THE RUSSULAS OF MADISON AND VICINITY.

H. R. DENNISTON.

The genus Russula is well represented in Wisconsin, several species being extremely abundant. They grow on the ground and prefer a rich hilly woods where there is considerable moisture, but certain species are also found in low woods or open meadows.

An unusually rich harvest of Russulas was gathered in the summer of 1903, when there was an abundant rainfall throughout the season. It was noted that in such a favorable season the bulk of the Russulas came in the latter part of July and the first part of August; after that, although large numbers of fungi were found, the Russulas were comparatively scarce, and other genera, especially the Cortinarii and Tricholomas, became relatively more abundant.

The Russulas are easily distinguishable by their bright colors, brittle, white or cream colored gills and fleshy stem, but within the genus, a number of species are particularly difficult to separate.

This difficulty is due largely to their extreme variability. If our common R. integra is taken as an example, it is found that the color of the pileus may be purple, livid, greenish, brown or tawny. All of these colors may be present in the same individual and are often found in specimens growing in the same neighborhood. This variability of color is a feature of a number of the commoner species of Russula, but not of all of them.

The shape of the pileus usually changes as the plant grows older. On this account it is quite necessary to note the age of the specimen at which it has a certain form. In young plants
the pileus is commonly convex, later explanate and finally depressed.

Massee separates the Russulas into two groups according to their acid or mild taste, and makes this feature the principal basis for classification.

I found that certain specimens of *R. alutacea* were intensely peppery the instant they were tasted, others of the same species, were more slowly peppery. In some cases, the pileus of *R. alutacea* is quite mild, but the gills of the same plant are peppery. For these reasons it does not appear that the taste is a suitable characteristic upon which to divide the genus. The word *acrid* is used by Massee synonymously with *hot* or *peppery*. This use of terms is misleading for, to many people, the words peppery and acrid convey different meanings.

While the taste characteristic is hardly sufficiently constant to be used as the chief basis of classification, it is a point which no collector should fail to test on the fresh specimens.

The flesh is white in most cases and spongy, but may become discolored by being bruised or upon drying. When there is a separable cuticle, a little of it should be removed, for oftentimes the flesh beneath has a characteristic color.

A number of the Russulas have characteristic odors. Our Wisconsin species, *R. foetens*, derives its name from this feature. The odor is pungent and nauseating and is present in the fungus at all stages of its development. Curiously enough, I find the odor of the dried specimen is very pleasant. *R. atropurpurea* develops an exceedingly rank odor while drying.

The gills are usually interveined, a point which should be noted in the fresh specimens, as later it is difficult to observe. The attachment of the gills to the pileus is an important characteristic and on this point it is advisable to examine as many specimens and at as many different ages as possible, for frequently gills which appear in young specimens to be free, upon the expansion of the pileus become apparently decurrent or adnate.

It is of considerable value to compare the color of the fresh gills with a color chart, for there is a color change so delicate from white to straw, from straw to cream and from cream to
Denniston—Russulas of Madison and Vicinity. 73

other, that the unaided eye will scarcely distinguish it. In noting the condition of the gills, it is well where possible, to examine a portion under the microscope, for it is frequently found that the spores are tardy in developing, and until they are fully developed, the gills remain perfectly white. In some species the spores cause the gills to have a powdered or dusty appearance.

Probably most of our commoner Russulas are edible, although this is a point which needs further investigation. They are looked upon with suspicion by many people and this is no doubt because of the bright colors and the peppery taste of a number of species. According to McIlvane, all of the Russulas are edible, at least none of them are poisonous. He admits, however, that a number of them are extremely unpleasant in odor and taste.

The species in which the question of edibility is most debated is probably R. emetica, a small form with a red cap, white gills and a peppery taste. McIlvane claims to have eaten it in quantities with no unpleasant results.

Miller says it is much eaten in Indiana and Illinois. Stevenson, on the other hand, says that it acts as an emetic and Peck gives it as deleterious.

It is possible that the fungus varies in its effect on the human system but it is also possible that McIlvane and others have mistaken other closely allied species for R. emetica.

It is probable that our two commonest species R. alutacea and R. integra are perfectly edible, since there is nothing unpleasant in their flavor when raw, and no adverse reports against them.

The genus is a favorable one on which to experiment, for the worst that can be said against any of them is that they act as an emetic.

Special emphasis should be placed on the following features to be recorded in field notes from the study of fresh specimens of Russula.

GENERAL: All characteristics shall be given from fungi of different ages, and under different conditions of growth.
Wisconsin Academy of Sciences, Arts, and Letters.

Pileus.  
- Presence of cuticle.
- Color of flesh under cuticle.
- Taste and odor.
- Condition of margin, young and old (striate or even).
- Color of flesh when bruised.

Gills.  
- Form.
- Thickness.
- Color, young and old.
- Surface, dusted or smooth.
- Intervenation.
- Equal, heterophyllous or branched. (Relative number.)

Stem.  
- Shape.
- Color, young and old.
- Substance.
- Changes in color.

A classification according to color of the Russulas in the vicinity of Madison may be of service to the amateur collector.

Red or blood colored:  *R. adusta*, *R. emetica*, *R. roseipes*, *R. vernosa*.


Brown or ferrugineus:  *R. foetens*, *R. pectinata*, *R. ochracea*.

Yellow:  *R. lactea*, *R. lutea*.

Green:  *R. virescens*, *R. olivascens*, *R. furcata*.

Black:  *R. adusta*, *R. nigricans*.

White:  *R. delica*.

*R. adusta* (Pers) Fr.

Pileus:  convex, explanate or depressed, sometimes unequal; margin infelexed and even; color, fuliginous, smooth, viscid when wet; 6–12 cm.; flesh, white.

Gills:  adnate or decurrent, not broad, narrow toward margin; white, changing to lead color, suberowed, heterophyllous, forked occasionally.

Stem:  stout, cylindrical, fleshy, 3–4 cm. long, 1.5–2 cm. thick, smooth, white, soon becoming blackish. July and August.

Spores:  globose, slightly echinulate 6–9 u.
Characters on which identification is based.

Pileus: fuliginous, solid, margin even. 6–9 cm.
Gills: adnate, white to lead color.
Stem: stout, short, white becoming blackish.
Taste: mild.

Characters of dried specimens.

Pileus: wrinkled, umbrinus to fuliginous, cracking at margin.
Gills: lead color to blackish.
Stem: longitudinally wrinkled, umbrinus or blackish.

Habitat. On ground under trees in grass.
Locality. Blue Mounds, Madison.
Edibility. When well cooked it has a good flavor. (McI.)

*R. alutacea* Fr.

Pileus: convex, explanate or depressed, smooth, pink beneath separable pellicle, rosy, bright red, or purple red, olivaceous, often yellow at center or yellowish spots; margin striate, thin; 4–12 cm.; flesh, white, slightly peppery, gills more so than pileus.

Gills: free, equal, broad (1/2–1 1/2 cm.), occasionally forked (every 3–10th forked) and heterophyllous, white then ochraceous, rounded anteriorly, not powdered by spores. Sub crowded, intervenes.

Stem: cylindrical or tapering downward, smooth, white, tinged rosy, brown where rubbed, fleshy, 6–10 cm. long, 1–2 cm., thick, spongy. August, September, October.
Spores: globose or ellipsoidal, ochraceous, echinulate. 7–7 u., 7–9 u., 9–12 u.

Characters on which identification is based.

Pileus: rosy red, often yellow at center.
Stem: stramineus, retaining shape, sometimes reddish.
Gills: light ochraceous, retaining color when dried.
Taste: more or less peppery.

Characters of dried specimens.

Pileus: rosy or wine red, sometimes yellow at center. Thin, margin faintly striate.
Gills: bright, ochraceous.
Stem: usually not shrunken, straw colored, rarely brownish.
Habitat. Largest specimen from ground in hilly oak woods.
Locality. Star Lake, Blue Mounds, Madison (Eagle Heights).
Edibility. When fresh it is very good. (McL.)

*R. amoena*. Quel.

Pileus: convex then depressed; 4–6 cm.; smooth or pulverulent; atroviolaceus; margin not striate; taste mild, odor fruity; flesh white then cream.
Gills: white then cream; reddish at edge when dry; suberwodded, interveined.
Stem: rigid, tapering upward, 4–6 cm. long, 1-1½ cm. thick; powered, purple red. August.
Spores: subglobose, scarcely echinulate. 6x7 u.

Characters on which identification is based.

\[
\begin{align*}
\text{Pileus:} & \quad \text{atroviolaceus, powdered, margin even.} \\
\text{Gills:} & \quad \text{suberwodded, white then yellowish; edge tinged with red.} \\
\text{Stipe:} & \quad \text{larger toward top; purple red.}
\end{align*}
\]

Characters of dried specimens.

\[
\begin{align*}
\text{Pileus:} & \quad \text{atroviolaceus; depressed at center, wrinkled.} \\
\text{Gills:} & \quad \text{adnate, ochery with reddish margin.} \\
\text{Stem:} & \quad \text{larger above, ochery with rosy tint.} \\
\text{Odor, pleasant.}
\end{align*}
\]

Habitat. On ground in moist woods.
Locality. Blue Mounds.
Edibility. ?

*R. atropurpurea* Pk.

Pileus: convex, at first globose, finally slightly depressed, smooth; dark purple, livid, or deep purple red, disk often blackish; margin, even at first slightly striate when old. 6–12 cm.; flesh, white, blackish where broken; odor footid when drying. Taste, mild or slightly peppery.
Gills: free, subdistant, rounded anteriorly, interveined, rarely forked, white to cream color, sometimes with rosy tint.
Stem: smooth, white, tapering upward slightly, 8–10 cm. long, 2 cm. thick, brown where rubbed, fleshy, white, sometimes rosy. July, Aug., Sept., Oct.
Spores: globose or ellipsoidal, straminens or cream, echinulate, 8x12μ, 7x9μ, 7x7μ.

Characters on which identification is based.

Gills and stem brown where bruised.
Stem: sometimes rosy.
Spores with slight rosy tint. 8x12μ.

Characters of dried specimens.

Pileus: dark blackish purple, usually darker in center. Margin even or striate.
Gills: isabellinus, or ochralenceus.
Stem: straminens, shrinking but little, covered with brown spots.

Habitat. Rich oak woods on ground.
Locality. Madison, Burlington, Blue Mounds.
Edibility. Should be perfectly fresh to have good flavor.
(McL.)

*R. decolorans* Fr.

Pileus: subglobeate then convex, smooth, slightly viscid when moist, livid, brownish red, lighter in center. Symmetrical, faintly striate and tuberculate at margin. 6–8 cm.; flesh white. Taste, slowly peppery.

Gills: almost free, suberoded, equal, rounded in front, inter-veined, white then yellowish.

Stem: 6 cm. long, 1.5 cm. thick, cylindrical, solid, minutely striate, white then darker. July.

Spores: Globose, ellipsoidal, echinulate. 8x10μ, 9x11μ.

Characters on which identification is made.

Pileus: firm, yellowish red, pale at center.
Gills: subfree, white then yellowish.
Stem: cylindrical, white with darker spots.

Characters of dried specimens.

Pileus: radius at margin, center ferrugineus, retaining its shape well.
Gills: little changed in form, ochraceous.
Stem: stramineus, cylindrical.

Habitat. On ground in oak woods.
Locality. Madison.
Edibility. Esculent and of good quality. (Morgan).
R. delica.

Pileus: infundibuliform, smooth then pruinose, rough, scaly and cracked, white or tan. Margin incurved, entire. 7–12 cm.; flesh, white changing to yellowish, thin, dry, slightly and slowly peppery.

Gills: decurrent, distant, thin, narrow, heterophyllous, interveined, occasionally forked, white or cream.

Stem: stout, cylindrical, smooth and solid, or pruinose. White, 2.5–6 cm. long, 2–2.5 cm. thick. July, August, in woods.

Spores: echinulate, subglobose, 8x9μ, 10x12μ, 7x8μ.

Characters on which identification is made.  

Pileus: white, infundibuliform, roughened.
Margin: entire, incurved.
Stem: stout, short.
Gills: decurrent, narrow.
Taste: slightly peppery.

Characters of dried specimens.  

Pileus: straminus or brownish, wrinkled, indi-fundibuliform. Margin, incurved.
Gills: yellowish or isabellinus.
Stem: shrunkken, longitudinally wrinkled.

Habitat. On ground in woods.
Locality. Lake Waubesa, Blue Mounds, Madison.
Edibility. Edible and of fair quality. (McL.)

R. emetica Fr.

Pileus: convex or explanate. Pink or rosy, tawny when old, sometimes white, smooth, margin striate. 4–10 cm. Flesh, reddish under separable pelliele. Taste very peppery.

Gills: almost free, not crowded, heterophyllous, interveined, triangular, white.

Stem: 4–8 cm. long, 1–2 cm. thick, smooth, white or rosy, spongy. Aug., Sept., Oct.

Spores: 8x9μ, ellipsodial, echinulate white.

Characters on which identification is made.  

Pileus: tawny or white color, when old.
Stem: reddish or white.
Gills: always white.
Taste: peppery.
Denniston—Russulas of Madison and Vicinity. 79

Characters of dried specimens. 
Fileus: red or white or tawny. Margin striate and cracked.
Gills: cream color, wrinkled.
Stem: stramineus or rosy, longitudinally striate.

Habitat. On ground in hilly woods.
Edibility. Claimed by some to be poisonous; by others to be perfectly harmless.

R. foetens Fr.

Fileus: globose at first then flat to concave or depressed at center, sometimes gibbous, viscid when moist. Color, young, whitish to pale brown; older, badius or vinousus. Membranous pellicle, elastic and tough, marked with radiating brown lines. Margin thin, striate or pectinate. Size 5–10 cm. Taste mild, nauseous or acrid; odor foetid. Becoming brown when broken.

Gills: adnexed or sinuate, broad, not crowded, interveined, rounded anteriorly, forked near stem, few heterophyllous; white, spotted brownish when old.

Stem: 4–12 cm. firm, tapering upward, smooth, white to grayish, reddish spots and lines. 1.5–2 cm. thick. June, July, Aug.

Spores: white, ellipsoidal, echinulate. 8x10μ.

Characters on which identification is made.
Fileus: brown, depressed with shining viscid pellicle.
Margin: thin striate.
Stem: often brown spotted.
Gills: often brown spotted.
Odor: foetid, rank.

Characters of dried specimens.
Fileus: reddish brown, much folded, wrinkled and striate.
Gills: yellowish or salmon.
Stem: depressed in spots, yellowish, brown spotted.
Odor, mealy.

Habitat. Moist ground in oak woods.
Locality. Madison, Blue Mounds, Minneapolis, Minn.
Edibility. Not poisonous, but unpleasant in flavor. (McL.)
R. furcata Fr.

Pileus: explanate to depressed. Olivaceous to sordid, smooth or slightly roughened. Margin, incurved, even. 6-8 cm. Flesh white, pinkish under pellicle. Taste mild.

Gills: many, adnate to decurrent, strongly interveined and forked; white.

Stem: 6-8 cm. 1-1½ cm. thick, cylindrical, slightly longitudinally wrinkled, white.

Spores: ellipsoidal, echinulate, 8x10μ.

Characters on which identification is made. 

\[
\begin{aligned}
\text{Pileus:} & \quad \text{dark-greenish color.} \\
\text{Stem:} & \quad \text{cylindrical, white.} \\
\text{Gills:} & \quad \text{adnate, forked, white.} \\
\text{Taste:} & \quad \text{mild.}
\end{aligned}
\]

Characters of dried specimens. 

\[
\begin{aligned}
\text{Pileus:} & \quad \text{margin even, shining.} \\
\text{Gills:} & \quad \text{thick, fumosus.} \\
\text{Stem:} & \quad \text{white, wrinkled longitudinally.}
\end{aligned}
\]

Habitat. Ground in woods.

Locality. Parfrey's Glen.

Edibility. Edible (McI).

R. integra Fr.

Pileus: convex, explanate or slightly depressed; smooth, slightly viscid when moist. Purple, livid, brownish, tawny, greenish, darker or lighter at disk. Margin thin, even at first, then pectinate or cracked when old. 6-8 cm. broad; flesh white, dark where broken. Taste, mild.

Gills: free or adnexed, not crowded, 1½ cm. broad, interveined, few forked, heterophyllous, (few short) rounded anteriorly and posteriorly; straw to yellowish. Pulverulent, when mature.

Stem: 6-13 cm.; stout, cylindrical or large above and below, 2½-3 cm. thick; smooth or slightly ridged; white, brown where rubbed, spongy. July, August, September.

Spores: ellipsoidal, globose, echinulate, ochraceous. 7x9μ, 7x7μ, 8x10μ.
Characters on which identification is made.

- Pileus: varicolored, dark purple prevailing.
- Stem: never reddish. Becoming brown where rubbed.
- Gills: powdered when mature.
- Taste: never peppery.

Characters of dried specimens.

- Pileus: usually showing different colors at margin and disk, dark purple, livid, greenish, yellowish or wine; cracking at margin.
- Gills: isabellinus, wrinkled and folded.
- Stem: plump or shrunken; straw colored with brownish spots.

Habitat. Largest specimens grow on ground in hilly oak woods.
Locality. Madison (Eagle Heights), Devils Lake, Burlington, Blue Mounds.
Edibility. Of good flavor when fresh. (McI.)

*R. lactea* Fr.

Pileus: convex, explanate, gibbous or depressed, rigid, surface pruinose then cracked, no separable pellicle; color, stramin-eus, yellow or pinkish yellow. Margin, even, rounded. 10–19 cm.; flesh, white, bitter; cheesy odor.
Gills: free, equal or slightly forked, broad, solid, subdistant, interveined, rounded anteriorly, white to straw.
Stem: cylindrical or larger at top; solid, white, 2.5–6 cm. long; 1–2 cm. thick. August.
Spores: globose, minutely echinulate, 9μ.

Characters on which identification is based.

- Pileus: rigid, yellowish, incurved.
- Stem: solid.
- Gills: thick, straw color.
- Taste: somewhat bitter.

Characters of dried specimens.

- Pileus, yellowish or brownish, retaining shape.
- Margin, incurved.
- Gills: thick, narrow near stem, rounded anteriorly.
- Stem: longitudinally wrinkled, smaller at base.

Habitat. On ground, not common, in oak woods.
Locality. Blue Mounds, Madison.
Edibility. Edible and of good flavor. (McI.)
R. lutea Fr.

Pileus: conical, convex or depressed, smooth, viscid when moist, pale or bright yellow, surface sometimes puberulent or floccose. Margin even or later striate. 3–8 cm.; flesh white; taste mild.

Gills: adnate to free, interveined, crowded; rounded anteriorly; equal, white then yellowish.

Stem: tapers up, smooth, white, fleshy; 3–5 cm. long; 5–8 cm. thick. July, August, September.

Spores: cream, ellipsoidal, echinulate. 8x10μ.

Characters on which identification is based.

Pileus: pale or bright yellow, small size.
Stem: short.
Gills: crowded, yellowish.
Taste: mild.

Characters of dried specimens.

Pileus: retaining yellow color.
Gills: yellowish or salmon.
Stem: retaining its shape, stramineus.

Habitat. On ground in woods.
Locality. Lake Waubesa, Blue Mounds, Madison.
Edibility. Edible and of delicate flavor. (McI.)

(a) R. ochrophyllaPk. var. albipesPk.

Pileus: convex then flattened and depressed, slightly viscid when moist, smooth at first, then broken up into patches; margin at first incurved not striate, blackish or brownish olive. 7–12 cm.; flesh white, reddish when bruised.

Gills: adnected, rounded near stem, heterophyllous, thick, subdistant, white, reddish where broken.

Stem: 4–7 cm. long; 2½–3 cm. thick; cylindrical, dirty white, then blackish, solid. July.

Spores: 10x11μ, 11x13μ, ellipsoidal, coarsely echinulate.

Characters on which identification is made.

Pileus: fleshy, blackish, margin even.
Gills: thick, subdistant, white, red where bruised.
Stem: thick, cylindrical, blackish.
Characters: Pileus: umber or blackish, margin wavy. In-curved.
Gills: dark, reddish where bruised.
Stem: umber or blackish.

Habitat: On ground in woods.
Locality: Madison.
Edibility: Edible, but not equal to most Russulas. (McL.)

*R. ochracea* Fr.

Pileus: flat to convex, fulvus; darker at center. Margin, irregular, thin, cracked, striate incurved; surface, rough, sealy.
Size, 4–9 cm. Taste, mild; odor, none.
Gills: free, suberoded, broad, straight, equal, interveined, white.
Stem: 2–2.5 cm. long, 1–2 cm. thick, tapering upwards or ventricose, surface, smooth, stramineous, hollow. July.
Spores: 6x6μ, 6x7.5μ, echinulate, elliptical or globose.

Characters on which identification is made:
Pileus: fulvus, dark at center, striate, thin.
Gills: free, suberoded, white.
Stem: short, thick.
No odor or taste.

Characters of dried specimens:
Pileus: fulvus, roughened and dirty, striate.
Gills: wrinkled and wavy, isabellinus.
Stem: short and hollow.
Odor: mealy.

Habitat: Hilly woods on ground.
Locality: Madison (Edgewood).
Edibility: Probably edible.

*R. ochrophylla* Pk.

Pileus: convex, explanate or depressed; margin, even or slightly striate, 6–10 cm.; atropurpureus, reddish under the separable pellicle. Flesh, white. Taste, mild.
Gills: equal, broad, adnate, subdistant interveined, yellowish then bright ochraceous; dusted by spores.
Stem: Subcylindrical, smooth, whitish with rosy tint; firm or spongy. 5–7 cm. long, 1–2 cm. thick. July, August.
Spores: globose, ellipsoidal, echinulate, 8x10μ, 9x12μ.

Characters on which identification is based.

Characters of dried specimens.

Habitat. Open woods on ground.
Locality. Madison, Blue Mounds.
Edibility. Rather tough, but not disagreeable to the taste. Milk in which it is stewed takes on pink color.

(a) *R. ochrophylla* Pk., var. *albipes* Pk.

Pileus: deep red; stem white; otherwise like the type. A number of specimens answering to this description were found at Blue Mounds in August, 1903.

* R. olivascens* Fr.

Pileus: explanate or concave, smooth slightly viscid when moist, olivaceous; margin, even; 5–10 cm.; flesh, white. Taste, mild.
Gills: adnexed or adnate, subcrowded, broad at margin, narrow toward stem; interveined, few forked, white.
Stem: 4–7 cm. long, cylindrical or tapering upward slightly, 2 cm. thick, spongy, white, smooth. July, August.
Spores: scarcely echinulate, 8x10μ, 8x9μ, ellipsoidal.

Characters on which identification is based.

Characters of dried specimens.

Habitat: Rich oak woods on ground.
Locality: Blue Mounds.
Edibility: Taste mild.

*R. pectinata* Fr.

Pileus: convex, then flat or concave; smooth, ochraleucus to ferrugineus, darker at center; margin, thin, striate tuberculate, at first inflexed. 6-8 cm.; taste, slightly pungent, smell, soapy. No changes.
Gills: free, broad and rounded anteriorly, suberowed, equal, white.
Stem: 3–6 cm. long, 1½–2½ cm. thick, rigid, equal or ventricose; smooth or pulverulent, white; spongy when old. July and August.
Spores: ellipsoidal or globose, 7x7µ, 7x9µ.


Characters of dried specimens: Pileus: lateriecius or yellowish, darker in center; very thin, striate almost to center. Gills: yellowish white. Stem: stramineus, slightly roughened.

Habitat: On ground in grass under oaks along road.
Locality: Madison, Blue Mounds.
Edibility: Unpleasant in flavor. (MeI.)
R. roseipes (Scer.) Bres.

Pileus: convex, plane or depressed, somewhat farinaceous; rosy red, ocher and whitish. Margin, thin, at first incurved to stem; striate at edge. Cracking at edge and divided into areas when old. 3–6 cm. broad. Flesh, white, pinkish under pellicle. Taste mild.

Gills: free or slightly adnexed, suberoded, rounded posteriorly, stramineus to light yellow.

Stem: 4–6 cm. long, 1½–2 cm. thick, terete, tapering upward, smooth; white, sometimes rosy, spongy.

Spores: globose or ellipsoidal 6x6µ, 7x9µ, light ocher yellow, echinulate.

Characters on which identification is based.

Pileus: rosy and ocher.
Stem: reddish.
Gills: ochery.
Taste: mild.

Character of dried specimens.

Pileus: brittle and cracked at margin, retaining red color as when fresh.
Gills: ocher, close and wrinkled.
Stem: retaining its shape well; rosy; color persistent.

Habitat. Open mixed woods on ground.
Locality. Madison (Picnic Point).
Edibility. Agreeable in flavor. (Peck.)

R. virescens Fr.

Pileus: convex, flat or depressed; thick at disk, dry, breaking up into darker areas; green or grayish. Margin, striate or even. 5–15 cm.; flesh, white. Taste, mild.

Gills: free, appearing adnate by expansion of pileus, broad and thick, suberoded, interveined, few forked near stem, white to cream.

Stem: 4–7 cm. long; stout, fleshy, cylindrical or small at base. 1½–3 cm. thick, smooth, white. July and August.

Spores: sparingly echinulate, subglobose, 6x6µ, 6x8µ.
Denniston—Russulas of Madison and Vicinity. 87

Characters on which identification is made.

<table>
<thead>
<tr>
<th>Characters</th>
<th>Pileus: dry, without pellicle, broken up greenish.</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Stem: stout, smooth, fleshy.</td>
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<tr>
<td></td>
<td>Gills: broad, suberrowed.</td>
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<td></td>
<td>Taste: mild.</td>
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</tbody>
</table>

Characters of dried specimens.

| Pileus: yellowish tawny with greenish areas. |
| Gills: regular, changing form but little in drying, stramineus. |
| Stem: whitish, wrinkled.                      |

Habitat. Rich oak woods on ground.
Locality. Madison, Blue Mounds.
Edibility. Good flavor. Can be eaten raw. (McL.)

*R. veteranosa* Fr.

Pileus: convex then explanate; smooth rosy, with paler yellowish disk. Margin even, 7–8 cm.; flesh, white.
Gills: adnate, suberrowed, broad, heterophyllous, few forked, cream colored.
Stem: tapering upward, 4 cm. long; white; 2 cm. at base; soft, fleshy, then hollow; smooth. June.
Spores: globose, ellipsoidal, echinulate 8x10μ, white.

Characters on which identification is made.

| Pileus: rosy or pink, center yellowish. |
| Gills: suberrowed; few, forked.         |
| Stem: stout, white, becoming hollow.    |
| Taste: stem and pileus, very peppery.   |

Characters of dried specimens.

| Pileus: rosy, paler in center, changing but little |
| Gills: ochery.                                    |
| Stem: stout, fleshy, becoming hollow.             |

Habitat. Ground in woods.
Locality. Cottage City, Minn.
Edibility. ?
Pileus: flat to depressed; umber at margin, darker at disk. Margin coarsely striate, thin; smooth or with few yellowish fibrils. 5-12 cm. Taste, mild; odor none.

Gills: free or slightly adnerved, not crowded, equal, thin, interveined, white.

Stem: 4-5 cm. long, 1-2 cm. thick, mealy, cylindrical, white to ocher; fleshy then hollow. July.

Spores: globose, spinulose, 9x9μ.

Characters of dried specimens:

Gills: wrinkled, thin, drab and leather colored.

Stem: rough, ocher to brown.

Pileus: umber, dark at disk, striate, thin.

Habitat. Ground on lawns.

Locality. Madison, Burlington.

Edibility. ?

This Russula is close in its affinities to R. consobrina var. soroaria Fr. but has a mild taste. It is close also to R. ochracea Fr. but has not the ocher gills.