrowed, glabrous, shining, white at the apex, avellaneous below, 5-6 x 0.5-1 cm."

Habitat and Distribution. - On soil, in cypress woods, Florida, January.

Notes on Type

Spores 5.5-7 x 3-3.5 μ , ellipsoid, some slightly oblong, smooth, pale yellow in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama more or less parallel, 8-15 μ broad. Epicutis parallel to subparallel, 7-14 μ broad.

TRICHOLOMA MEMMINGERI Murrill

Mycologia 6:269. 1914

Tricholoma impolitum Lasch (?)

(N.A. Flora 10213)

"Pileus convex, regular, gregarious, 5-10 cm. broad; surface dry, subtomentose, white, light-tan to brownish at the center, becoming glabrous in spots and retaining the impression of finger marks, margin thin, entire; context fleshy, rather thin, with earthy odor and taste, changing quickly to bright-yellow and finally to brown when cut or bruised; lamellae sinuate, very close, rather narrow, fragile, apparently white or light-yellow when fresh, becoming fulvous or bay with age; spores broadly ellipsoid, smooth, hyaline, granular, $6 \times 5 \mu$; stipe long, tapering upward, enlarged or subbulbous below, densely tomentose, dry, white, becoming fulvous when bruised, solid, fragile, about 10 cm. long and 1-2 cm. thick, being nearly twice that thickness at the base."

Habitat and Distribution. - In leaf-mold, deciduous woods, North Carolina, 1911.

Notes on Type

Spores 4.5-5.5 x 4-4.5 μ , globose to ellipsoid, smooth, faintly angular, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama wavy subparallel. Epicutis of more or less parallel, closely packed, appressed, narrow hyphae, 1-2 μ broad.

Singer supposes this is a Collybia (Lloydia 5:125, '42).

TRICHOLOMA MICROSPERMUM Murrill

Lloydia 8:290. 1945

Melanoleuca microsperma Murr., Lloydia 8:276. 1945

"Pileus convex to plane with broad umbo, gregarious, 4-5 cm. broad; surface dry, finely tomentose, smooth, avellaneous with fumose disk, margin even, concolorous, entire to undulate or slightly rimose; context very thin, white, unchanging, with farinaceous odor and taste, not becoming bitter or acrid; lamellae sinuate, inserted, close, narrow, pure-white, unchanged on drying, edges entire to somewhat split; spores ellipsoid, smooth, hyaline, about $4 \times 2 \mu$; stipe equal, solid or slightly hollow, smooth, glabrous, white, unchanging, about $3-4 \times 1$ cm."

Habitat and Distribution. - On lawn, near water oaks, Florida, January.

Notes on Type

Spores $3.5-4.5 \times 2-2.8 \mu$, ellipsoid and more or less pip-shaped or subovoid, obliquely apiculate, smooth, yellowish in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis of narrow, parallel hyphae, $1-2 \mu$ broad, with numerous more or less erect hyphae, some terminating as septate pilocystidia more or less constricted at septa.



pilocystidium

TRICHOLOMA MUTIFOLIUM Murrill

Mycologia 6:269. 1914

Cortinellus mutifolius Murr., North Amer. Flora 10:35. 1914

(N.A.F. 10:35. 1914)

"Pileus convex to expanded, subumbonate, solitary or gregarious, 4-8 cm. broad; surface dry, reddish-brown, decorated with rather conspicuous innate scales, margin smooth, entire, concolorous, context watery-brown, unchanging, taste mild, odor not characteristic; lamellae slightly sinuate, subcrowded, of medium breadth, somewhat undulate on the edges, sordid-white, bay in dried specimens; spores globose, smooth, hyaline, granular, 4-6 μ ; stipe long and rather thick, subequal, usually tapering downward, whitish above, dull-reddish-brown below, smooth, fibrillose, spongy within, 6-10 cm. long, 1-1.5 cm. thick."

Habitat and Distribution. - On soil, in moist woods, Alabama, January.

Notes on Type

Spores 4.5-6 x 3.5-4.5 μ , ellipsoid, rarely subglobose, smooth, yellowish in Melzer's. Basidia 47-61 x 10-13 μ , 4-spored. Pleurocystidia and cheilocystidia none. Gill-trama subparallel. Epicutis subparallel, hyphae 3-5 μ .

TRICHOLOMA MYOMYCES Lange

Dansk. Botanisk Arkiv. 8(3):21. 1933

Pileus 2-5 cm. broad, convex, expanding, at times umbonate, dry, at first "mouse gray" and densely tomentose-fibrillose, finally paler, "pale mouse gray" to "drab-gray," squamulose from matted-upturned ends of fibrils, margin woolly-fibrillose, somewhat wavy and splitting. Flesh white to grayish, medium on disk, thin outward; odor (especially when crushed) strong, penetrating (of coal-tar), or at times mild, taste disagreeable. Lamellae emarginate, "pale drab-gray" when very young, unchanging, close to subdistant, ventricose, rather broad, edges even or sometimes fimbriate. Stipe 2-4 cm. x 5-7 (10) mm., dry, white, apex floccose-mealy, elsewhere appressed-silky, solid with a definite "pith." Veil present, evanescent, white, webby, at times sparse, leaving remnants on margin.

Spores 5-7.5 x 3.5-4 μ , ellipsoidal to subovoid, smooth ~~or faintly wrinkled~~, white in mass, yellowish to rusty brown in Melzer's reagent. Pleurocystidia and cheilocystidia none. Gill-trama parallel. Epicutis of fuscous, parallel hyphae, 7-12 μ broad. Squamules ^{composed} of strands of more or less parallel, fuscous hyphae. Some hyphae in epicutis and scales are rough-walled and also exhibit faint markings suggestive of secondary thickening (as in tracheids)-similar to those in T. portentosum.

Discussion. - Smith (letter, May 15, 1946) says that No. 16653 is a variety with an odor, and that all in this group are problems, but no one has ever given them critical study.

The odor varies: in No. 16653 and No. 18290 it is also of coal-tar, and in No. 17761 and No. 20754 it is mild.

~~rough-walled hyphae from epicutis~~
rough-walled hypha from epicutis



18290 - *Tricholoma myomyces* Lange



21579 - *Tricholoma myomyces* Ruge



20754 - *Tricholoma myomyces* Sacc



20767 - *Tricholoma myomyces* Lange

TRICHOLOMA MYOMYCES Lange f. PALLIDUM forma nov.

Illustration:

Plate

Pileus 2-5 cm. broad, white, disk pale to dark gray, not viscid, moist, white, fibrillose-rimose, not scaly, margin even, wavy. Flesh medium thick on disk, thin on margin, dingy to grayish; odor and taste mild or faint of coal-tar. Lamellae emarginate, white, unchanging, ventricose, broad, nearly subdistant to close, edges even. Stipe 2-5 cm. x 8-12 (15) mm., white, shining, apex white-mealy, elsewhere fibrillose-striate, equal or base clavate sub-bulbous, stuffed then hollow. Veil slight, webby-fibrillose, fugaceous.

Spores 6-7 x 3.5-4.5 μ , ellipsoid, smooth, white in mass, non-amyloid. Pleurocystidia and cheilocystidia none.

Habitat and Distribution. - On soil, in pine woods, Tennessee, January.



21620 - *Tricholoma myomyces* Ringe
(pale form)

TRICHOLOMA NIVEIPES var. AUSTRALIS Coker

Elisha Mitch. Sci. Soc. Jour. 45:169. 1929

(Coker's description)

"Cap up to 7 cm. broad, brokenly and roughly expanded, drooping slightly at the irregular and deeply lobed margin; smooth, not viscid, blackish gray. Flesh pale gray, not brittle; odorless and tasteless.

"Gills close, unbranched, about 6 mm. wide, broadly notched at stem, very pale gray.

"Stem crooked, smooth, hollow, on average about 5 cm. long and 15 mm. broad, tapering downward to an enlarged rounded base which is buried in the soil; not viscid, pale grayish and slightly punctate-fibrous.

"Spores smooth, of peculiar shape, rod-elliptic, some a little bent, much like the spores of many *Clavarias*, 2.5-3 x 7.5-9 μ .

"Compared at Albany and found to be *Tricholoma niveipes* Pk. which has same spores, same size and shape, about same color and grows in sand under pines. The pale gray gills, somewhat darker cap, and gills not so yellow in dry state indicate a varietal difference."

Habitat and Distribution. - On sandy soil, in pine woods, South Carolina, December.

Notes on Type

Spores 7-9 (11) x 3-3.5 μ , oblong-ellipsoid, often slightly curved, smooth, pale yellowish in Melzer's.

Pleurocystidia and cheilocystidiannone. Gill-trama sub-parallel, hyphae 2-3 μ broad. Epicutis parallel, hyphae 2-3 μ broad.

TRICHOLOMA ODORUM Pk.

Torrey Bot. Club Bul. 25:321. 1898

Pileus 2-5 cm. broad, central portion "pinkish buff," elsewhere whitish, convex, expanding convex to almost plane, dry, soft to touch, appearing glabrous but matted-fibrillose under lens, often with water-soaked spots, margin even. Flesh moderately thin, pallid; odor strong of coal-tar, taste farinaceous. Lamellae adnexed to narrowly emarginate, medium broad, ventricose, close, "pale pinkish buff," edges even. Stipe 3-5.5 cm. x 7-10 mm., whitish, dry, fibrillose-striate, apex slightly pruinose, stuffed with a white "pith," equal. Veil none, even in youngest specimens.

Spores 8-10.5 (11) x 4.5-6.5 μ , ellipsoid-subfusoid, smooth, white in mass, yellowish in Melzer's reagent. Gill-trama subparallel. Pleurocystidia and cheilocystidia none. Epicutis of interwoven hyphae.

Habitat and Distribution. - On soil, in pine and mixed woods, Tennessee, North Carolina, and Florida, August-January. No. 21080, Wakulla County, Florida, formed arcs of fairy rings, about 8 feet in diameter.

Discussion. - My Nos. 21080, 12964, and 18875 closely resemble the Type. At times old sporophores are darker than when fresh, and when dried are tawny (see No. 21066). In No. 8102 the pileus is white with an olivaceous or smoky-yellow

(more, next page)

disk; lamellae white with a pale cream tint, - approaching T. sulphureum of which odorum may be a variety.

Notes on Type

Spores 7.5-10 x 5-6 μ , ellipsoid to subvoid, often slightly inequilateral, smooth, yellowish in Melzer's. Pleurocystidia and cheilocystidia none. Gill-trama more or less parallel. Epicutis interwoven, hyphae 2-3 μ broad, vinaceous in 2% KOH.



13022 - *Tricholoma odorum* PK.



25010 - *Tricholoma odorum* (Fr.)



24606 - *Tricholoma odorum* PK.