

Pileus fleshy, continuous with the stipe; surface very variable in color, varying in specimens of the same collection according to light exposure or age, with or without a separable cuticle, dry or viscid, glabrous, areolate, squamulose, velvety, or pruinose; margin even, striate, or sulcate and tuberculate: context brittle, vesicular, not lactiferous, mild or acrid in taste, sometimes with a distinctly pleasant or disagreeable odor, sometimes changing color where broken or handled; lamellae brittle, rather thin, with acute edges, equal or unequal in length, simple or forking, often becoming darker with age or staining where bruised, sometimes pruinose from the abundant spores; stipe central or nearly so, never fibrous, firm, spongy or stuffed, becoming hollow; spores white or yellow, globose to ellipsoidal, usually echinulate. The plants grow on the ground in the woods or in grassy places in open groves or in the edges of woods, or occasionally on decaying wood.

Type species, Agaricus emeticus Schaeff.

Lamellae alternating long and short.
Pileus without a pellicle.
Pileus with a pellicle more or less separable.
Lamellae dichotomously forking, narrowed at each end.
Lamellae equal or with a few scattered short ones, simple or some of them forking once.
Pileus with the pellicle glabrous at first, breaking up into areolae, squamules, or mealy particles, or velvety from the first.
Pellicle not separable; surface dry, becoming areolate or areolate-squamulose.
Pellicle separable part way to the disk.
Spores white.
Odor not characteristic.
Pileus green or brownish-ochraceous.
Pileus white or some shade of yellow or pink; margin even.
Odor usually foetid.
Pileus buff to burnt-umber; margin striate.
Spores yellow.
Lamellae remaining yellow.
Lamellae changing to brownish where bruised, or smoky to umber in drying.
Pileus glabrous.
Spores white.

Taste mild.
Wounds becoming gray or blackish.
Wounds not becoming gray or blackish.
Pileus yellow.
Pileus red.

Taste acrid.
Lamellae all equal and simple.
Pileus yellow, or white tinged with yellow.
Pileus red, yellow, vinaceous, violet, or white.
Lamellae partly short and some forking, chiefly near the stipe.
Pellicle separable, viscid.
Pileus ochreoleucous to smuff-brown or umber; margin usually pectinate.
Pileus vinaceous.
Pellicle scarcely separable or viscid; pileus red.

Spores yellow.

Taste mild.
Wounds of lamellae becoming gray or blackish.
Wounds of lamellae not becoming gray or blackish.
Lamellae equal, simple.
Pileus yellowish.
Pileus some shade of red, or red and yellow intermingled, or gray and umber.
Spores pale-yellow.
Spores ochraceous.
Lamellae equal or nearly so, forking near the stipe at least.
Spores pale-yellow.
Pileus white or tinged with yellow or reddish.
Pileus some shade of green.

* By Gertrude Simmons Burlingham.
Spores ochraceous; pileus red, purplish-red, rosy, or rosy and yellow intermingled.
Surface viscid; pellicle separable.
Surface scarcely viscid; pellicle scarcely separable.
Taste acrid.
Pellicle separable half way to the disk.
Lamellae equal, simple; plants fragile.
Lamellae nearly equal, some forking; plants rather firm.
Pellicle not easily separable; surface scarcely viscid.

I. Compactae
Pileus white, becoming rusty-ochraceous with age or in drying; wounds turning reddish, but not black.
Lamellae broad, subdistant.
Lamellae narrow, close.
Pileus white, becoming blackish or fuliginous with age or in drying.
Wounds changing to reddish, then black.
Lamellae distant.
Lamellae crowded.
Wounds changing to blackish at first.
Surface of pileus dry.
Surface of pileus viscid.
Wounds not becoming red or black, but the entire surface becoming fuliginous.
Pileus persistently white or whitish.
Pileus yellowish, yellowish-brown, sordid, or brownish-gray from the first.
Surface persistently smooth.
Lamellae becoming reddish or umber where wounded, or at least with age or in drying.
Lamellae distant.
Lamellae very crowded.
Lamellae not changing color where wounded.
Pileus cream-colored or deeper yellow.
Pileus grayish-yellow.
Surface becoming rimose-areolate to floccose-scaly.

II. Lepidace
Spores pale-yellow.
Pileus sanguineous-rosy, fading, often yellowish on the disk.
Pileus rose-purple on the margin, olive-green in the center, fading.
Spores white; pileus white, sometimes becoming tinged with alutaceous.

III. Crustaceae
Spores pure-white.
Pileus green intermingled with yellowish, striate on the margin; taste tardily acrid.
Pileus green, even on margin; taste mild.
Spores yellow or tinged with yellow.
Surface of pileus furfuraceous; spores almost white.
Surface of pileus pruinose-tomentose or velvety; spores maize-yellow.

IV. Subvelutinae
Pileus some shade of red or vinous-purple.
Taste mild.
Surface red; the broken context not becoming sticky where handled.
Surface vinous-purple, often intermingled with yellowish, very variable; the broken context becoming sticky where handled.
Taste soon acrid.
Pileus yellow
Pileus violaceous; stipe white.

V. Atrofurfuraceae
Wounds becoming sordid-brown to umber; the entire surface brownish in drying.
Wounds not becoming brown; the entire surface pale-smoky in drying.

VI. Insignes
Stipe yellowish, adorned, at least below, with deeper yellow granules or squamules.
Pileus becoming minutely granular except on the disk; taste mild.
Pileus becoming squamulose except on the disk; taste acrid.
Stipe tinged with pink; pileus rose-pink, becoming granular.
Stipe white, glabrous.
Pileus white or faintly tinged with pink or yellow in the center, minutely granulose, lamellae decurrent.
Pileus pale-lilac, fading to white, minutely floccose or fibrillose.

VII. Pristinatae
Margin deeply and widely striate.
Odor resembling that of bitter almonds when fresh, stronger with age or in drying.

- Lamellae mostly simple; pileus thin, up to 8 cm. broad.
- Lamellae more or less forked; pileus thick, 8–12 cm. broad.
- Odor not pronounced.

Margin not deeply and widely striate-tuberculate.
- Surface of pileus pulvulent.
- Stipe glabrous.
- Stipe granulate.
- Surface of pileus glabrous; hymenophore becoming umber in drying.

**VIII. BIFIDAE**

- Taste mild or bitter with age, not acrid; lamellae subdistant.
- Taste acrid; lamellae crowded.

**IX. BASIFURCATAE**

- Taste mild, then bitterish.
- Taste acrid.

**X. HETEROPHYLLAE**

- Taste mild.
  - Pileus greenish or mixed with green.
  - Spores pure-white; lamellae narrow.
  - Spores creamy-white; lamellae broad.
- Pileus yellow.
- Taste acrid; spores white; margin even.

**XI. VINACEAE**

- Stipe white.
  - Pileus dull-garnet on the margin, pale-yellowish on the disk.
  - Pileus cinabary-red on the margin, whitish on the disk.
- Stipe violaceous-purple; pileus Indian-lake to dark-violaceous, paler on the margin.

**XII. OCHROLEUCAE**

- Stipe white, becoming cinereous.
- Stipe white, unchanging.
- Pileus straw-yellow.
- Pileus white or sometimes tinged with yellow.
- Stipe pale-ochraceous.

**XIII. VETERNOSEAE**

- Pileus some shade of red, with yellow often appearing on the disk, or some shade of yellow and orange.
  - Spores yellowish-buff; pileus old-blood-red to incarnate, fading, whitish or yellow on the disk.
  - Spores ochraceous.
  - Pileus blood-red or rosy-red, sometimes spotted with white or orange blotches.
  - Pileus Corinthian-red, fading, the center tinged with yellow.
  - Pileus honey-yellow on the disk to coppery-orange on the margin.
  - Pileus Morocco-red, not fading.
- Pileus dark-violaceous when dried.
- Pileus vinous-purple to dark-purple, with chamois color and greenish intermingled.
- Color not fading; stipe bulbous.
- Color fading.

**XIV. SANGLINEAE**

- Spores creamy-white; lamellae close, soon decurrent.
- Spores pale-yellow; lamellae subdistant, adnate.

**XV. PALUSTRES**

- Pileus slate-violet on the margin, the center vinous-purple surrounded by yellowish; tardily acrid.
- Pileus lilac-rose to salmon-lilac, the center darker surrounded by gray-green or stone-color; very fragile; promptly acrid.

**XVI. GLAUCAE**

- Stipe white, unchanging.
  - Pileus glaucous-green intermingled with rosy-flesh-color or salmon-flesh-color and maize-yellow; margin striate; lamellae becoming pale-yellow.
  - Pileus pale-olivaceous, becoming yellow on the disk, no pink tints present; margin even; lamellae becoming deep-yellow.
  - Pileus aeruginose-green, leaden-gray, or paler, sometimes umber on the disk; spores whitish.

- 33. R. pectinata.
- 34. R. foetens.
- 35. R. pectinatoides.
- 36. R. granulata.
- 37. R. pulverulenta.
- 38. R. ventricosipes.
- 40. R. variata.
- 41. R. basifurcata.
- 42. R. albida.
- 43. R. heterophylla.
- 44. R. cyanoxantha.
- 45. R. Eorlel.
- 46. R. consobrina.
- 47. R. vinacea.
- 49. R. Queletii.
- 50. R. ochroleuca.
- 51. R. Raouliti.
- 52. R. anomala.
- 53. R. simillima.
- 54. R. veternosa.
- 55. R. tenuipes.
- 56. R. corinthiabron.
- 57. R. aurantialata.
- 58. R. borealis.
- 59. R. atroviovelacea.
- 60. R. Robinsoniiae.
- 61. R. expansens.
- 62. R. sanguinea.
- 63. R. mexicana.
- 64. R. palustris.
- 65. R. gracilis.
- 66. R. glauca.
- 67. R. suboviscens.
- 68. R. aeruginosa.
Stipe white, then sordid-yellowish; pileus grass-green.

XVII. Fingilibres

Pileus flavous, buff, or fawn-colored.
Pileus isabelline, with testaceous and ochraceous tints.
Pileus white, often tinged with yellow in the center.

XVIII. Luteae

Pileus viscid when wet, without pruinose bloom.
Pileus luteous; lamellae deep-yellow.
Pileus amber-yellow to golden-yellow; lamellae pale-yellow; taste slightly acrid.
Pileus dry or at least pruinose, avellaneous-isabelline; lamellae pale-yellow.

XIX. Decolorantes

Pileus some shade of red.

Spores yellow.

Wounds becoming cinereous.
Pileus varying from light-red to orange.
Pileus dark-red, often blackish in the center.
Wounds first becoming red, then black.
Spores white.
Stipe becoming black when wounded.
Stipe not becoming black when wounded.

Pileus yellow.

XX. Betulinae

Taste mild; without special odor.
Pileus reddish-salmon colored on the margin, becoming yellowish on the disk; stipe white.
Pileus rosy or red, fading, yellowish on the disk; stipe yellow to orange at the base.
Pileus rosy-incarnate to rose-orange, with white or pale spots; stipe tinged with rose.
Pileus vinaceous, dull-Indian-purple, Pompeian-red, or livid-brown, fading; stipe white or washed with pinkish.
Taste bitter or becoming more or less astringent when mature; odor disagreeable and foetid with age or in drying; pileus blood-red-brown to red-brown.

XXI. Ochrophyllae

Pileus dull-red; stipe reddish.

XXII. Integrae

Pileus more than 6 cm. broad.

Odor not characteristic.

Stipe not tinged with red.
Pileus varying from dark-dull-red to reddish-brown, fading.
Pileus varying from apricot-color on the margin to yellow in the center, becoming fulvous in drying.
Stipe tinged with red.
Pileus Morocco-red, varying to Mars-orange, often apricot-yellow on the disk.
Pileus dark-purple, nearly black on the disk; up to 22 cm. broad.
Odor resembling that of fresh meal; stipe white, rarely rose-colored; pileus varying from red to incarnate or bay-purple.

Pileus less than 6 cm. broad.

Stipe white.
Pileus red, sometimes darker on the disk.
Pileus salmon to reddish-salmon or yellowish-salmon, Morocco-red on the disk.
Pileus whitish or pale-gray, brown on the disk.
Stipe white or with yellowish stains; pileus slate-violet to livid-umber, darker on the disk.
Stipe rose-colored; pileus pale-olive-brown, purplish-red or rose-red on the disk.

XXIII. Alutaceae

Stipe more or less tinged with red; pileus dull-red to purplish-red, fading on the disk.

Stipe white.

Odor not characteristic.
Pileus varying from rose-red to purple and lilac; becoming yellow on the disk or over almost the entire surface.
Pileus vinous-purple with blackish or greenish center; lamellae becoming pale-yellow; cystidia absent.
Pileus reddish-violaceous, without green shades; lamellae becoming ochraceous; cystidia present.
Odor disagreeable with age; pileus purple-brown on the disk, dull-garnet toward the margin.

99. R. chamaeleontina.
100. R. abietina.
101. R. Turci.
102. R. nauseosa.
XXIV. PURPURINAE

Pileus old-blood-red to reddish-old-rose and rose-pink.
Stipe deep-red, sometimes white at the base and apex; lamellae usually crenulate on the edges; cystidia numerous.
Stipe white or stained more or less with red; lamellae even on the edges.
Pileus dark-violet, purple, or purplish-red, blackish-livid toward the center.
Pileus varying from Vandyke-brown to brownish-drab or burnt-umber.
Pileus whitish or tinged with pink, especially on the margin.

103. R. purpurina.
104. R. uncialis.
105. R. sericeoconiens.
106. R. brunneola.
107. R. albella.

XXV. FRAGILES

Pileus red, nearly uniformly colored.
Surface smooth.
Lamellae adnexit, close; context white next to the cuticle.
Lamellae free, subdistant; context red next to the cuticle.
108. R. subfragilis.
109. R. emetica.
110. R. rugulosa.
Surface rugose-tuberculate.
Pileus containing red or violet, not uniformly colored, nearly black on the disk.
Stipe white, unchanging.
Margin of pileus dull-dark-red, even.
Margin of pileus incarnate to Indian-lake, greenish toward the disk, striate.
Stipe staining sordid-violaceous or dull-red where bruised; margin of pileus violet-colored.
Pileus coppery-red intermingled with pale-yellow or ocher.
Pileus white or whitish.

108. R. nigrodisca.
112. R. fallax.
113. R. parvula.
114. R. biolor.
115. R. crenilata.

I. Compactae. Pileus without a pellicle, dry or viscid, glabrous; margin involute at first, even; context firm and compact as in the Piperatae group of the Lactariae, frequently changing color where wounded or with age, mild or tardily acrid in taste; lamellae unequal, shorter alternating with the longer, seldom forking, in many species becoming darker colored with age or in drying or where wounded; spores white.

Pileus fleshy, broadly convex, sometimes umbilicate, becoming centrally depressed or infundibuliform, 7.5–15 cm. broad; surface white or whitish, becoming rusty-ochraceous; dry or subviscid after heavy rains, unpolished, glabrous; margin even: context compact, white, mild or slightly and tardily acrid, the odor in drying strong and disagreeable; lamellae white, becoming reddish-brown where wounded and smoky-brown in drying, unequal, occasionally forked, rather close to subdistant, adnate or slightly rounded behind; stipe white, but becoming stained with reddish-brown in handling or where wounded, and sometimes changing color like the pileus, equal or nearly so, solid, 3.5–6.5 cm. long, 1.2–2.5 cm. thick: spores white, globose to subglobose, nearly smooth, 7 μ in diameter.
TYPE LOCALITY: Sandlake, New York.
HABITAT: In pine woods or mixed woods.

Pileus convex-umbilicate, becoming centrally depressed or infundibuliform, up to 25 cm. broad; surface whitish, becoming pale-rosty-ochraceous, viscid when young or moist, glabrous, but sometimes slightly rimo-squamose in the center; margin even, involute, then upturned: context firm, white or whitish, the odor and taste alkaline, strong and disagreeable, odor persisting in drying; lamellae whitish with a faint pinkish tint, becoming reddish-brown where wounded, and a dark-reddish-brown on drying, unequal, adnate or slightly decurrent, narrow, close; stipe white or whitish, staining brownish-flesh-color, equal or tapering downward, solid, becoming spongy or even hollow, 5–12 cm. long, 1.5–3.5 cm. thick: spores white, broadly elliptic, nearly smooth, slightly roughened at maturity, 6–7 × 8–9 μ.
TYPE LOCALITY: Port Jefferson, Suffolk County, New York.
HABITAT: Among fallen leaves in sandy woods under Kalmia.
DISTRIBUTION: Known only from the type locality.

*Agaricus nigricans* Bull. Herb. Fr. pl. 212. 1784.

Pileus convex and umbilicate, expanding and centrally depressed, 7–13 cm. broad; surface pure-white or stained with smoky-brown, becoming blackish or dark-fuliginous, slightly viscid when wet, glabrous; margin incurved at first, even: context firm, white, slowly changing to reddish where wounded and becoming black, mild to the taste, without odor; lamellae white, becoming blackish with age or in drying, unequal, slightly rounded at the inner ends and adnexed, broad, subdistant; stipe white, becoming smoky-brown with age, solid, 6 cm. long, reaching 3 cm. thick: spores white, broadly elliptic, very finely echinulate, 7 × 8.7 μ.

**Type Locality:** France.

**Habitat:** On the ground in coniferous or mixed woods, in rather dry soil.

**Distribution:** Maine to Virginia and North Carolina and west to Wisconsin and Oregon; also in Europe.


Pileus fleshy, firm, convex, then depressed, up to 10 cm. broad; surface white, then fuliginous, gray, or smoky-brown, viscid when wet, glabrous; margin even, inflexed for some time: context white, then reddish where wounded and at length black, mild, without special odor; lamellae white, reddish, then black where wounded, unequal, some forking, adnate to decurrent, close; stipe white, then sordid to gray, at length blackening, firm, slightly pruinose, 4 cm. long, up to 2.5 cm. thick: spores white, globoso, 7–8 μ in diameter.

**Type Locality:** France.

**Habitat:** On the ground in mixed woods.

**Distribution:** Vermont to the District of Columbia and west to Michigan; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 1017; Gill. Champ. Fr. pl. 173 (605); Rep. Mich. Acad. Sci. 11:f. 1; Luc. hand, Champ. Fr. pl. 43; Pat. Tab. Fung. f. 200, 319.


Pileus convex, becoming centrally depressed, 7.5–15 cm. broad; surface sordid-white, becoming smoky-brown with age, dry, glabrous, margin even: context white, changing to blackish-brown or bluish-black where cut or bruised, mild or tardily acrid; lamellae white, changing to blackish-brown or black with age or in drying, unequal, sometimes forked, adnate to slightly decurrent, close; stipe white, becoming smoky-brown with age or where wounded, equal, solid, firm, 2.5–5 cm. long, 1.2–2.5 cm. thick: spores white, globoso, very minutely echinulate, appearing nearly smooth, 8 μ in diameter.

**Type Locality:** Worcester, New York.

**Habitat:** On the ground under hemlocks.

**Distribution:** Maine, Connecticut, New York, Ohio, and Missouri.

**Illustrations:** Bull. N. Y. State Mus. 105: pl. 98, f. 1–5.


Pileus firm, convex, becoming nearly plane or centrally depressed, up to 13 cm. broad; surface white, becoming smoky-brown with age, sometimes with an olive-green tint, viscid when young or wet, glabrous; margin even: context grayish-white, slowly changing to smoky-brown when cut or broken, mild or slightly and tardily acrid; lamellae whitish, becoming black or blackish with age or in drying, unequal, adnate, thin, close; stipe white, becoming smoky-brown with age or where wounded, solid, becoming spongy within and sometimes hollow, glabrous, 2.5–3.5 cm. long, 1.2–2.5 cm. thick: spores white, globos, with scattered, blunt papillae on the surface, 8 μ in diameter.

**Type Locality:** Horicon, Wayne County, New York.

**Habitat:** In deciduous or mixed woods.

**Distribution:** New England to Alabama and west to Ohio.

**Illustrations:** Bull. N. Y. State Mus. 105: pl. 99, f. 1–5.
7. **Russula subusta** Burlingham.


Pileus fleshy, convex, depressed, then infundibuliform, 5–16 cm. broad; surface white or whitish, becoming cinereous or fuliginous, dry, glabrous; margin at first inflexed, even, glabrous, then upturned: context firm, thick, white, unchanging, the taste mild; lamellae white, slightly sordid with age, unequal, seldom forking, close, from adnate to decurrent, thin; stipe colored like the pileus, equal, solid, 2.5–5 cm. long, 1–2 cm. thick: spores white, subglobose, echinulate, 7–9 × 8–10 μ.

**Type Locality:** Sweden.

**Habitat:** In mixed woods.

**Illustrations:** Atk. Stud. Am. Fungi pl. 40, f. 6; Cooke, Brit. Fungi pl. 1051; Hard, Mushrooms f. 145; Krombh. Abbild. pl. 70, f. 7–11 (as *Agaricus nigricans*); Ricken, Blätterp. Deutschl. pl. 15, f. 3.


Pileus fleshy, of medium thickness, firm, broadly convex-umbilicate, then spreading, and at length infundibuliform, 8–16 cm. broad; surface white, sometimes with yellowish stains when the pileus has brought soil up with it, easily staining yellowish in drying, dry, glabrous or sometimes under the lens appearing obscurely tomentose from the pulling apart of the fibers in the outer layer; margin even, involute, late in expanding: context firm, white, unchanging where bruised, slowly becoming slightly acid; lamellae white, the edges often becoming faintly glaucous-green when mature or in the process of drying, becoming yellowish where rubbed, some equal, some forking, narrowed at both ends, decurrent, subdistant to distant, rather narrow; stipe white, sometimes with a glaucous-green ring at the apex, glabrous or sometimes under a lens slightly downy at the apex, 2–5 cm. long, 1–2 cm. thick: spores white, subglobose, tuberculate, 9 × 10 μ.

**Type Locality:** Europe.

**Habitat:** In dry woods, especially coniferous woods.

**Distribution:** Maine to Alabama and Mississippi and west to Colorado; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 1068; Gill, Champ. Fr. pl. 174 (607); Lucand, Champ. Fr. pl. 146; Pat. Tab. Fung. pl. 514; Paulet & Lév. Ic. Champ. pl. 73, f. 1; Ann. Rep. N. Y. State Mus. 54: pl. 71, f. 1–5; Richon & Rose, Atl. Champ. pl. 40, f. 1–4; Ricken, Blätterp. Deutschl. 2: pl. 15, f. 1.

**Exsiccata:** Clements, Crypt. Form. Colo. 366; Roum. Fungi Gall. 5320.


Pileus fleshy but thin, eccentric or deformed, at first centrally depressed, becoming nearly plane, 5–10 cm. broad; surface brownish or brownish-gray, faintly reddish-brown when dry, glabrous, dry; margin even, incurved at first and for some time: context white, with disagreeable odor; lamellae pallid or tinged with pink, becoming reddish where wounded, unequal, adnate or adnected, thin, subdistant, broad; stipe white, equal, smooth, spongy within, 4–6 cm. long, 1.5–3 cm. thick: spores white, subglobose, smooth or nearly so, 5–7 × 6–8 μ.

**Type Locality:** Near St. Louis, Missouri.

**Habitat:** In a grassy ravine in open oak woods.

**Distribution:** Known only from the type locality.


Pileus convex, becoming depressed or infundibuliform, 7.5–12.5 cm. broad; surface pale-flesh-colored, sordid-yellowish when dry, subareolate, glabrous; margin even: context firm, mild in taste, odor heavy; lamellae reddish-flesh-colored, umber when dried, unequal, many, very close, adnate to subdecurrent, narrow; stipe concolorous, equal, hollow, 5–7.5 cm. long, 1.5–2.5 cm. thick: spores probably white, somewhat irregular or one-sided in shape, minutely echinulate, 6–7.5 × 7.5 μ.

**Type Locality:** Auburn, Alabama.

**Habitat:** On the ground in woods.

**Distribution:** Known only from the type locality.

Pileus convex, depressed in the center, 6–10 cm. in diameter; surface deep-cream-colored, darker on the disk, smooth; margin entire, incurved: context white, unchanging, peppery, the odor almost none; lamellae pale-cream-colored, unequal, subscincous, subcrowded, rather plane; stipe white, subequal, irregular, smooth, solid, 4–6 cm. long, 2.5–3.5 cm. thick: spores white, globose, slightly echinulate, 5.5–7 μ in diameter.

**Type locality:** Stanford University, California.
**Habitat:** On the ground in woods.
**Distribution:** Connecticut and California.


Pileus convex to expanding, depressed in the center or becoming plane, 5–8 cm. broad; surface brownish or dingy-yellowish, viscid when wet, glabrous; margin even, inflexed: context firm, white, unchanging; lamellae white, unequal, rounded behind and adnerved, broadest in front, venose-connected, close, thin; stipe white, fleshy, solid, smooth, glabrous, 5 cm. long: spores white, globose, echinulate, 5.5–7 μ in diameter.

**Type locality:** Europe.
**Habitat:** On the ground in woods.
**Distribution:** In the vicinity of St. Louis, Missouri; also in Europe.
**Illustrations:** Cooke, Brit. Fungi pl. 1018; Gill. Champ. Fr. pl. 623.


Pileus fleshy, firm, convex-umbilicate, then expanding and centrally depressed, 7–10 cm. broad; surface sordid on the margin to brownish on the disk, becoming rimose-areolate or areolate-scarly, moist; margin even: context white, thin, mild in taste; lamellae white, then flesh-colored, short ones alternating with longer, adnate, distant, broad; stipe white, becoming pinkish or reddish-brown where handled, solid, subequal, 5 cm. long, 1.5–2 cm. thick: spores white, nearly smooth, obliquely apiculate, 5.5 × 8 μ.

**Type locality:** Miami Valley, Ohio.
**Habitat:** On the ground under beech trees.
**Distribution:** Ohio and Pennsylvania.

II. **Lepidales**. Pileus without separable pellicle, dry, unpolished, often becoming areolate or areolate-squamulose; margin even: context firm and rigid, mild in taste, without special odor; lamellae with a few short ones intermingled but not at regular intervals, sometimes a few forked, narrow at the inner ends, rounded at the outer: spores pale-yellow to white.


Pileus compact, fleshy, convex to expanded, scarcely depressed, reaching 10 cm. broad; surface beautiful, sanguineous-rosy, fading, often white or yellowish at the disk, darker red on the margin, unpolished, somewhat silky, then often rimose-squamulose, dry; margin even: context firm, cheesey, mild in taste; lamellae white, becoming cream-colored, often red on the edges, a few short ones present, forked, venose-connected, narrowed and rounded toward the stipe, sometimes slightly decurrent by a tooth; stipe white or rosy, even, firm, then spongy, reaching 7 cm. long and 2.5 cm. thick: spores pale-straw-colored, globose, echinulate, 8–9 μ in diameter.

**Type locality:** Sweden.
**Habitat:** In mixed woods or under beeches.
**Distribution:** New York, Alabama, District of Columbia, and Missouri; also in Europe.
**Illustrations:** Cooke, Brit. Fungi pl. 1072, 1073; Cordero, Champ. Fr. pl. 29, f. 1; Fries, Sv. Aetl. Svamp. pl. 59; Gill. Champ. Fr. pl. 176 (620); Richon & Roze, Atl. Champ. pl. 44, f. 6–9; Ricken, Blätterp. Deutschl. pl. 16, f. 4.


*Agaricus xerampelinus* Schaeff. Fung. Bavar. 4: Ind. 49. 1774.

Pileus convex then plane, up to 10 cm. broad; surface more or less rose-purple on the margin, olive-green in the center, becoming paler sometimes, dry, glabrous to pruinose or
rimulose, pellicle not easily separating; margin even, inrolled for some time: context white, slightly yellowish or smoke-colored where exposed in drying, firm, mild in taste, odor not pronounced; lamellae cream-colored, alutaceous in drying, mostly equal, forking near the stipe or sometimes anastomosing midway to the stipe, narrowed at the inner ends, rounded at the outer, not dusted with the spores; stipe white tinged with pink, subequal to ventricose, spongy but firm, under the lens pruinose in the upper portion, somewhat areolate at the base, 5–6 cm. long, 3 cm. thick: spores pale-yellow, globose, echinulate, 10 μ in diameter.

**Type Locality:** Europe.

**Habitat:** In coniferous forests or in mixed woods.

**Distribution:** Michigan and Colorado; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 1053, 1074; Gill. Champ. Fr. pl. 178 (640); Ricken, Blätterp. Deutschl. pl. 17, f. 3; Schaeff. Fung. Bavar. pl. 214, 215.

**Exsiccati:** Roum. Fungi Sel. 5322.


*Hypophyllum integrum* Paulet & Lév. in Champ. 34. 1855.

Pileus fleshy, compact, campanulate, then convex and at length spreading and depressed in the center, often eccentric, up to 10 cm. broad; surface white, then tinged with alutaceous, dry, becoming rimulose-areolate to squamulose; margin even, thin, obtuse: context mild in taste; lamellae white, a few short ones present, forked, distant, thick, rigid, rather broad; stipe white, solid, firm, spongy within, 4–5 cm. long, up to 4 cm. thick: spores white, subglobose, echinulate, 8–9 × 9–10 μ.

**Type Locality:** Europe.

**Habitat:** On the ground in mixed woods.

**Distribution:** Mississippi; also in Europe.

**Illustrations:** Barla, Champ. Nice pl. 13, f. 11–13; Cooke, Brit. Fungi pl. 1070; Gill. Champ. Fr. pl. 619 (var. incarnata); Paulet & Lév. in Champ. pl. 74, f. 2; Richon & Roze, Atl. Champ. pl. 40, f. 3–11.

III. **Crustoses.** Pileus without separable pellicle; surface green, dry or viscid when wet, breaking up into scales like those on an *Amanita*, or into smaller mealy-granules, or velvety-tomentose from the first; margin even, but sometimes obscurely striate in age: context white, unchanging, moderately firm, mild or tardily acrid, without special odor; lamellae with some short ones intermingled and some forking, narrow at the inner ends and rounded at the outer: spores white or pale-yellow.


Pileus convex, becoming nearly plane or centrally depressed, 5–12 cm. broad; surface variable in color, stramineous, pale-ochraceous, brownish-ochraceous, greenish or greenish-yellow, rarely brownish-purple, viscid when wet, with small, appressed, areolate scales, except on the smooth disk; margin striate when mature: context white, mild or slightly and tardily acrid; lamellae white, some short, some forked, narrowed toward the stipe, moderately close; stipe white, equal, stuffed or hollow, 3–6 cm. long, 1.2–2.5 cm. thick: spores white, subglobose, 8–10 μ in diameter.

**Type Locality:** New York.

**Habitat:** In woods and open places in woods.

**Distribution:** From Connecticut west to Michigan and Ohio and south to Alabama and Mississippi.

**Illustrations:** Bull. N. Y. State Mus. 67: pl. 84, f. 1–7.


*Agaricus virescens* Schaeff. Fung. Bavar. 4: Ind. 40. 1774.

Pileus fleshy, globose, becoming convex, then nearly plane and often centrally depressed, 5–12 cm. broad; surface green or grayish-green, dry, with small, flocculose patches or warts resembling those of *Amanita*; margin even, rarely slightly striate in old specimens: context white, mild in taste; lamellae white, a few short ones present, some forking, narrow toward the stipe and nearly or quite free, rather close; stipe white, firm, nearly equal, 2.5–5 cm. long, 1.2–2 cm. thick: spores white, subglobose, echinulate, 7 × 8 μ.
Type Locality: Europe.

Habitat: Oak, maple, or mixed woods.

Distribution: Maine to Virginia and west to Michigan and Ohio; also in Europe.


Exsiccati: Cavara, Fungi Longob. 104.


Pileus subglobose or very convex, becoming nearly plane or centrally depressed, 5–10 cm. broad; surface pale-grayish-green, paler or subochraceous in the center, dry, soon minutely squamulose or furfuraceous, except in the center; margin even: context white, acrid; lamellae white, a few short ones present, some forked, thin, narrow, close; stipe white, equal or nearly so, even, solid or spongy within, 5–7.5 cm. long, 1–1.6 cm. thick: spores white, tinged with yellow, globose to subglobose, 8 μ or less in diameter: cystidia subfusciform, 80 × 16 μ.

Type Locality: Horicon, Wayne County, New York.

Habitat: Under hemlock trees.

Distribution: Known only from the type locality.


Pileus firm but thin and flexible, broadly convex, becoming nearly plane or depressed in the center, 2.5–6.5 cm. broad; surface greenish-gray, dry, minutely pruinose-tomentose, noticeably so under a lens; margin even or obscurely striate: context white, taste mild; lamellae white, becoming cream-colored or darker in drying, a few short, many forked behind, venose-connected, narrowed toward the stipe, adnate or slightly decurrent, close; stipe white, nearly equal, solid, glabrous, 2.5 to nearly 4 cm. long, up to 1.2 cm. thick: spores maize-yellow, subglobose, nearly smooth, 5–6 × 7 μ.

Type Locality: Albany County, New York.

Habitat: Woods.


IV. Subvelutinæ. Pileus with the pellicle separable on the margin, usually dry, but sometimes slightly viscid when wet, velvety-pruinose from the first, some shade of red, violet, or yellow; margin even: context white, unchanging, mild or tardily acrid; lamellae equal, some forking next to the stipe, narrow at the inner ends, rounded at the outer: spores yellow.


Pileus fleshy, firm, convex or slightly depressed in the center, 5–11 cm. broad; surface dark-red or crimson, dull-carmine-lake to Indian-lake, sometimes darker in the center, dry, minutely pubescent or velvety, not noticeably so in the dried state except under a lens, cuticle adnate; margin even: context white, the taste sweet; lamellae white, becoming cream-yellow, the edges in the dried state grayish, sometimes forked next to the stipe, venose-connected, moderately close, adnate; stipe white, tinged more or less with red, equal or tapering downward, unpolished, stuffed or spongy within, 5–10 cm. long, 1–1.5 cm. thick: spores pale-yellow, subglobose, nearly smooth, 7–10 μ in diameter.

Type Locality: St. Louis, Missouri.

Habitat: Woods.

Distribution: Vermont to North Carolina, and west to Missouri.


Pileus convex, becoming plane or depressed in the center, up to 7 cm. broad; surface vinous-purple to slate-violet when growing in the open, cream-colored to maize-yellow tinged more or less with slate-violet when in the shade or covered with leaves, dry, pruinose or minutely granular or tomentose; margin even, sometimes becoming slightly striate-tuberculate when mature, incurved to the stipe when young, then spreading: context white, becoming sticky where cut or handled, the taste mild, odor where broken or bruised faint but decided; lamellae
white, then cream-colored, darker in drying, equal, some forking near the stipe, interveined, narrow at the inner ends, broad at the outer, rather close; stipe colored like the pileus or slightly paler, usually white at each end, sometimes entirely white, rarely greenish in drying, equal or tapering downward, solid to spongy, 2.5–5.5 cm. long, 0.6–2 cm. thick: spores pale-yellow, globose, echinulate, apiculate, 7–7.75 μ in diameter.

**Type Locality:** New York.

**Habitat:** In open deciduous woods or groves or by roadsides through woods.

**Distribution:** Vermont to Alabama and Louisiana and west to Michigan.

**Illustrations:** Bull. N. Y. State Mus. 75: pl. 83, f. 1–8; Mycologia 4: pl. 76, f. 2, 8.


Pileus convex to plane or slightly depressed, reaching 6 cm. broad; surface red or purple with a bloom, darker in the center, dry, smooth; margin entire: context white, thin, the taste at first nutty, becoming distinctly but not violently acrid, the odor not characteristic; lamellae exactly ochraceous even in a very young stage, adnerved, plane, subdistant; stipe pale-rose-colored or lilac, tapering below, smooth, dry, glabrous, 4.5 cm. long, 1.3 cm. thick: spores ochraceous in mass, subglobose, roughly tuberculate, 8–11 μ in diameter.

**Type Locality:** Bronx Park, New York City.

**Habitat:** On the ground in oak woods.

**Distribution:** Known only from the type locality.

**Illustration:** Mycologia 4: pl. 76, f. 9.


Pileus fleshy, firm, convex, becoming nearly plane or centrally depressed, 3–7.5 cm. broad; surface chrome-yellow, sometimes cadmium-yellow or orange in the center, velvety-pruinose or mealy, especially on the margin, dry; margin even, sometimes fading: context white, taste mild; lamellae pure-white when fresh but dingy or clay-colored when old or dried, equal, entire for the most part, rather close and thick; stipe colored like the pileus or a little paler, sometimes brighter at the base, equal or slightly tapering upward, solid, becoming spongy within and sometimes hollow, 3.5–7.5 cm. long, 0.8–1.6 cm. thick: spores yellowish, subglobose, echinulate, 6–7 × 7–8 μ.

**Type Locality:** Sandlake, New York.

**Habitat:** In grassy places among bushes or in woods.

**Distribution:** Vermont and Connecticut south to Alabama and in Ohio.

**Illustrations:** Bull. N. Y. State Mus. 105: pl. 97, f. 1–6.


Pileus convex, becoming plane then depressed, up to 5 cm. broad; surface violaceous or darker in the center or entirely darker, pruinose, becoming floccose-pruinose, evidently viscid when wet but soon dry; margin even: context white, thin, taste not noted; lamellae ochroleucous when fresh, becoming deeper yellow, equal, rarely forking next to the stipe, venose-connected, rounded at the outer ends, narrowly adnate at the inner, subdistant, rather broad; stipe chalk-white, unchanging in drying, nearly equal, firm, stuffed, then tending to become hollow, glabrous; spores pale-yellow, echinulate, some globose but many elliptic, 7 × 10 μ.

**Type Locality:** Corvallis, Oregon.

**Habitat:** In fir forests with scattered specimens of oak, birch, willow, and maple.

**Distribution:** Known only from the type locality.

V. *Atropurpureae*. Pileus broad, with the pellicle separable on the margin, slightly viscid to plainly viscid when moist, variable in color, vinous-purple to brownish-purple intermingled with olive-green or lighter green, pruinose-velvety to glabrous; margin even, sometimes obscurely striate when old: context white, unchanging where wounded or becoming sordid-brown, and in any case yellowish to smoke-colored in drying, rather firm, mild or slightly and tardily acrid, with a disagreeable odor in drying; lamellae whitish or cream-colored, deeper colored with age, brown or smoke-colored in drying, sometimes changing to brownish where injured, mostly equal or with a few scattered short ones, some forking, but sometimes simple: spores yellow.


pileus convex, becoming plane or centrally depressed, up to 14 cm. broad; surface varying in color from vinous-purple to old-olive-green and sordid-brown, pruinose-vellute to glabrous, viscid when wet, with the cuticle separable on the margin; margin even, sometimes slightly striate when old: context white, changing to sordid-brown or fuliginous where bruised, mild in taste, with a disagreeable odor in drying; lamellae white, becoming pale-yellow, then brownish where injured or in drying, usually dusted with the spores, equal or with a few scattered short ones, some forking near the stipe, acute at the inner ends, rounded at the outer; stipe white or pinkish, glabrous, staining brownish where bruised, spongy-firm, 6 cm. long, 2–3 cm. thick: spores maize-yellow, echinulate, subglobose, 7 × 7–8.7 μ.

**Type Locality:** Saratoga County, New York.

**Habitat:** In coniferous or mixed woods.

**Distribution:** New England south to North Carolina and west to Michigan and Colorado.


Pileus fleshy, thin, fragile, convex, becoming nearly plane or centrally depressed, 5–7 cm. broad; surface variable in color, pale-olive-green or brownish-purple, sometimes spotted in the center, viscid when moist, with the cuticle separable on the margin, pruinose to glabrous; margin even or obscurely striate when old: context white or whitish, not changing to brown where wounded, but becoming smoke-colored in drying, mild or slightly and tardily acrid, with a strong, unpleasant odor in drying, the odor persisting for some time; lamellae cream-colored or buff, becoming smoky or dingy in drying, equal, seldom forking, narrow next to the stipe, rounded at the outer ends, adnexed, sometimes seceding, usually pruinose, thin, close, 4–8 mm. broad; stipe white, assuming a somewhat smoky hue in drying, equal or tapering upward, 4–7 cm. long, 0.8–2 cm. thick: spores buff-yellow, subglobose, echinulate, 7.6 × 9.5 μ.

**Type Locality:** Ellis, Massachusetts.

**Habitat:** Under fallen leaves in woods.

**Distribution:** Massachusetts.

VI. *Insignis.* Pileus with the pellicle separable to the disk, slightly viscid when wet but appearing dry for the most part, minutely granular or squamulose or flocculose, white or some shade of yellow or pink; margin even; context white, not changing color, mild or acrid, without special odor; lamellae equal, some forking, adnate or adnexed to slightly decurrent: spores white.


Pileus convex to nearly plane or depressed, up to 8.2 cm. broad; surface cream-white in the outer portion, darker dull-yellow at the center, pruinose to glabrous on the disk, minutely granular from the disk to the extreme margin, with the pellicle separable only on the margin, if viscid, soon dry and unpolished; margin striatulate when mature, slow in expanding: context firm, white, mild and agreeable in taste; lamellae white, mostly equal, occasionally forked, rounded at the outer ends, adnexed, close, thin, broad; stipe scurfy or squamulose with yellow nearly to the apex, nearly white at the apex, entirely dark-dull-yellow at the base, attenuate upward, loosely stuffed, dry, up to 7.5 cm. long, 2.5 cm. thick: spores white, elliptic, echinulate, 6.5 × 8.5 μ.

**Type collected in swampy mixed woods at Stow, Massachusetts, August 17, 1913, Simon Davis I–1913 (herb. Burlingham).**

**Distribution:** Stow and Milton, Massachusetts.


Pileus thin, broadly convex, nearly plane or slightly depressed in the center, 2–5 cm. broad; surface yellow when moist, grayish-yellow when the moisture has escaped, the pale-brick-red cuticle cracking into minute scales everywhere except in the center, not viscid but
moist enough for leaves to adhere; margin at first involuted: context white, peppy; lamellae white, becoming pale-yellow in drying, equal, a few forked half way from margin to stipe, adnate or subdecurrent, thin, narrow, close, becoming pruinose; stipe colored and adorned like the pileus, equal or slightly tapering downward, firm, 2–5 cm. long, 8–10 mm. thick: spores white, subglobose, echinulate, 8–10 μ in diameter.

**Type Locality:** Bulls Head, Richmond County, New York.

**Habitat:** On the ground in wet soil, in mixed young woods; also in wet soil around decayed logs and stumps.

**Distribution:** In the type locality and vicinity.

**Illustrations:** Bull. N. Y. State Mus. 167: pl. 9, f. 1–4.

30. **Russula corallina** Burlingham, sp. nov.

Pileus convex, then depressed in the center with the margin arched, 4.5 cm. broad; surface pale-rosy-pink, unevenly colored, viscid when moist, soon dry and densely pruinose, the cuticle breaking up into granules, exposing the cream-white context beneath; margin even: context mild at first, becoming acid; lamellae white, equal, rounded at the outer ends, narrow but slightly adnate behind and forking, close; stipe white faintly tinged with pink, tapering downward, becoming hollow: spores white, elliptic, slightly echinulate, 7 × 8.7 μ.

Type collected on sandy loam in mixed woods at Newfane, Vermont, August 9, 1910, Gertrude S. Burlingham 62–1910 (herb. Burlingham).

**Distribution:** Known only from the type locality.

31. **Russula blanda** Burlingham, sp. nov.

Pileus broadly convex, soon umbilicate, then expanding to plane and slightly depressed in the center, 3–4 cm. broad; surface very white except in the center, where there is a faint tinge of pink or yellow more noticeable with age, cuticle separable, slightly viscid when wet, minutely squamulose or granulose, especially on the disk; margin even: context pure-white, unchanging, mild in taste, without special odor; lamellae white, equal, some forking next to the stipe, slightly decurrent, rather close; stipe white, pruinose at the apex, spongy-firm, enlarged more or less next to the lamellae, 2–2.5 cm. long, 0.5–1 cm. thick: spores white, nearly globose, nearly smooth, 6.5–8.2 μ in diameter.


**Distribution:** Known only from the type locality.

32. **Russula flocculosa** Burlingham, sp. nov.

Pileus convex, becoming plane and somewhat depressed, 9–11 cm. broad; surface light-grayish-vinaceous or lilac, fading to white, appearing whitish on the margin when dried and light-isabelline to umber in the center, or entirely pallid with a faint-lilac tint, minutely floccose, with the pellicle separable for some distance toward the center; margin even: context white, moderately thick and firm, mild in taste; lamellae white, not changing, equal, a few forked, venose-connected, narrowed toward the stipe, subdistant, rather broad; stipe white, equal, terete, stuffed, glabrous, 6–9 cm. long, 2–3.5 cm. thick: spores white, subglobose, minutely echinulate, appearing nearly smooth, 5–7 μ in diameter.

Type collected on the ground in woods at West Elkton, Ohio, September 8, 1914, L. O. Overholts 2224 (herb. Burlingham).

**Distribution:** Ohio.

VII. **Pectinatae.** Pileus firm to thin, with pellicle more or less separable; surface ochro-leucous to snuff-brown and umber, viscid when wet, sometimes with mealy scales or pulverulence; margin usually deeply striate and tuberculate: context whitish, often with a pungent or disagreeable odor and disagreeable or acid taste; lamellae mostly equal, some forking, narrowed toward the stipe: spores white or cream-white in mass.

33. **Russula pectinata** Fries, Epicr. Myc. 358. 1838.

Pileus fleshy, broadly convex, becoming plane, then centrally depressed, up to 8 cm. broad; surface raw-umber to snuff-brown, paler on the margin, at times somewhat fuscous
in the center, slimy-viscid when wet, the pellicle not easily separable, glabrous; margin pectinate-sulcate half way to the disk, thin: context next to the pellicle tinged like the surface, unpleasant and slowly but decidedly acrid in taste, with a slight odor like R. foetens when fresh, the odor becoming more pungent in drying and persisting in dried specimens for some months; lamellae white, equal, mostly simple, venose-connected, narrowed toward the stipe, close; stipe white, rarely with a touch of umber at the base; often tapering downward, firm, becoming spongy within, 3.5–6 cm. long, 1–1.5 cm. thick: spores white, broadly elliptic, echinulate, 5–7 \times 7–8 \mu.

**TYPE LOCALITY:** Europe.

**HABITAT:** In grassy places in deciduous woods of oak, chestnut, beech, and maple.

**DISTRIBUTION:** New York west to Ohio, Missouri, and Washington and south to Mississippi; also in Europe.


**EXSICCATI:** Śydow, Myc. Mar. 3312.

**34. Russula foetens** (Pers.) Fries, Epicr. Myc. 359. 1838.


Pileus fleshy, firm, then fragile, subglobose, becoming plane to slightly depressed in the center, 7.5–12.5 cm. broad; surface honey-colored or dull-buff to reddish-brown, viscid when moist, pellicle separable part way to the disk, glabrous; margin widely striate-tuberculate or sulcate, thin and incurved at first: context whitish, except next to the cuticle, where it is yellowish, acrid to slowly acid and unpleasant, the odor at first like bitter almonds, then fetid; lamellae white, becoming yellowish with age, reddish-brown where bruised, some short ones present, many forking next to the stipe and a few part way to the margin, interspaces venose, exuding drops of water when young, rather close, broad, narrowed toward the stipe, adnexed; stipe whitish, becoming yellowish or umber where handled or with age, stuffed to hollow, equal, 4–8 cm. long, 1.2–2.5 cm. thick: spores whitish to cream-colored, subglobose, slightly echinulate, 7–8 \times 9–10 \mu.

**TYPE LOCALITY:** Europe.

**HABITAT:** In mixed woods and bushy places.

**DISTRIBUTION:** Maine to Alabama and west to Ohio and Michigan; also in Europe.

**ILLUSTRATIONS:** Bull. Herb. Fr. pl. 292; Cooke, Brit. Fungi pl. 1046; Fries, Sv. Aelt. Svamp. pl. 40; Gill. Champ. Fr. pl. 179 (142); Hard, Mushrooms f. 147; Krombh. Abbld. pl. 70, f. 1–6; Mycologica 4: pl. 76, f. 7; Ricken, Blätterp. Deutschl. pl. 19, f. 4.

**EXSICCATI:** Herpell, Präp. Hupfelzie 50.


Pileus thin, broadly convex, becoming nearly plane or centrally depressed, 2.5–7.5 cm. broad; surface chamois-colored to dingy-straw-colored or yellowish-brown to cinnamon-brown, darker in the center, viscid when moist, glabrous; margin widely tuberculate-striate: context grayish-white under the separable pellicle, otherwise white, mild or slightly and tardily acrid; lamellae white, becoming creamy, fulvous where bruised, mostly equal, some forking next to the stipe, adnate, thin; stipe white, discoloring yellowish-brown where bruised or in drying, glabrous, spongy within, 2.5–5 cm. long, 5–10 mm. thick: spores whitish, subglobose, 6–8 \mu in diameter.

**TYPE LOCALITY:** New York.

**HABITAT:** Grassy ground in groves and woods.

**DISTRIBUTION:** Vermont to Michigan and south to Virginia and North Carolina.

**ILLUSTRATIONS:** Bull. N. Y. State Mus. 116: pl. 105, f. 6–10.


Pileus convex, becoming nearly plane or depressed in the center, 5–7.6 cm. broad; surface buff or chamois-colored to burnt-umber in the center, viscid when moist, sometimes obscurely squamulose, again prominently granular-squamulose, and sometimes rimose-squamose; mar-
gin striate-tuberculate: context white or whitish, acrid or slowly acrid and unpleasant, the odor none when fresh; lamellae white, staining umber where bruised, mostly equal, many forking next to the stipe, narrow at the inner ends, adnate, close; stipe equal or abruptly contracted at the apex, sometimes tapering downward, white stained with yellowish-brown, especially at the base, becoming more discolored in drying, firm, spongy, 2–4 cm. long, 1.3–1.7 cm. thick: spores white, creamy-white on white paper, globose, nearly smooth, 7 μ in diameter.

**Type Locality:** Ulster County, New York.
**Habitat:** In woods, especially under spruce trees.
**Distribution:** Vermont west to the Pacific coast.


Pileus rather thin, convex, soon centrally depressed or subumbilicate, 3–8 cm. broad; surface ochroleucous, then grayish-brown, pulverulent with pale-yellow, mealy scales or patches, viscid when wet, with separable pellicle; margin even at first, striate when mature: context white, the taste mild and somewhat disagreeable, the odor somewhat fetid; lamellae white, equal, not infrequently forking next to the stipe, venose-connected, adnate, close; stipe white at the apex, elsewhere thickly beset with yellow dots or granules, subequal, spongy-stuffed, becoming hollow, 3–9 cm. long, 0.8–2 cm. thick: spores white, globose, about 8 μ in diameter.

**Type Locality:** Michigan.
**Habitat:** In mixed woods.
**Distribution:** Vermont and Michigan.


Pileus thin, broadly convex, nearly plane or slightly depressed in the center, 5–7 cm. broad; surface varying in color from tawny-yellow to pale-alutaceous, becoming umber in drying, glabrous, viscid when wet; margin inrolled and even, thin, striate: context white; lamellae white or whitish, becoming umber in drying, equal, forking next to the stipe, slightly sinuate, adnate, narrow, close, thin; stipe whitish above, reddish toward the pointed base, ventricose, firm, solid or subspongy within, nearly glabrous, 5–7 cm. long, 2.5 cm. thick: spores broadly elliptic, nearly smooth, 6–8 μ in diameter.

**Type Locality:** South Yarmouth, Massachusetts.
**Habitat:** Sandy soil under or near pine trees.
**Distribution:** Known only from the type locality.

**VIII. Bifidae.** Pileus rather firm, broad; pellicle separable on the margin only; surface green or reddish-purple variegated more or less with green, viscid when wet, glabrous or pruinose; margin even, thin: context white, unchanging, mild or acrid, without special odor; lamellae white, dichotomously forked, some short ones present, narrowed toward each end: spores white.


*Amanita furcata* Lam. Encyc. 1: 106. 1783.

Pileus convex, becoming plane or concave, 5–10 cm. broad; surface green, not uniform in color, tinged with fulvous, yellow, umber, or black in the center, the pellicle separable on the margin only, smooth, frosted with a slight silkiness or appearing as though moldy or mealy; margin even, acute, infolded: context white, mild or insipid and nauseous, sometimes bitter with age; lamellae white, equal, forking twice and sometimes three times, adnate to decurrent, subdistant, rather broad; stipe white, solid, even, spongy or hollow with age, tapering downward, 3–7 cm. long, 1–1.6 cm. thick: spores white, globose, echinulate, 7–8 μ in diameter.

**Type Locality:** France.
**Habitat:** In woods.
**Distribution:** New York; also in Europe.
**Illustrations:** Barla, Champ. Nice pl. 16, f. 1–9; Bull. Herb. Fr. pl. 26; Cooke, Brit. Fungi pl. 1036; Richon & Roze, Atl. Champ. pl. 41, f. 1–3.

Pileus fleshy, firm, convex, becoming centrally depressed or subinfundibuliform, up to 12 cm. broad; surface reddish-purple or brownish-purple, often variegated with green or wholly pea-green, viscid when wet, cuticle separable on the margin only, sometimes cracking and areolate toward the margin, glabrous; margin even, thin: context white, acrid or tardily acrid; lamellae white, some of them short, forking from one to three times, tapering at each end, thin, close, narrow; stipe white, equal or nearly so, solid or at length with one or more cavities, 3.5–7.5 cm. long, 1–2 cm. thick: spores white, subglobose, 7–10 µ in diameter.

**Type Locality:** Baltimore, Maryland.

**DISTRIBUTION:** Eastern United States from Vermont to Virginia.

**ILLUSTRATIONS:** Bull. N. Y. State Mus. 105: pl. 101, f. 1–5.

IX. _Basifurcatae_. Pileus firm, broad; pellicle separable on the margin only; surface white or whitish tinged with yellow or reddish-yellow, viscid when wet, glabrous; margin even: context white, unchanging, mild to bitterish or acrid; lamellae white at first, mostly equal, many forked at the base, narrowed toward the stipe: spores pale-yellow.


Pileus fleshy, firm, convex, umbilicate, becoming subinfundibuliform, 5–7.5 cm. broad, surface dingy-white, often tinged with yellow or reddish-yellow, slightly viscid when moist; the pellicle separable on the margin only, glabrous; margin even: context white, mild then bitterish; lamellae white, becoming yellowish, a few short ones intermingled, many forked at or near the base, narrowed toward the stipe, adnate or slightly emarginate, close; stipe white, firm, solid, becoming spongy within, 1.6–2.5 cm. long, 1–1.3 cm. thick: spores pale-yellow, elliptic, 7–8 µ long.

**Type Locality:** New York.

**HABITAT:** Dry ground in woods and bushy places.

**DISTRIBUTION:** Maine and Vermont.


Pileus fleshy, convex to subplane, at length subinfundibuliform, 2.5–10 cm. broad; surface white, becoming yellowish in drying, viscid with separable pellicle, glabrous; margin even: context white, firm, acrid; lamellae white, equal, sometimes forking next to the stipe, rather close, adnate or slightly decurrent; stipe white, equal, smooth, glabrous, solid, 2.5–6 cm. long, 8–20 mm. thick: spores pale-yellow, subglobose, marked with broken reticulations, 6–7.5 × 7.5–10 µ.

**Type Locality:** Auburn, Alabama.

**HABITAT:** In pine, spruce, or oak woods.

**DISTRIBUTION:** Vermont to Alabama and west to Michigan.

X. _Heterophyllae_. Pileus rather firm, broad; pellicle separable on the margin only; surface viscid when wet, glabrous; margin even or slightly striate: context white, unchanging, mild to acrid, without special odor; lamellae with many short ones of various lengths regularly intermingled, some forking: spores white or cream-white.


Pileus fleshy, firm, convex, then plane to depressed, up to 10 cm. broad; surface yellowish-olive-green to golden-bronze-green, viscid when wet, with thin, separable pellicle, glabrous, smooth; margin incurved up to maturity, even or slightly and closely striate: context white, mild in taste; lamellae white, many short and varying in length, some forking or anastomosing near the stipe, many forking midway to the margin but not often forking twice, tapering at
each end, narrow, close; stipe white, solid, firm, equal, 4 cm. long, 1.8 cm. thick: spores pure-white, echinulate, 5–6 × 6–7 μ.

**Type Locality:** Sweden.
**Habitat:** In mixed woods of beech, hemlock, and other trees.
**Distribution:** Vermont; also in Europe.
**Illustrations:** Badham, Basal. Mycogr. pl. 10, f. 3; Bernard, Champ. Roch. pl. 40, f. 3; Cooke, Brit. Fungi pl. 1044, 1045; Gill. Champ. Fr. pl. 183 (620); Richon & Roze, Atl. Champ. pl. 42, f. 8–10.

44. **Russula cyanoxantha** (Schaeff.) Fries, Hymen. Eur. ed. 2. 446. 1874.

*Agaricus cyanoxanthus* Schaeff. Fungi Bavar. 4: Ind. 40. 1774.

Pileus convex, becoming plane, then depressed or infundibuliform, up to 10 cm. broad; surface variable in color, from lilac or purplish to olive-green, usually becoming paler or yellow in the center, bluish on the margin, viscid when wet, with pellicle partly separable, glabrous; margin at length slightly striate: context firm, white, but colored like the surface next to the pellicle, mild in taste; lamellae white, shorter ones intermixed, some forking, rounded next to the stipe, broad, rather close; stipe white, spongy-stuffed, smooth, glabrous, 5–7.5 cm. long, 1–1.6 cm. thick: spores creamy-white, nearly globose, echinulate, 8 × 9 μ.

**Type Locality:** Europe.
**Habitat:** In deciduous or mixed woods.
**Distribution:** Vermont to North Carolina and west to Michigan; also in Europe.
**Illustrations:** Cooke, Brit. Fungi pl. 1076; Gill. Champ. Fr. pl. 184 (605); Lucand, Champ. Fr. pl. 169; Ricken, Blätterp. Deutschl. pl. 16, f. 1.

45. **Russula consobrina** Fries, Epicr. Myc. 359. 1838.

Pileus fleshy, convex, then expanded or depressed, up to 8 cm. broad; surface umber, olivaceous-fusous, or gray, viscid when wet, glabrous; margin even, thin: context gray next to the pellicle, otherwise white, very acid; lamellae white, many short and many forked, adnate, close; stipe white, becoming sordid or cinereous with age, firm, spongy-stuffed, 2.5–7.5 cm. long, 0.8–2 cm. thick: spores white, subglobose, 8–9 μ in diameter.

**Type Locality:** Europe.
**Habitat:** In coniferous woods.
**Distribution:** Otsego County, New York, and Tolland, Colorado; also in Europe.
**Illustrations:** Cooke, Brit. Fungi pl. 1055; F. Lorincz, Essb. Schwämme pl. 11, f. 5; Richon & Roze, Atl. Champ. pl. 41, f. 16–18.


Pileus fleshy, firm, hemispheric, becoming broadly convex or nearly plane, sometimes centrally depressed, 3.8–6.2 cm. broad; surface stramineous, becoming paler with age, very viscid, glabrous; margin even: context whitish or yellowish, the taste mild; lamellae whitish, becoming yellowish, a few short, adnate, distant, thick; stipe white, equal or nearly so, firm, solid, then spongy within, 2.5–3.7 cm. long, 0.6–1.2 cm. thick: spores white, subglobose, minutely roughened, 4–5 × 6–7 μ.

**Type Locality:** Suffolk County, New York.
**Habitat:** Among fallen leaves in woods.
**Distribution:** New York, Pennsylvania, and Virginia.
**Illustrations:** Bull. N. Y. State Mus. 67: pl. N, f. 5–10.

XI. Vinaceae. Pileus rather firm, broad; pellicle separable except on the disk; surface vinaceous to red, viscid when wet, glabrous; margin even, becoming more or less striate-tuberulate when mature: context white, unchanging, acid, without special odor; lamellae equal or with a few short ones intermingled, forking at the inner ends: spores white.

47. **Russula vinacea** Burlingham, sp. nov.

Pileus convex, then depressed in the center, up to 10 cm. broad; surface vinaceous, becoming more or less maize-yellow on the disk, viscid when moist, with separable pellicle except on the disk, pruinose when young; margin arched for some time, becoming striate-tuberulate
when mature: context rather firm, red next to the cuticle, otherwise white, acrid; lamellae white, then more or less rust-colored, especially where bruised, sometimes a few short ones intermixed, acute and forking at the inner ends, rounded and broad at the outer ends, interveined, rather close; stipe white or with a few rust-colored spots, equal, firm, then spongy, 4.5–6 cm. long, 1–2.5 cm. thick: spores white, elliptic, strongly echinulate, 7–8.7 × 8–10 μ.


**DISTRIBUTION:** Long Island, Staten Island, and New Jersey.


Pileus fleshy, expanded, subdepressed, 5–9 cm. in diameter; surface white on the disk, more or less cinnamon-red toward the margin, somewhat viscid, glabrous; margin entire: context white, unchanging, very acrid; lamellae white or creamy-yellow, equal, anastomosing, subinulate, broad, close; stipe white, equal, smooth, spongy-stuffed, 5–10 cm. long, 2.5–3 cm. thick: spores white, subglobose, slightly echinulate, 7 × 9 μ.

**TYPE LOCALITY:** Palo Alto, California.

**HABITAT:** In beds of decaying oak leaves in woods.

**DISTRIBUTION:** Known only from the type locality.


Pileus compact, convex, then plane, 2.5–8 cm. broad; surface Indian-lake or dark-violaceous, paler on the margin, viscid when wet, glabrous; margin slightly striate: context firm, red-purple next to the pellicle, otherwise white, acrid, without special odor; lamellae white, becoming yellowish with age or in drying, some shorter, some forking, sometimes with drops of water which in drying stain the surface bluish-gray; stipe violaceous-purple, pruinose, spongy within, 5 cm. long, up to 1.2 cm. thick: spores white, subglobose, echinulate, 8–9 μ in diameter.

**TYPE LOCALITY:** France.

**HABITAT:** On the ground in spruce or pine woods.

**DISTRIBUTION:** Vermont and Washington; also in Europe.


**XII. Ochroleucae.** Pileus somewhat fragile; pellicle not easily separable; surface yellow or white tinged with yellow, usually viscid when wet (dry in *R. anomala*), glabrous; margin even or becoming striate when mature: context white, unchanging, acrid, without special odor; lamellae equal, rarely forking: spores white.


Pileus fleshy, becoming plane or depressed, 5–7 cm. broad; surface luteous, fading, with a thin, closely adnate pellicle, polished; margin even, remotely striate when old: context acrid; lamellae white, then pallid, nearly equal, rounded behind, free, broad; stipe white to cinnereous, firm, spongy within, reticulate-rugose, 2–3 cm. long; spores white, ovate, papillate, 7 μ in diameter.

**TYPE LOCALITY:** Europe.

**HABITAT:** In moist places in woods.

**DISTRIBUTION:** Alabama; also in Europe.

**ILLUSTRATIONS:** Cooke, Brit. Fungi pl. 1049; Gill. Champ. Fr. pl. 626; Lucand, Champ. Fr. pl. 7; Ricken, Blätterp. Deutschl. pl. 18, f. 7.


Pileus broadly convex, then plane or slightly centrally depressed, 3–6 cm. broad; surface straw-yellow or massicot-yellow, viscid, glabrous; margin even or at length very faintly striate: context pure-white, unchanging, somewhat tardily peppy; lamellae white, some short ones intermingled, rarely forking next to the stipe, interspaces slightly venose, narrow, 2–6 mm.
broad, acute at the inner ends, close; stipe white, not changing color, somewhat pruinose, tapering downward, stuffed, 3–4 cm. long, 1–2 cm. thick: spores white, globose, echinulate, 6–9 μ in diameter.

**Type Locality:** France.

**Habitat:** In sandy soil in mixed woods or coniferous forests.

**Distribution:** Tilland, Colorado; also in Europe.


Pileus fleshy, thin, nearly plane or slightly depressed in the center, 2.5–3.8 cm. broad; surface white, sometimes tinged with yellow, dry, glabrous; margin striate, thin: context white, acrid; lamellae white, pruinose, equal or with an occasional short one, rather close, adnate; stipe white, equal, solid or spongy, 2.5–3.8 cm. long, 6–8 mm. thick: spores white, roughly and bluntly echinulate, 8–9 μ in diameter.

**Type Locality:** Suffolk County, New York.

**Habitat:** Damp ground under trees.

**Distribution:** New York.


Pileus convex, becoming plane or slightly depressed in the center, 2.5–7.5 cm. broad; surface pale-ochraceous, sometimes deeper colored in the center, viscid when young or moist, glabrous; margin striate when mature: context white, acrid; lamellae yellowish, nearly equal, some forked near the stipe, broader at the outer ends; stipe colored like the pileus or paler, equal or slightly tapering upward, spongy within, rarely hollow, 5–7.5 cm. long, 0.8–1.2 cm. thick: spores white, globose or nearly so, 8 μ in diameter.

**Type Locality:** Grieg, New York.

**Habitat:** On the ground in woods.

**Distribution:** New York, Vermont, and North Carolina.

XIII. *Veternosa.* Pileus broad, with the pellicle separable half way to the center; surface red to violaceous, sometimes yellow on the disk, varying to entirely yellow, viscid when wet, glabrous; margin usually even at first, becoming faintly striate: context white, unchanging, acrid, without special odor; lamellae mostly equal, some forking: spores yellow.

54. **Russula veteranosa** Fries, Epicr. Myc. 357. 1838.

Pileus broadly convex, then plane to depressed, 5–8 cm. broad; surface old-blood-red, peach-red, rosy, or incarnate, soon fading to whitish or yellow on the disk, viscid when wet, polished, with the thin pellicle separable only on the margin; margin even or at length sometimes faintly striate when mature: context white, acrid; lamellae white, then straw-colored, short ones present, adnate, narrow, broader at the outer ends; stipe white, equal, spongy, then hollow, smooth, fragile, 5 cm. long, up to 2 cm. thick: spores yellowish-buff, subglobose, echinulate, 8–9 μ in diameter.

**Type Locality:** Sweden.

**Habitat:** In oak, beech, and maple woods.

**Distribution:** Vermont, New York, Michigan, and California; also in Europe.

**Illustrations:** Bres. Fungh. Mang. pl. 73; Cooke, Brit. Fungi pl. 1033, 1092; Ricken, Blätterp. Deutschl. pl. 19, f. 5.


Pileus convex to expanded, thin, 7–12 cm. broad; surface deep-rosy-red or blood-red, sometimes white-spotted or tinged with orange blotches, sometimes uniform-red with or without minute rugae, viscid when wet, with the pellicle easily separable; margin at first connivent-striate: context red beneath the cuticle, otherwise white, very fragile at maturity, sometimes tardily but very acrid in taste, without special odor; lamellae white, then yellow-ochraceous,
equal, a few forked, venose-connected, adnexit to free, close; stipe white or rosy-tinted, subequal or ventricose, spongy-stuffed, obscurely rivulose, 5–9 cm. long, 2–2.5 cm. thick: spores yellow-ochraceous, subglobose, echinulate, 6–8 μ in diameter.

**Type Locality:** Michigan.

**Habitat:** Frequent in mixed or oak and maple woods.

**Distribution:** Michigan.

56. *Russula corinthiirubra* Burlingham, sp. nov.

Pileus becoming plane or slightly depressed in the center, up to 9 cm. broad; surface Corinthian-red, fading, the center becoming tinged with maize-yellow, viscid, with the pellicle separable half way to the center, glabrous; margin becoming slightly striate-tuberculate: context tinged with red next to the pellicle, otherwise white, slowly acrid, without special odor; lamellae becoming yellow, equal, some forked next to the stipe, venose-connected, narrow at the inner ends, broad and ventricose toward the outer, rather thick, close; stipe white, firm, nearly equal, 4 cm. long, 1.7 cm. thick: spores ochraceous, subglobose, echinulate, 7 × 8.7 μ.


**Distribution:** Known only from the type locality.


Pileus convex, then plane to depressed in the center, thin, 5–12 cm. broad; surface honey-yellow to Naples-yellow in the center, coppery-orange toward the margin, viscid and shining when moist, pellicle separable, except on the disk, glabrous; margin even at first, becoming slightly striate-tuberculate: context yellowish next to the cuticle, otherwise white, unchanging, fragile, acrid, the odor not noticeable; lamellae becoming maize-yellow, dusted with the spores, mostly equal, many forking next to the stipe, venose-connected, acute at the inner ends, broad at the outer, rather close; stipe white, nearly equal, firm, then spongy-stuffed, glabrous, even, 4–10 cm. long, 1.5–2.5 cm. thick: spores ochraceous-yellow, subglobose, 8–9 μ in diameter.

**Type Locality:** Michigan.

**Habitat:** In leaf-mold in hemlock, mixed, or deciduous woods.

**Distribution:** Michigan and Vermont.


Pileus fleshy, firm, convex, then plane to slightly depressed, often with a sinus on one side, 5–9 cm. broad; surface Morocco-red, uniform or darker on the disk, not fading, hardly viscid, pellicle somewhat separable; margin even or obscurely striate: context white, red under the cuticle, not very thick, mild, sometimes slightly and tardily acrid, odor none; lamellae ochraceous, the edges often reddish anteriorly, equal, a few forked toward the stipe, moderately close, rather broad, broader at the outer ends, narrowly adnate, interspaces venose; stipe white, tinged with red in places, thickened below, firm, spongy-stuffed, 5–7 cm. long, 1.5–2 cm. thick: spores deep-ochraceous-yellow in mass, globose, finely echinulate, 7–8 μ in diameter.

**Type Locality:** Michigan.

**Habitat:** In mixed woods of hemlock, spruce, yellow birch, and hard maple.

**Distribution:** Vermont and Michigan.

59. *Russula atroviolacea* Burlingham, sp. nov.

Pileus convex, then plane and depressed in the center, 4–9 cm. broad; surface haematite-red or diamine-brown, uniformly colored or rarely lighter in the center, viscid when wet, with separable pellicle, glabrous; margin even: context fleshy, solid, not fragile but thin, purplish under the cuticle, otherwise white, tardily and slightly peppery; lamellae cream-colored, darker with age or in drying, mostly equal, branching somewhat next to the stipe, interspaces venose, rather close, adnate, 6–10 mm. broad; stipe equal or slightly larger below, white, not
discolored, slightly pruinose to glabrous, solid, becoming hollow, at least at the base, 4–6 cm.
long, 1.5–2 cm. thick: spores ochraceous, globose, echinulate, 7–10 μ in diameter.

Type collected on the ground under willows at Boulder Park, Tolland, Colorado, 2775 m.

**DISTRIBUTION:** Known only from the type locality.

60. *Russula Robinsoniae* Burlington, sp. nov.

Pileus convex, then plane, up to 15 cm. broad; surface vinous-purple but not uniformly
colored, varying with dark-purple and some chamois-color and greenish intermingled, viscid
when wet, with the pellicle separable, at least on the margin, glabrous; margin even: context
rather thick, white, red next to the cuticle, bitter and peppery; lamellae white, turning yellow
very soon, a few short ones present, some forking next to the stipe, venose-connected, very
narrow at the inner ends, rounded at the outer, subdistant, rather narrow; stipe stained more
or less with rose-color or vinous-purple, bulbous at the base, spongy, 6–10 cm. long, 2.5 cm.
thick: spores pale-yellow, echinulate, globose to subglobose, 7–8.5 μ in diameter.

Type collected on the ground under spruce trees at Yellowstone Lake, Wyoming, August 9,
1912, Winifred J. Robinson (herb. N. Y. Bot. Gard.).

**DISTRIBUTION:** Known only from the type locality.


Pileus convex-conic, at length plane, 4.5–8 cm. broad; surface varying in color from vinous-
purple with the center almost black to Indian-lake and dull-garnet, or even salmon-old-rose
with age, sometimes fading to garnet-brown or umber with some greenish or yellowish-green,
especially between the disk and the margin, viscid when wet, the pellicle separable on the
margin, glabrous; margin even: context white or very slightly tinged with rose next to the
cuticle, acrid, without special odor; lamellae white, then pale-yellow, equal or a few scattered
short ones present, some forking next to the stipe, rounded at the outer ends, acute at the
inner, close; stipe tinged like the pileus, usually white at the base, tapering upward, spongy,
3–7 cm. long, 1–2 cm. thick: spores ochroleucous, ovoid, apiculate, minutely echinulate,
7–8 × 8–9 μ.

**TYPE LOCALITY:** France.
**HABITAT:** In spruce, fir, or mixed woods.

**DISTRIBUTION:** Newfane, Vermont; also in Europe.

**ILLUSTRATIONS:** Gill. Champ. Fr. pl. 195 (611).*

XIV. **Sanguinaceae.** Pileus without the pellicle noticeably separable, rather firm; surface
red, dry, glabrous; margin even: context white, unchanging, acrid; lamellae mostly equal,
forked more or less: spores white to cream-white or very pale yellow.


*Agaricus sanguineus* Bull. Herb. Fr. pl. 42. 1780.

Pileus convex, then expanding, and at length depressed in the center, 5–7.5 cm. broad;
surface blood-red or becoming pale near the margin, glabrous; margin even, acute: context
firm, white, cheesy, acrid; lamellae white, some short ones present, forked, at first adnate,
then decurrent, close, narrow; stipe white or reddish, at first contracted at the apex, then equal,
spongy-stuffed: spores cream-white, broadly elliptic to ovate, echinulate, 6–7 × 7–8.7 μ.

**TYPE LOCALITY:** France.

**HABITAT:** On the ground in woods.

**DISTRIBUTION:** North Carolina and Vermont; also in Europe.

**ILLUSTRATIONS:** Bull. Herb. Fr. pl. 42; Gill. Champ. Fr. pl. 180 (635); Lanzini, Fungi Mang.
pl. 50, f. 2; Nolet & Dassier, Traité Champ. pl. 16, f. B; Ricken, Blätterp. Deutschl. pl. 19, f. 2.

* Gillet doubtfully refers this species to *R. drimeja* Cooke, Grevillea 10: 46. 1881. Not
having seen specimens of *R. drimeja*, however, I do not feel warranted in considering these two
the same species. Peltier, in Bull. Soc. Myc. Fr. 24: 111. 1908, gives reasons for considering
*R. drimeja* Cooke, *R. expallens* Gill., and *R. Queletii* Fries varieties of the same species.
*R. Queletii* is described as having white spores and so it occurs here. This would be sufficient
for separating it from *R. expallens*, which has yellow spores.

Pileus convex to depressed, 6 cm. broad; surface pale-red, dry, with inseparable pellicle, smooth; margin striate: context white, 5 mm. thick at the center, prompt and decidedly acid; lamellae white when young, becoming pale-yellow at maturity, equal, simple, adnate; stipe roseous, cylindric, glabrous, 4 cm. long, 2 cm. thick: spores pale-yellow, subglobose, echinulate, 7–8 μm in diameter; cystidia numerous.

**Type Locality:** Near Jalapa, Mexico.

**Habitat:** On humus under the end of a log in rather open woods.

**Distribution:** Known only from the type locality.

XV. Palustres. Pileus with separable pellicle; surface viscid when wet, glabrous; margin striate when mature: context white, fragile, acid, without special odor; lamellae equal, not forking: spores pale-yellow.


Pileus hemispheric, expanding and becoming nearly plane, 5–7.5 cm. broad; surface tinged with slate-violet or in the center vinous-purple surrounded by yellowish, viscid when moist, with separable pellicle, glabrous; margin slightly striate when mature: context white, tinged with reddish-buff under the cuticle, fragile, tardily acid; lamellae whitish, becoming pale-yellow, equal, venose-connected, narrowed at the stipe, not forking unless close to the stipe, close; stipe white or tinged with slate-violet or yellowish, equal, spongy or hollow, glabrous, 2–7.5 cm. long, 0.7–1 cm. thick: spores pale-yellow, subglobose, echinulate, 7.6–8.5 × 8.5–11.5 μm.

**Type Locality:** St. Lawrence County, New York.

**Habitat:** Under alders in swamps.

**Distribution:** Maine, New York, and Vermont.

65. **Russula gracilis** Burlingham, sp. nov.

Pileus convex, becoming plane or at length slightly depressed in the center, up to 6 cm. broad; surface pale-lilac-rose to salmon-lilac, much darker in the center, sometimes gray-green or stone-color between the center and margin, fading, viscid when wet, with separable pellicle, glabrous; margin striate: context white, acid, without special odor; lamellae white, then cream-colored, equal, entire, rounded at the outer ends, narrow behind, appearing slightly decurrent when mature, rather broad, close, pruinose; stipe white, rarely tinged with pink, tapering upward, spongy within, 5 cm. long, 0.8 to 2 cm. thick: spores pitchpin, globose to elliptic, echinulate, with vacuole, 7 × 7–9 μm.

**Type collected among weeds in maple, spruce, and willow woods bordering a stream at Stratton, Vermont, August, 1910, Gertrude S. Burlingham 212–1910 (herb. Burlingham; extype herb. N. Y. Bot. Gard.).

**Distribution:** Known only from the type locality.

XVI. Glaucæ. Pileus with pellicle separable, some shade of green, viscid when wet, glabrous; margin even to slightly striate when mature: context white, unchanging, mild, without special odor; lamellae mostly equal, some forking near the stipe: spores pale-yellow.

66. **Russula glauca** Burlingham.


Pileus fleshy, firm, convex, then expanding, finally depressed in the center, up to 9 cm. broad; surface varying in color from glaucous to leaden-green or slate-green intermingling with a tinge of rosy-flesh to salmon-flesh or even maize-yellow, fading, viscid when wet, the pellicle separable half way to the center, having a pruinose bloom when young; margin even at first, at length faintly and finely striate on the very narrow edge: context tinged like the surface next to the cuticle, otherwise white, thin, mild in taste, without special odor; lamellae white,
becoming cream-colored to maize-yellow, mostly equal; some forking next to the stipe, rounded at the outer ends, narrow at the inner, close, thin; stipe white, firm, solid, equal or tapering upward, 4–5 cm. long, 1–1.5 cm. thick: spores pitchpin, elliptic, very finely echinate, 5 × 7 μ.

**Type locality:** France.

**Habitat:** In grass in thin woods of birch, maple, beech, spruce, or fir.

**Distribution:** Vermont; also in Europe.

**Illustrations:** Bres. Fungl. Mag. pl. 77; Gill. Champ. Fr. pl. 191 (616); Ricken, Blätterp. Deutschl. pl. 18, f. 1.

67. **Russula subolivascens** Burlingham.


Pileus convex to plane, umbilicate, 5–8 cm. broad; surface olivaceous, pale-olivaceous, or reseda-green, becoming yellow on the disk, without pinkish or reddish tints, somewhat viscid when moist, with pellicle separable on the margin, glabrous; margin even: context white, rather thick, mild in taste; lamellae white at first, then yellow, deep-yellow in drying, subequal, some forking next to the stipe, narrow behind, broad in front, adnate, crowded; stipe white, firm, spongy within, smooth, 4–7 cm. long, 1.5–2 cm. thick: spores pitchpin, broadly elliptic, slightly pointed at one end, echinate, 7 × 8.75 μ.

**Type locality:** Europe.

**Habitat:** In leafy forests.

**Distribution:** Long Island, Vermont, and Wyoming; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 1035; Fries, ic. Hymen. pl. 172; Ricken, Blätterp. Deutschl. pl. 18, f. 5.


Pileus fleshy, from convex to plane, slightly depressed in the center, 5–8 cm. broad; surface aeruginous-green, leaden-gray, or paler, the center sometimes tinged with umber, viscid when wet, soon dry, dull and sometimes pruinose when dry; margin slightly striate-tuberculate, thin: context white, the taste mild; lamellae white, cream-colored in age or in drying, equal, sometimes forking next to the stipe close to subdistant, narrow at the inner ends, rounded at the outer; stipe white, nearly equal, glabrous, firm, then spongy, 4–5 cm. long, 1–1.2 cm. thick: spores whitish or tinged with cream-color, subglobose, echinate, 7–8 μ in diameter.

**Type locality:** Sweden.

**Habitat:** In coniferous or mixed woods.

**Distribution:** New England to Michigan; also in Europe.

**Illustration:** Fries, ic. Hymen. pl. 173, f. 3.


Pileus convex, becoming a little concave as it expands, thin, up to 7 cm. broad; surface grass-green, russet-green with age, bistre in the center, viscid when wet, with separable pellicle, glabrous; margin striate and brighter colored: context white, fragile, mild, inodorous; lamellae cream-white, deeper colored with age or in drying, often joined at the base, adnate; stipe white, then sordid-yellowish-brown, glabrous, furrowed, firm, spongy: spores citrine or pitchpin, ocellate, echinate, elliptic, 7 × 8.7 μ.

**Type locality:** Europe.

**Habitat:** Under birch trees.

**Distribution:** Vermont; also in Europe.

**Illustration:** Ricken, Blätterp. Deutschl. pl. 16, f. 2.

XVII. **Fungiibiles.** Pileus with pellicle somewhat separable; surface yellowish or white mixed with yellow, viscid when wet, glabrous; margin becoming striate: context white, unchanging, mild, without special odor; lamellae equal, some forked next to the stipe: spores white.

Pileus convex, then plane, becoming depressed in the center, of medium size; surface flavous, buff, or fawn, viscid when wet, glabrous; margin becoming striate-tuberculate; context white, mild, without odor; lamellae white, becoming cream-colored with age or in drying, equal, some forking next to the stipe, acute at the inner ends, close; stipe white, equal, firm, then spongy: spores white, subglobose, minutely echinulate, 6–8 × 8–10 μ.

**Type Locality:** Bavaria.
**Habitat:** Mixed woods.
**Distribution:** New Hampshire and Vermont; also in Europe.
**Illustrations:** Britz. Hymen. Sudb. Russ. f. 32a, 32b; Cooke, Brit. Fungi pl. 1048.

71. Russula stricta Murrill, Mycologia 4: 166. 1912.

Pileus firm, convex to expanded, becoming depressed in the center, 5 cm. or more broad; surface isabelline with testaceous and ochraceous hues, dry, viscid when wet, with pellicle partly separable, glabrous, smooth; margin striate, thin: context white, thin, firm, mild in taste, with pleasant odor; lamellae pale-cream-colored, a few forked, adnate, close, rather narrow; stipe milk-white, subequal, smooth, glabrous, polished, 5 cm. long, 1–1.5 cm. thick: spores white, subglobose, densely and roughly echinulate, 6–8 μ in diameter.

**Type Locality:** New York Botanical Garden, New York.
**Habitat:** On the ground in thin oak woods.
**Distribution:** Known only from the type locality.
**Illustration:** Mycologia 4: pl. 68, f. 6.


Pileus fleshy, thin, convex, becoming nearly plane or slightly depressed in the center, 2.5–5 cm. broad; surface white, often tinged with yellow in the center, slightly viscid when moist, glabrous; margin even or slightly striate, thin, sometimes upturned in age: context white, mild or slightly and tardily bitterish and unpleasant, edible; lamellae white or whitish, equal, entire, sometimes forked at the base, rather close, thin, adnate or subdecurrent, the interspaces often venose; stipe white, equal or slightly tapering upward, stuffed to hollow, glabrous, 3.5–7.5 cm. long, 6–12 mm. thick: spores white or with a faint yellowish tint, subglobose, about 8 μ in diameter.

**Type Locality:** Sandlake, New York.
**Habitat:** Among fallen leaves in woods.
**Distribution:** New England to North Carolina and west to Michigan.
**Illustration:** Bull. N. Y. State Mus. 105: pl. 96, f. 1–7.

XVIII. Luteae. Pileus with separable pellicle; surface yellow to isabelline, viscid when wet, glabrous; margin even or becoming only slightly striate when old: context white, unchanging, mild or at length slightly acrid, without special odor; lamellae equal, simple: spores yellow.

73. Russula lutea (Huds.) Fries, Epicr. Myc. 363. 1838.


Pileus plane, slightly depressed in the center, 3–6 cm. broad; surface luteous, fading, viscid, with separable pellicle, glabrous; margin even or slightly striate with age: context white, mild, without special odor; lamellae becoming egg-yellow, equal, venose-connected, narrow, especially at the inner ends, close; stipe white, unchanging, spongy-stuffed, then hollow, fragile, 3–5 cm. long, 4–10 mm. thick: spores yellow, globose, echinulate, 8–10 μ in diameter.

**Type Locality:** Europe.
**Habitat:** Beech woods.
**Distribution:** From Maine west to Michigan; also in Europe.
**Illustrations:** Bres. Funghi Mang. pl. 79; Cooke, Brit. Fungi pl. 1082; Gill. Champ. Fr. pl. 622; Lucand, Champ. Fr. pl. 66; Ricken, Blätterp. Deutschl. pl. 18, f. 3.
**Exsiccati:** Sydow, Myc. Mar. 1501.

Pileus convex, then expanding and slightly depressed in the center, 5–10 cm. broad; surface amber-yellow to golden-yellow, viscid, with separable pellicle, glabrous; margin even when young, faintly striate when old: context white, mild or slightly acrid; lamellae white, soon becoming Naples-yellow and dusted with the spores, equal, simple, adnate or slightly rounded next to the stipe, broader at the outer ends, rather narrow, close; stipe white, equal or nearly so, stuffed or spongy within, 4–6.5 cm. long, 8–12 mm. thick: spores maize-yellow to pitchpin, subgloboso, about 8 μ in diameter.

**Type Locality:** Sullivan County, New York.

**Habitat:** In deciduous woods.

**Distribution:** New York, Vermont, and the Pacific coast.

75. **Russula sulcatipes** Murrill, Mycologia 4: 291. 1912.

Pileus convex to plane or depressed, reaching 7 cm. broad; surface pale-avellaneous-isabelline, dry, pruinose, smooth; margin slightly striate, becoming more conspicuously so on drying: context white, very thin, very firm, mild and nutty to the taste, the odor not characteristic; lamellae white, becoming cream-colored or somewhat darker on drying, adnate, plane, subdistant; stipe milk-white, equal or slightly larger below, with rather conspicuous longitudinal raised lines, glabrous, solid, 5 cm. long, 1.3 cm. thick: spores hyaline under the microscope, globose, roughly tuberculate, 7–9 μ in diameter.

**Type Locality:** Broux Park, New York City.

**Habitat:** In oak woods.

**Distribution:** Known only from the type locality.

**Illustration:** Mycologia 4: pl. 76, f. 4.

**XIX. Decolorantes.** Pileus with the pellicle partly separable; surface red, orange, or yellow, viscid when wet, glabrous; margin striate with age: context white, becoming gray to black where bruised or in drying, mild in taste, without special odor; lamellae equal, some forking near the stipe: spores white or yellow.

76. **Russula decolorans** Fries, Épicr. Myc. 361. 1838.


Pileus globose, becoming plane with the center slightly depressed, up to 10 cm. broad; surface varying from light-red to coppery-orange, bronzy-old-rose, or salmon, the center often ocher, fading, viscid when moist, pellicle partly separable, glabrous; margin even, becoming striate with age: context white, becoming cinereous with age or where injured, firm, becoming fragile with age, the taste mild; lamellae white, becoming maize-yellow, somewhat gray in drying, equal, some forking next to the stipe, venose-connected, acute at the inner ends and broad at the outer, rather broad, close; stipe white, becoming cinereous, nearly equal, firm, becoming spongy, 6–9 cm. long, 1.5–3 cm. thick: spores pitchpin, subgloboso, coarsely echinulate, 8.5–9 × 10.5 μ.

**Type Locality:** Sweden.

**Habitat:** In coniferous or mixed woods.

**Distribution:** New England to Long Island and west to Michigan; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 1079; Ricken, Blätterp. Deutschl. pl. 17, f. 5.


Pileus convex, then plane to centrally depressed, usually up to 7 cm. broad, rarely much larger; surface dull-dark-red, often blackish in the center, viscid when wet, slightly pruinose when dry; margin even, slightly striate with age; context white, becoming ashy-gray with age or where bruised, mild in taste; lamellae white, then pale-yellow, equal, some forking next to the stipe, venose-connected, abruptly narrowed or rounded behind and slightly adnerved, close, rather broad; stipe white, sometimes tinged with red, becoming gray or blackish with
age or where bruised, mostly equal, firm but spongy within, 4–6 cm. long, 1–1.5 cm. thick: spores ochroleucous, elliptic, finely echinulate, 7 × 8.7 μ.

**TYPE LOCALITY:** Sweden.
**HABITAT:** Usually in coniferous woods.
**DISTRIBUTION:** New England States, New York, Mississippi, and Washington; also in Europe.
**ILLUSTRATION:** Mycologia 4: pl. 76, f. 5.

78. Russula rubescens Beardslee, Mycologia 6: 91. 1914.

Pileus convex, then expanded and depressed, 5–8 cm. broad; surface red, paler on the margin, fading with age, viscid when wet; margin thin, striate: context mild in taste; lamellae white, forked, especially at the base, adnate, close; stipe white, becoming cinereous without and with within age, often blackening with age or in drying, quickly becoming red and finally black when wounded, stuffed, becoming hollow: spores pale-yellow, subglobose, roughly echinulate, 7–9 μ in diameter; cystidia numerous, large, 50–65 × 10–12 μ.

**TYPE LOCALITY:** Asheville, North Carolina.
**DISTRIBUTION:** Known only from the type locality.
**ILLUSTRATION:** Mycologia 6: pl. 121, f. 1.


Pileus convex, becoming nearly plane or centrally depressed, 3–5 cm. broad; surface bright-red, viscid when moist, glabrous; margin striate: context white, the taste mild; lamellae white, equal, narrowed next to the stipe and united, nearly free, much broader in front, close; stipe white, slightly tinged with red at the base, becoming blackish where handled or bruised, equal, glabrous, tough and elastic, 3–5 cm. long, 6–8 mm. thick: spores white, globose to subglobose, very finely echinulate, 6–8 μ in diameter.

**TYPE LOCALITY:** St. Louis, Missouri.
**HABITAT:** In woods.
**DISTRIBUTION:** Vermont to Ohio and Missouri.


Pileus fleshy, convex, then expanded or depressed in the center, often irregular, 8–16 cm. broad; surface blood-red or purple-red with scattered luteous spots, then paler or subwhite, viscid; margin striate to striate-tuberculate with age: context fragile, white, grayish with age, mild in taste; lamellae white or whitish, venose-connected, subdistant, broad, adnate; stipe white, solid, spongy within, 4–8 cm. long, 1.5–2.3 cm. thick: spores white, globose, 8 μ in diameter.

**TYPE LOCALITY:** Trexeltown, Pennsylvania.
**HABITAT:** On the ground under hickory, oak, or chestnut.
**DISTRIBUTION:** Vermont, Pennsylvania, Massachusetts, and Michigan.

81. Russula flavă Romell, Nord. Svampb. 27. 1893.

Pileus fleshy, broadly convex, becoming plane or slightly depressed in the center, 5–8 cm. broad; surface flavous or golden-yellow, sometimes discolored with age, viscid when wet, glabrous; margin even to slightly striate when mature: context white, becoming gray with age and in drying, the taste mild; lamellae white, becoming pale-yellow, then gray with age, equal, not forking, adnerved, close, broader at the outer ends; stipe white, becoming more or less gray with age or in drying, nearly equal, obscurely reticulate-rivulose, spongy, 5–8 cm. long, 1–2 cm. thick: spores pale-yellow, globose, echinulate, 8–9 μ in diameter.

**TYPE LOCALITY:** Sweden.
**HABITAT:** In mixed woods of fir, spruce, beech, and maple.
**DISTRIBUTION:** New England west to Michigan; also in Europe.

XX. Betulinæ. Pileus rather broad, with the pellicle separable on the margin at least; surface some shade of salmon, rosy, or vinaceous, viscid when wet, glabrous; margin even at first, sometimes striate when old: context white, unchanging, mild, without special odor (one species is bitter and has a fetid odor); lamellae mostly equal, some forking at the stipe: spores ochraceous.
82. Russula betulina Burlingham, sp. nov.

Pileus convex-umbilicate, then plane to depressed, 6–9 cm. broad; surface yellowish-salmon to reddish-salmon, salmon-flesh, or Etruscan-red, usually paler in the center, becoming deeper colored with age, viscid when moist, glabrous; margin even at first, then striate-tuberculate: context colored like the surface next to the cuticle, otherwise white, rather firm, taste mild, odor none; lamellae white, then maize-yellow, mostly equal, forking near the stipe, acute at the inner ends and rounded at the outer, close; stipe white, nearly equal, firm, stuffed, becoming spongy, glabrous, 3.5–7 cm. long, 1–2 cm. thick: spores ochraceous, broadly elliptic, echinulate, 8.7 × 12.2 μ or smaller.

Type collected in rather sandy, black, vegetable soil in a moist place under yellow birch at Newfane, Vermont, July 5, 1911, Gertrude S. Burlingham 28–1911 (herb. Burlingham).

Distribution: Vermont and Colorado.


Pileus convex, then nearly plane, 2.5–8 cm. broad; surface rosy or red, then all paler, yellowish in the center, viscid when wet, cuticle separable, glabrous; margin, indistinctly striate when old; context white or whitish, the taste mild; lamellae white to cream-yellow or pale-ochraceous when old or in drying, equal, not forking, except near the stipe, adnexed to adnate, rather close, broad; stipe white, yellow to orange-yellow at the base, subequal, stuffed, 2.5–7 cm. long, 0.4–2 cm. thick: spores yellow-ochraceous, subglobose, minutely roughened, 7–8 μ in diameter.

Type locality: St. Louis, Missouri.

Habitat: On the ground in woods.

Distribution: Ohio and Missouri.

84. Russula roseipes (Secr.) Bres. Fungi Trid. 1: 37. 1883.


Pileus fleshy, from convex to plane or depressed, 4–7 cm. broad; surface rosy-incarnate, rosy-orange, or rosy-subluteaceous, with white or pale spots, fading with age, viscid when wet, soon dry and then more or less pruinose; margin striate-tuberculate when mature: context white or yellowish, mild, odor agreeable; lamellae white to ochraceous, equal, some forked, venose-connected, adnexed to free, subdistant; stipe white, here and there rosy-sprinkled, stuffed, then hollow, 3–6 cm. long, 0.8–1.5 cm. thick: spores ochraceous, globose, echinulate, 8–10 μ in diameter.

Type locality: Italy.

Habitat: In coniferous or mixed woods.

Distribution: Vermont to Michigan; also in Europe.

Illustrations: Bres. Fungi Trid. pl. 40; Hard, Mushrooms f. 151; Mem. N. Y. State Mus. 3: pl. 54. f. 1–7.

85. Russula subalutacea Burlingham, sp. nov.

Pileus fleshy, firm, convex, then becoming plane, 6–11 cm. broad; surface Pompeian-red, light-Corinthian-red, livid-brown to deep-livid-brown, vinaceous-purple, or dull-Indian-purple, fading more or less at the center or on the margin, sometimes to whitish, viscid when wet, soon dry, with the pellicle separable on the margin, the cuticle rarely cracking near the center, glabrous; margin always even, involuted for some time: context pink next to the cuticle, otherwise white or grayish-white, mild, without special odor; lamellae white, then cream-colored and finally ochraceous, equal, some forking near the stipe or part way to the margin, venose-connected, rounded at the outer ends, narrowed and adnexed behind, close, 7–12 mm. broad; stipe white or marked with pinkish, equal or tapering downward, solid, very firm, pruinose when young, 4–6 cm. long, 1.5–3 cm. thick: spores ochraceous, globose to subglobose, echinulate, 8.5 × 10 μ.

Type collected on the ground in mixed woods at Tolland, Colorado, 2775 m. elevation, August 3, 1914, L. O. Overholts 2093 (herb. Overholts; extype herb. Burlingham).

Distribution: In various places around Tolland, Colorado.

86. Russula astringens Burlingham, sp. nov.

Pileus broadly convex, then plane or a little depressed in the center, 9–11 cm. broad; surface blood-red-brown to red-brown, darker in the center, viscid when wet, with the pellicle
separable on the margin, glabrous; margin even: context tinged like the surface next to the cuticle, otherwise white, firm, mild when young, bitter and more or less astringent when mature, not acrid at any time, odor somewhat fetid, more disagreeable in drying and persisting for a long time; lamellae white, then pale-yellow, equal or rarely with a few short ones, some forking near the stipe, sometimes midway to the margin or near the margin, broad at the outer ends, acute at the inner and slightly sinuate or depressed next to the stipe, close; stipe white or sometimes tinged with pink, solid, 3.5–5 cm. long, 1.5–3 cm. thick: spores maize-yellow, elliptic, echinulate, 5–6 × 7–8 μ.

Type collected in sandy loam by the roadside at Buck Hill, Townshend, Vermont, August 30, 1912. Gertrude S. Burlingham 365–1912 (herb. Burlingham).

DISTRIBUTION: Townshend and Newfane, Vermont.

XXI. Ochrophyllae. Pileus with pellicle not easily separable; surface red, dry, glabrous; margin even for the most part: context firm, white, unchanging, mild, without special odor; lamellae yellowish, becoming ochraceous, equal, a few forking next to the stipe: spores ochraceous.


Pileus fleshy, firm, convex, becoming nearly plane or slightly depressed in the center, 5–10 cm. broad; surface purple or dark-purple-red, dry, the cuticle not easily separable, unpollished, glabrous; margin even, rarely very slightly striate when old: context white, purplish under the adnate cuticle, mild, edible; lamellae at first yellowish, becoming bright-ochraceous-buff when mature, pruinose, equal, a few forked at the stipe, venose-connected, subdistant, adnate; stipe reddish or rose-tinted, paler than the pileus, white in one variety, solid, spongy within, equal or nearly so, 3.5–6.5 cm. long, 1–2 cm. thick: spores bright-ochraceous-buff, globose, verruculose, 10 μ in diameter.

TYPE LOCALITY: New York State.

HABITAT: Under oak trees.

DISTRIBUTION: Vermont west to Ohio and Missouri, and south to the District of Columbia.

ILLUSTRATIONS: Mem. N. Y. State Mus. 3: pl. 54, f. 8–14.

XXII. Integrae. Pileus with separable pellicle; surface some shade of red, viscid when wet, glabrous; margin becoming striate-tuberculate: context white, unchanging, mild, without special odor; lamellae equal, simple or rarely with a few scattered forking ones: spores pale yellow.


Pileus fleshy, becoming expanded and depressed in the center, up to 10 cm. broad; surface varying in color from dark-dull-red to reddish-brown or more or less sordid-buff, fading, viscid when wet, with separable pellicle, glabrous; margin thin, at length coarsely tuberculate-striate: context white, mild; lamellae from white to yellow-pulverulent, equal, nearly free, distant, broad; stipe white at first, clavate, then subequal, spongy-stuffed, rather short: spores pale-yellow, globose, echinulate, 7–9 μ in diameter.

TYPE LOCALITY: Sweden.

HABITAT: In woods.

DISTRIBUTION: New York and Connecticut; also in Europe.

ILLUSTRATIONS: Cooke, Brit. Fungi pl. 1099; Gill, Champ. Fr. pl. 193 (615); Lanzi, Funghi Mang. pl. 47, f. 1; Lucand, Champ. Fr. pl. 97; Schauff. Fung. Bavar. pl. 92 (as Agaricus ruber).


Pileus convex, then plane and frequently depressed in the center, rather large; surface variable in color, red, red-orange, incarnate or salmon, bay to bay-purple, or gray-violet, sometimes with green intermixed, viscid when wet, glabrous; margin blunt, usually striate with age and sometimes sulcate: context white or rosy next to the cuticle, mild in taste, with a
farinaceous odor noticeable when drying; lamellae white or cream-white, changing to brownish-ochraceous with age, equal, rarely forking, sometimes connected, rounded and broad in front, narrowed behind, free or subfree; stipe white, rarely rose-colored, pulverulent when young; spores cream-colored, subglobose, nearly smooth, but under high magnification appearing tuberculare and reticulate.

**Type locality:** France.

**Habitat:** On the ground in woods.

**Distribution:** Asheville, North Carolina; also in Europe.


90. **Russula fulvescens** Burlingham, sp. nov.

Pileus fleshy, convex, then a little depressed in the center, up to 8 cm. broad; surface varying from apricot-color on the margin to more yellowish and darker in the center, becoming fulvous in drying, viscid when moist, with the pellicle separable nearly to the center, glabrous, smooth and somewhat polished; margin even, then slightly striate-tuberculare on the extreme edge: context tinged like the surface next to the pellicle, otherwise white, mild, without noticeable odor; lamellae white, then cream-colored, deeper yellow in drying, mostly equal, some forking next to the stipe, abruptly narrowed at the inner ends, venose-connected, up to 1 cm. broad, close; stipe white or very slightly sordid on one side, glabrous, subequal, spongy within, 4–6 cm. long, 1.5–2.5 cm. thick: spores pale-yellow, mostly elliptic, obliquely apiculate, strongly echinulate, usually with a vacuole, 7–8.7 × 9–12 μ.

Type collected in spruce and balsam fir woods at Stratton, Vermont, August 12, 1911, Gertrude S. Burlingham 129–1911 (herb. Burlington).

**Distribution:** Known only from the type locality.

91. **Russula rubrotincta** (Peck) Burlingham, sp. nov.


Pileus fleshy, convex, then spreading and somewhat depressed in the center, up to 13 cm. broad; surface Morocco-red, varying to Dragon’s blood and Mars-orange, often apricot-yellow in the center, viscid when wet, polished when dry, the cuticle separable on the margin, glabrous; margin incurved at first, even, then somewhat striate-tuberculare when mature, thin: context reddish next to the cuticle, otherwise white, firm, becoming fragile, the taste mild and sweetish; lamellae white at first, becoming pale-yellow, the edges sometimes red, mostly equal, many forking next to the stipe, venose-connected, acute at the inner ends, rounded at the outer ends, close, broad; stipe tinged more or less with red, sometimes nearly white, equal or tapering upward, firm, then spongy, 5–9 cm. long, 1.5–2.5 cm. thick: spores pale-yellow, elliptic, strongly echinulate, 8–9 × 10.5–12 μ.

**Type locality:** New York.

**Habitat:** In moist woods of spruce, fir, hemlock, maple, and yellow birch.

**Distribution:** New England and New York.

92. **Russula maxima** Burlingham, sp. nov.

Pileus convex to expanded, depressed in the center when mature, up to 22 cm. broad: surface smooth, viscid when wet, with pellicle separable in part, dark-purple, almost black on the disk, glabrous; margin even: context white, mild, without special odor; lamellae white, becoming pale-yellow, sinuate, close, broad, densely pruinose; stipe rose-colored, equal, solid, 10 cm. long, 2.5–3 cm. thick: spores cream-colored in mass, broadly elliptic, echinulate, 7–8.5 × 8.7–10.5 μ.

Type collected on the ground under evergreen and deciduous trees at Tacoma, Washington, October 26, 1911, W. A. Muller 721 (herb. N. Y. Bot. Gard.).

**Distribution:** Washington.


Pileus very thin, nearly plane or slightly umbilicate in the center, 2–4 cm. broad; surface red, sometimes darker in the center, viscid when wet, with separable cuticle, glabrous; margin slightly striate: context white, mild, edible; lamellae white, becoming yellowish-
ochraceous with age or in drying, equal, not forking, adnate or slightly rounded behind, subventricose, subdistant, broad; stipe white, solid or spongy within, 1.7–2.5 cm. long, 4–6 mm. thick: spores yellowish, globose, slightly echinulate, 7 × 8.5 μ.

**Type locality:** Suffolk County, New York.

**Habitat:** Naked ground under pines in woods.

**Distribution:** New York, New Jersey, and Missouri.

**Illustrations:** Bull. N. Y. State Mus. 122: pl. 110, f. 7–14.


Pileus thin, convex, becoming plane or slightly depressed in the center, 2–4 cm. broad; surface slate-violet to livid-umber, sometimes yellowish, the center darker livid or brown, deep-purple in a variety with center almost black, viscid when wet, with separable pellicle, glabrous; margin striate-tuberculate: context tinged like the surface next to the pellicle, otherwise white, mild, without special odor; lamellae white, becoming pale-yellow, equal, narrowed toward the stipe, adnate, close; stipe white or with yellowish stains, especially when old, fragile, stuffed, becoming hollow, 2–4 cm. long, 0.8–1 cm. thick, tapering upward; spores pale-yellow, subglobose, echinulate, 6–8 μ in diameter.

**Type locality:** Europe.

**Habitat:** On the ground in moist places in mixed or coniferous woods.

**Distribution:** From Maine and Connecticut west to Ohio; also in Europe.

**Illustrations:** Bres. Fungi Trid. pl. 64; Cooke, Brit. Fungi pl. 1055; Ricken, Blätterp. Deutschl. pl. 17, f. 2.

95. *Russula humidicola* Burlingham, sp. nov.

Pileus broadly convex, soon becoming depressed in the center, up to 6 cm. broad; surface varying in color from salmon, reddish-salmon, and yellowish-salmon, to Morocco-red in the center, sometimes fading, viscid, with pellicle separable except on the disk, glabrous; margin drooping, soon tuberculate-striate: context thin, white, fragile, mild, without characteristic odor; lamellae white, becoming cream-colored, equal, rarely forking next to the stipe, intervening, acute, narrow and nearly free at the inner ends, broad and rounded at the outer, close, thin, pruinose; stipe white, nearly equal, spongy, then hollow, 3–5 cm. long, 5–10 mm. thick: spores maize-yellow, globose to elliptic, 5–6 × 7 μ.


**Distribution:** Known only from the type locality.


11: 86. 1909.

Pileus convex, umbnate, at length depressed in the center, up to 4.5 cm. broad; surface purplish-red or rosy-red on the disk surrounded with olive-brown, pale-olive-brown on the margin, viscid when wet, glabrous; margin slightly striate: context red next to the surface, otherwise white, mild, without special odor; lamellae white, then pale-ochraceous, forked here and there, narrowed toward both ends, adnate-decurrent, narrow, rather close; stipe rose-colored, usually ventricose, spongy-stuffed, then hollow, rivulose, uneven, very fragile, 4–5 cm. long, 0.7–1.2 cm. thick: spores cream-colored, globose, echinulate, 6–7 μ in diameter.

**Type locality:** Cold Spring Harbor, Long Island, New York.

**Habitat:** On sphagnum in swamps.

**Distribution:** Known only from the type locality.


1910.

Pileus fleshy, thin, broadly convex or nearly plane, about 2.5 cm. broad; surface whitish or pale-gray on the margin and brown in the center, viscid when moist, the pellicle separable; margin striate: context white, taste mild; lamellae pale-yellow or cream-colored, equal, not
forking, adnate, thin, close, narrow; stipe white, equal, glabrous, stuffed to hollow, 2.5 cm. long, 4–6 mm. thick: spores pale-yellow, globose, slightly echinulate, 8–9 μ in diameter.

**Type locality:** Ellis, Massachusetts.
**Distribution:** Massachusetts and Vermont.

XXIII. Alutaceae. Pileus with separable pellicle; surface viscid when wet, some shade of red but variable in color; margin becoming striate: context white, unchanging, mild; lamellae yellowish at first, becoming deep-yellow, equal, not forking: spores ochraceous.


- Pileus fleshy, convex, expanding and becoming subumbilicate, 8–15 cm. broad; surface dull-red or dark-reddish-purple, fading especially on the disk, greenish shades often appearing with the fading, the pellicle separable, viscid when wet, glabrous; margin even at first, somewhat striate-tuberculate with age: context white, rather firm, mild, without special odor; lamellae pale-yellow at first, becoming deeper yellow or alutaceous with age, equal, simple, rather broad, subdistant, not pruinose, nearly free; stipe white, often tinged with red or purple-red, equal, solid, up to 10 cm. long, 1–3 cm. thick: spores ochraceous, broadly elliptic, echinulate, 7.8–7.8 × 10–15.5 μ.

**Type locality:** Europe.
**Habitat:** In oak, maple, or mixed woods.
**Distribution:** New England to North Carolina and west to Michigan and Colorado; also in Europe.
**Illustrations:** Auk Stud. Am. Fungi pl. 36, f. 2; Cooke, Brit. Fungi pl. 1006, 1097; Gill. Champ. Fr. pl. 106 (1897); Hard. Mushrooms f. 148.
**Exsiccate:** Herpell, Prüf. Hutpilze 51; Rav. Fungi Car. 2: 6; Sydow, Myc. Mar. 604; Thüm. Fungi Austr. 912.


Pileus fragile, thin, plane or depressed, up to 5 cm. broad; surface varying from rose-red to purple and lilac, the disk or entire surface becoming yellow or at times yellow from the first, viscid, with thin, separable pellicle, glabrous; margin even, then somewhat striate: context white, mild; lamellae yellow, equal, adnerved or free, narrow; stipe white, spongy-stuffed, becoming hollow, striate, 2–5 cm. long, 0.4–1 cm. thick: spores subglobose, ochraceous, echinulate, 7 × 7–8.7 μ.

**Type locality:** Europe.
**Habitat:** In mixed woods or pines.
**Distribution:** Vermont to Michigan and Colorado, and south to the District of Columbia; also in Europe.
**Illustrations:** Britz. Hymen. Südb. Russ. f. 95; Cooke, Brit. Fungi pl. 1098; Ricken, Blätterp. Deutschl. pl. 18, f. 2.


Pileus fleshy, convex, becoming plane or slightly depressed in the center, 2.5–6.5 cm. broad; surface vinous-purple, greenish-purple, or olive-green, with brown, blackish, or greenish center, covered with a viscid, separable pellicle, glabrous; margin tuberculate-striate: context fragile, thin, white, mild; lamellae whitish, becoming pale-yellow, equal, not forking, subdistant, broad and rounded at the outer ends, narrowed and nearly free at the inner, ventricose; stipe white, equal or tapering upward, glabrous, stuffed or hollow, 2.5–6.5 cm. long, 0.5–1 cm. thick: spores bright-yellowish-ochraceous, subglobose, echinulate, 7.5–10 μ in diameter.

**Type locality:** New York.
**Habitat:** Under balsam fir trees.
**Illustrations:** Ann. Rep. N. Y. State Mus. 54: pl. 7, f. 1–11.

Pileus fleshy, thin, from convex to depressed, gregarious, up to 9 cm. broad; surface reddish-violaceous or lilac-purple, darker in the center, sometimes becoming yellowish in age, viscid when wet, slightly areolate when old; margin even, then striate: context white, mild, without special odor; lamellae pallid, soon becoming ochraceous, equal, venose-connected, rounded and free behind, somewhat crowded; stipe white, subrugulose, tapering downward, soon with hollow spaces within, 3–5 cm. long, up to 1 cm. thick: spores ochraceous, globose, echinulate, 8–9 μ in diameter; cystidia fusoid, 60–70 × 10 μ.

**TYPE LOCALITY:** Italy.

**HABITAT:** In coniferous woods.

**DISTRIBUTION:** From Maine to Vermont and New York, and in Washington; also in Europe.

**ILLUSTRATION:** Bres. Fungi Trid. pl. 26.


Pileus broadly convex, becoming plane to depressed, up to 5 cm. broad; surface purplish-brown at the center, shading to garnet-brown or dull-garnet toward the margin, sometimes becoming pale, viscid when wet, with the pellicle separable, glabrous; margin becoming tuberculate-striate or furrowed: context white, fragile, mild but somewhat nauseous, the odor disagreeable with age; lamellae light-yellow, then dingy-ochraceous, with a few shorter ones intermingled here and there, adnexit, ventricose, somewhat distant; stipe white, up to 2.5 cm. long, about 0.8 cm. thick; spores yellow, 8–9 μ in diameter.

**TYPE LOCALITY:** Europe.

**HABITAT:** On the ground in woods.

**DISTRIBUTION:** North Carolina and Vermont; also in Europe.

**ILLUSTRATIONS:** Bres. Fungi Trid. pl. 129; Lucand, Champ. Fr. pl. 196.

XXIV. Purpurinae. Pileus with separable pellicle; surface red or violet-purple, or white mixed with red, viscid when wet, glabrous; margin even at first, sometimes becoming somewhat striate: context white, unchanging, mild, without special odor; lamellae white, equal, simple or with some forking: spores white.

103. **Russula purpurina** Quél. & Schulzer; Schulzer, Hedwigia 24: 139. 1885.

Pileus subgloboso, becoming plane or slightly depressed in the center, 4–7 cm. broad; surface old-blood-red to carmine-lake and rosy-pink, sometimes paler in places, viscid when wet, with separable pellicle, glabrous but appearing more or less pruinose when dry; margin even, when mature more or less obscurely striate-tuberculate, thin, sometimes upturned: context fragile, reddish under the pellicle, otherwise white, mild; lamellae white, becoming yellowish in age or in drying, sometimes pink on the edges, which are often floccose and cruminate, mostly equal, not forking, acute at the inner ends, broad toward the outer, rather close; stipe colored like the pileus or paler, often white at the apex and base, equal, sometimes tapering upward or downward, stuffed, spongy within, 2–7 cm. long, 1–2 cm. thick: spores white, globose to subellipsoid, minutely verrucose, 4–8 μ long.

**TYPE LOCALITY:** Slavonia.

**HABITAT:** In coniferous or mixed woods.

**DISTRIBUTION:** From Vermont to Long Island and west to Michigan; also in Europe.


Pileus thin, convex, becoming or slightly depressed in the center, 2–6 cm. broad; surface old-blood-red to reddish-old-rose, often darker in the center, viscid when moist, with separable cuticle except on the disk, wholly or partly pruinose or pruinose-granular when dry; margin even when young, becoming slightly striate-tuberculate: context reddish next to the cuticle, elsewhere white, the taste mild; lamellae white, cream-colored in drying, equal, some forking near the stipe, venose-connected, acute at the inner ends and somewhat adnate, broader
at the outer ends, even on the edges, rather close; stipe white or often stained more or less with red, equal to slightly tapering upward, glabrous, stuffed or spongy, 4–6 cm. long, 0.5–1 cm. thick: spores white, globose, echinulate, 7–8.5 μ in diameter.

**Type Locality:** Sandlake, New York.

**Habitat:** On the ground in deciduous or mixed woods.

**Distribution:** Eastern United States as far south as Alabama.

**Illustrations:** Bull. N. Y. State Mus. 116: pl. 107, f. 7–12; Mycologia 4: pl. 76, f. 6.


Pileus convex, becoming plane or slightly depressed in the center, rather thin, 4–9 cm. broad; surface dark-violet-purple or purplish-red, blackish-livid toward the center, viscid when moist, the pellicle separable, with a silky-sheen, margin even: context purplish next to the cuticle, otherwise white, unchanging, taste mild, odor none; lamellae white, slightly yellowish with age or in drying, equal, some forking near the stipe and occasionally part way to the margin, narrow at the inner ends, broad at the outer, rather broad, subcrowded; stipe white, equal or thickened at the apex, firm, then spongy, glabrous, even or obscurely rivulose, 3–7 cm. long, 1–1.3 cm. thick: spores white, globose, echinulate, 6–7 μ in diameter.

**Type Locality:** Michigan.

**Habitat:** In mixed woods of hemlock, maple, and yellow birch or oak.

**Distribution:** Michigan, Vermont, and New York.

**Illustration:** Mycologia 4: pl. 76, f. 1.

106. *Russula brunneola* Burlingham, sp. nov.

Pileus convex-umbilicate, then plane to depressed, up to 10 cm. broad; surface varying from Vandyke-brown to brownish-drab or burnt-umber, sometimes tinged with vinous-purple, rarely with olive-brown, paler when mature, viscid when moist, the cuticle separable on the margin, pruinose when young, glabrous; margin involute, soon striate-tuberculate: context rather firm, tinged with brownish or slate-violet under the cuticle, otherwise white, mild, the odor none; lamellae white, becoming yellowish in drying, the edges sometimes tinged with Vandyke-brown, pruinose, forking near the stipe or a little distance away, venose-connected, equal, acute at the inner ends, rounded at the outer, close, rather broad; stipe white or tinged with slate-violet, nearly equal, glabrous, spongy, 4–6 cm. long, 1.5–2 cm. thick: spores white, globose to elliptic, very minutely echinulate, 5–6 × 6–8 μ.

Type collected among spruce needles near a wood road under spruces and yellow birch saplings at Stratton, Vermont, August 7, 1911, Gertrude S. Burlingham 99–1911 (herb. Burlingham).

**Distribution:** Vermont, New Hampshire, and Massachusetts.


Pileus fleshy, thin, plane or slightly depressed in the center, 5–7.5 cm. broad; surface white or whitish, sometimes tinged with pink or rose-red, especially on the margin, dry, glabrous; margin even or at length slightly striate: context white, taste mild; lamellae white, equal, close, thin; stipe white, equal, solid to spongy, 2.5–5 cm. long, 6–8 mm. thick: spores white, globose, 8 μ in diameter.

**Type Locality:** Suffolk County, New York.

**Habitat:** Dry soil in woods.

**Distribution:** New York and Mississippi.

**XXV. Fragile.** Pileus fragile, with separable pellicle; surface red or white, viscid when wet, glabrous; margin striate: context white, unchanging, acrid, without special odor; lamellae equal, simple: spores white.


Pileus thin, convex, then becoming plane to depressed, 2.5–6 cm. broad; surface pale-red or rosy, sometimes white from the first and sometimes fading to white, viscid when moist, polished, with separable pellicle, glabrous; margin thin, striate tuberculate: context white, not red next to the pellicle, fragile, very acrid, without special odor; lamellae pure-white, equal, adnexed, ventricose, thin, close, sometimes uneven on the edges, stipe white, equal, spongy within, then hollow, 2–4 cm. long, 0.5–1 cm. thick: spores white, subglobose, echinulate, 8 × 8–10 μ.

**Type Locality:** Europe.

**Habitat:** On the ground in woods.

**Distribution:** From Maine to Alabama and in the central United States; also in Europe.

**Illustrations:** Barla, Champ. Nice pl. 14, f. 10–12; Bull. Herb. Fr. pl. 509, f. 7–U; Cooke, Brit. Fungi pl. 1091; Gill, Champ. Fr. pl. 189 (613); Lanzi, Funghi Mang. pl. 47, f. 2; Ricken, Blätterp. Deutschl. pl. 19, f. 3.


*Agaricus sylvaticus* Lam. Fl. Fr. 1: 106. 1778.

*Amanita rubra* Lam. Encyc. 1: 105. 1783.

Pileus fleshy, convex to plane or depressed, 5–10 cm. broad; surface rosy, soon blood-red, then fulvous or sometimes ochroleucous or entirely white, viscid when wet, shining, with separable pellicle, glabrous; margin striate-tuberculate to sulcate: context red next to the pellicle, otherwise white, acrid, without special odor; lamellae pure-white, equal, free or slightly adnexed, broad, subdistant; stipe white or reddish, subequal, spongy to solid, firm, elastic, even, 4–8 cm. long, 1–2 cm. thick: spores globose, echinulate, 8–10 μ in diameter.

**Type Locality:** Bavaria.

**Habitat:** On the ground in woods or on rotten logs.

**Illustrations:** Atk. Stud. Am. Fungi pl. 40, f. 4; Fries, Sw. Aetl. Svamp. pl. 21; Barla, Champ. Nice pl. 14, f. 4–9; Bel, Champ. Tarn pl. 25; Bernard, Champ. Roch. pl. 40, f. 3; Boyer, Champ. Comest. pl. 34; Bres. Fung. Trid. pl. 73; Cooke, Brit. Fungi pl. 1030; Dufour, Atl. Champ. pl. 26, no. 63; Gill, Champ. Fr. pl. 188 (610); Leuba, Champ. Comest. pl. 26, f. 5–7; Mycologia 4: pl. 76, f. 3; Richon & Rose, Atl. Champ. pl. 48, f. 1–3; Roques, Hist. Champ. pl. 11, f. 1–2; Schaeff. Fungi. Bavar. pl. 12, f. 4–8; Rep. Sec. Agr. U. S. 1890: Microsc. pl. 2, f. 2.

**Distribution:** Eastern and central United States, Colorado, and the Pacific coast; also in Europe.

**Exsiccati:** Clements, Crypt. Form. Colo. 183 (in part); Herpell, Präp. Hutpilze 14.


Pileus thin, fragile, convex, then almost plane or depressed in the center, 5–10 cm. broad; surface varying in color from yellowish-red to deep-red, viscid, then rugose-tuberculate, with wrinkles sometimes radiating from the center; margin even, then tuberculate-sriate: context white, acrid or tardily acrid; lamellae white, equal, adnate or slightly rounded behind, rather close; stipe white, nearly equal, spongy within, 5–8 cm. long, 8–16 mm. thick: spores white, subglobose or broadly elliptic, echinulate, 8.5 × 9.5 μ.

**Type Locality:** Adirondack Mountains, New York.

**Habitat:** Among mosses and fallen leaves in woods.

**Distribution:** New York, Vermont, and Connecticut.

**Illustrations:** Ann. Rep. N. Y. State Mus. 54: pl. 72, f. 12–18.


Pileus broadly convex, soon nearly plane, up to 8 cm. broad; surface coppery-red intermixed with pale-yellow or ocher, viscid when moist, pellicle separable on the margin, glabrous; margin even, becoming striate when mature: context white, subfragile, acrid; lamellae white, drying yellowish, equal, broad at the outer ends, narrowed behind but not free, interveined, subcrowded; stipe white, spongy, becoming hollow, 4.5 cm. long, 1.5 cm. thick or smaller: spores white, subglobose, echinulate, 8 × 8–10 μ.

**Type Locality:** Newfane, Vermont, 342 m. elevation.

**Habitat:** On the ground in mixed woods under yellow birch.

**Distribution:** Vermont and Oregon.

Pileus convex or nearly plane, 2.5 to 4 cm. broad; surface dull-dark-red near the margin, nearly black on the disk, viscid when young and moist, glabrous, margin even: context similar to that of *Russula subfragilis*, taste not recorded in the type description: lamellae whitish, entire, subdistant, narrowed toward the stipe, thin; stipe white, nearly equal, 2.5 to 4 cm. long, 4 to 8 mm. thick: spores white, subglobose, finely echinulate, 7.5 × 9.5–11.5 μ.

**Type locality:** St. Paul Island, Bering Sea.

**Habitat:** On exposed hillsides among cladonias and other lichens.

**Distribution:** Vermont, Colorado, and St. Paul Island.


Pileus thin, fragile, convex, becoming plane or slightly depressed in the center, 3–5 cm. broad; surface vinous-purple in the center, incarnate or Indian-lake on the margin, more or less olivaceous surrounding the center or even in the center, viscid when moist, with separable pellicle, glabrous, margin striate: context white, sometimes tinged like the surface beneath the pellicle, acrid, without special odor; lamellae white, equal, adnixed, distant to subcrowded; stipe white, nearly equal, spongy within, 3–5 cm. long, 0.6–1 cm. thick: spores white, subglobose, minutely echinulate, 6 × 6–7 μ.

**Type locality:** Europe.

**Habitat:** In moist places in woods, often in sphagnum moss.

**Distribution:** Vermont to Michigan and Colorado; also in Europe.

**Illustrations:** Cooke, Brit. Fungi pl. 10; Schaeff. Fung. Bav. pl. 16, f. 1–3 (as *Agaricus emeticus*).

114. *Russula parvula* Burlingham, sp. nov.

Pileus broadly convex, becoming plane, up to 4 cm. broad; surface very dark violet, almost black in the center and black all over when young, becoming paler and brighter colored on the margin, viscid when wet, with separable pellicle, pruinose when young, then polished; margin scarcely striate: context fragile, tinged reddish under the pellicle, otherwise white, slowly acrid; lamellae white, yellowish in drying, dusted with the white spores, equal, simple, venose-connected, slightly adnate, close; stipe white, staining sordid-violaceous or dull-red where handled or bruised, spongy within, 2.5–4 cm. long, 1 cm. or less thick: spores white, globose, echinulate, 7 μ in diameter.


**Distribution:** Known only from the type locality.


Pileus broadly convex, then plane to depressed, up to 9 cm. broad; surface milk-white or slightly yellow, viscid when moist, with pellicle easily separable, glabrous; margin thin, slightly striate-tuberculate with age: context fragile, white, very acrid; lamellae white, equal, not forking, edges appearing under the lens finely notched or crenate, rounded at the outer ends, narrowed behind, close, pruinose; stipe white, spongy, nearly equal or enlarged below, glabrous, spongy within, 10 cm. long, 2 cm. thick: spores white, mostly globose, echinulate, 10 μ in diameter.

**Type locality:** Glen Brook, Oregon.

**Habitat:** In a dense fir forest with a few oaks.

**Distribution:** Known only from the type locality.

**Doubtful and excluded species**


*Russula aurata* (With.) Fries, Epicer. Myc. 360. 1838. Reported from Connecticut by White, and from West Virginia and Pennsylvania by McIlvaine. Specimens for verifying these reports are not available. It is described in McIlv. Am. Fungi 206. 1900.

*Russula citrina* Gill. Rev. Myc. 3: 5. 1881. Reported from Connecticut by White; also reported by McIlvaine. The specimens of this are not available for verification. It is described in McIlv. Am. Fungi 203. 1900.
Russula cutefracta Cooke, Grevillea 10: 46. 1881. Reported from New York by Peck. The specimens so determined seem to be R. variata Banning & Peck, which sometimes occurs with the surface cracking into areolae.


Russula drimeja Cooke, Grevillea 10: 46. 1881. Reported from Washington by Burlingham. The specimens so determined seem upon further comparison to be R. Queletii. The spore-color was not given in the field notes, and the determination as to whether the specimens represent R. drimeja or R. Queletii depends upon the color of the lamellae, which seems to place the plants rather with R. Queletii. They certainly do not represent R. expallens Gill.


Russula nitida (Pers.) Fries, Epicr. Myc. 361. 1838. Reported by Frost in the “Catalogue of Plants Growing without Cultivation within Thirty Miles of Amherst College.”

Russula ochracea (Alb. & Schw.) Fries, Epicr. Myc. 363. 1838. Reported from California by Harkness and Moore, from North Carolina by Curtis, from Massachusetts by the Boston Mycological Club, and from Wisconsin by Denniston. I have not seen the specimens from which these determinations were made.

Russula olivacea (Schaeff.) Fries, Epicr. Myc. 356. 1838. Reported from Pennsylvania by McIlvaine. It is described in McIlv. Am. Fungi 197. 1900.

Russula pulchra Bres. Jahrbuch Nat. Ver. Augsburg 28: 140. 1885. Reported from Maine by Miss White, but her specimens do not seem to have been preserved.

Russula punctata Gill. Tabl. Anal. 48. 1884. Reported from Massachusetts by the Boston Mycological Club. The specimens thus determined are R. Mariæ Peck. Maire considers R. punctata to be the same as Russula amoena Quél. It is described in McIlv. Am. Fungi 204. 1900.

Russula sororia Fries, Epicr. Myc. 359. 1838. Specimens referred to this species from New York by Peck and from Michigan by Kauffman are undoubtedly R. pectinata. The specimens which Boudier refers to R. sororia Fries in Jc. Myc. 1: 23. 1911, and figures in his plate 45, seem also to be R. pectinata.


Russula viridipes Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. 44: 184. 1891. There seem to be no specimens of this species preserved. Colored drawings of it appear in Miss Banning’s notes which are deposited in the herbarium at Albany. The color of the spores is not mentioned in the description. Since there are no type specimens and no further collections have been made, it seems best to leave this in doubt.