

equal, a few forked, venose-connected, adnexed 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  $\mu$  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,  $7 \times 8.7 \mu$ .

Type collected in sandy soil under oak, pignut, and chestnut, at Cold Spring Harbor, Long Island, New York, August 2, 1912, Gertrude S. Burlingham 77–1912 (herb. Burlingham).

DISTRIBUTION: Known only from the type locality.

### 57. *Russula aurantialutea* C. H. Kauffman, Rep. Mich. Acad. Sci. 11: 81. 1909.

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  $\mu$  in diameter.

TYPE LOCALITY: Michigan.

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

DISTRIBUTION: Michigan and Vermont.

### 58. *Russula borealis* C. H. Kauffman, Rep. Mich. Acad. Sci. 11: 69. 1909.

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  $\mu$  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  $\mu$  in diameter.

Type collected on the ground under willows at Boulder Park, Tolland, Colorado, 2775 m. elevation, July 14, 1914, *L. O. Overholts 1909* (herb. Overholts; extype herb. Burlingham).

DISTRIBUTION: Known only from the type locality.

#### 60. *Russula Robinsoniae* Burlingham, 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  $\mu$  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.

#### 61. *Russula expallens* Gill. Tabl. Anal. 49. 1884.

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  $\times$  8–9  $\mu$ .

TYPE LOCALITY: France.

HABITAT: In spruce, fir, or mixed woods.

DISTRIBUTION: Newfane, Vermont; also in Europe.

ILLUSTRATIONS: Gill. Champ. Fr. *pl.* 195 (*det.*)\*

XIV. *Sanguineae*. 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.

#### 62. *Russula sanguinea* (Bull.) Fries, Epicr. Myc. 351. 1838.

*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  $\times$  7–8.7  $\mu$ .

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 (*det.*); Lanzi, *Funghi Mang.* *pl.* 50, *f.* 2; Noulet & 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. Peltreau, 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.