

BULLETIN

OF THE

NEW YORK STATE MUSEUM

OF

NATURAL HISTORY

---

VOL. I.—No. 2

May 1887

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CONTRIBUTIONS TO THE BOTANY OF THE STATE OF NEW  
YORK BY CHARLES H. PECK STATE BOTANIST

PRINTED FOR THE MUSEUM

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ALBANY  
CHARLES VAN BENTHUYSEN & SON:  
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\* The titles of the first four articles were enumerated in the Thirty-seventh Report on the State Museum, but the articles were not printed. A revision of them is here given.



## NEW SPECIES OF NEW YORK FUNGI.

### **Tricholoma infantilis.**

Pileus thin, convex or nearly plane, even, minutely silky, moist in wet weather, reddish-gray, the margin when young incurved and whitish; lamellæ subdistant, plane or slightly ventricose, often eroded on the edge, whitish; stem short, equal or tapering upward, hollow, slightly silky, colored like the pileus or a little paler; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 broad, often containing a shining nucleus.

Plant gregarious, pileus 4 to 12 lines broad, stem 1 to 1.5 in. high, 1 to 2 lines thick.

Gravelly soil in fields. Sandlake. June.

This is a very small species belonging to the section *SERICELLA* and related to *Tricholoma cœlata*, from which it is distinguished by its different color and the absence of an umbilicus from the pileus. This is sometimes papillate, and both it and the stem imbibe moisture. The latter is fleshy-fibrous, and its cavity is very small. In the larger specimens the margin of the pileus is often wavy, and the edge of the lamellæ eroded. *Tricholoma Hebeloma*, a closely allied species, may be distinguished by its more conical pileus, slender habit and smaller spores.

### **Clitocybe basidiosa.**

Pileus rather thin, convex, then expanded and umbilicate or centrally depressed, glabrous, hygrophaneous, grayish-brown and striatulate on the margin when moist, dingy-white or grayish-white when dry, flesh whitish; lamellæ arcuate or nearly plane, thick, distant, adnate or slightly decurrent, whitish with a violaceous tint; stem equal or slightly thickened above, glabrous, firm, whitish or pallid; spores subglobose, .00016 to .0002 in. long, basidia elongated, .0024 in. long, bearing spicules .0003 in. long.

Plant single or cæspitose, 1 to 2 in. high, pileus 16 to 18 lines broad, stem 1 to 2 lines thick.

Woods and swamps. Sandlake and East Berne. August.

The numerous narrow and elongated basidia of this species are suggestive of the specific name. The plant is also easily recognized by the peculiar, pale, livid gray hue of the pileus, and the slight violaceous tint of the lamellæ. The pileus is rarely slightly umbonate. When dry both it and the stem have a slight silky appearance. The stem is usually solid, and slightly enlarged as it enters the pileus. The species should be placed among the ORBIFORMES, though in some respects it approaches *C. obbatus* and *C. Calathus*. It also has the aspect of some species of *Hygrophorus*.

#### **Collybia alcalinolens.**

Pileus thin, subconical or convex, then expanded, slightly silky-fibrillose, shining, hygrophanous, dark watery-brown when moist, grayish-brown or cinereous when dry, flesh white; lamellæ rather broad, subdistant, adnate or emarginate with a decurrent tooth, whitish; stem equal, glabrous, slightly pruinose above, hollow, shining, whitish; spores broadly elliptical, .0003 to .00035 in. long, .0002 to .00025 in. broad.

Plant gregarious, 1 to 2 in. high, pileus 8 to 18 lines broad, stem 1 to 3 lines thick.

Thin woods and bushy places. Sandlake. June and July.

This species has a peculiar odor resembling that of chloride of lime. In this respect it is similar to some species of *Mycena*. The plant is quite variable. The disk of the pileus is now elevated, now depressed, sometimes darker than the rest, sometimes caescent with short, grayish fibrils. The margin is quite thin and sometimes striatulate when moist. Occasionally it surpasses the lamellæ, which in the expanded plant are often ventricose. The stem is sometimes irregular or compressed. The species belongs to the section TEPHROPHANÆ, and is apparently allied to *A. laceratus*.

#### **Leptonia albinella.**

Pileus submembranous, subconical or convex, subumbilicate, furfureous or minutely squamulose, hygrophanous, whitish and striatulate on the margin when moist, white and shining when dry; lamellæ narrow, close, adnexed, white, becoming incarnate; stem equal, hollow, glabrous or slightly pruinose, whitish; spores angular, .00045 to .0005 in. long, .0003 to .00035 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 line thick.

Bushy places. Sandlake. July.

Readily distinguished from its allies by its white color. *Leptonia assularum* B. & C. differs in having an umbonate virgate pileus with a dark center. *Nolanea delicatulus* is a more slender, delicate plant with a smoother pileus and not at all umbilicate.

#### **Psilocybe castanella.**

Pileus thin, at first convex or subconical, then expanded or slightly depressed, glabrous, hygrophanous, chestnut-colored or umber-brown and striatulate on the margin when moist, pale-alutaceous when dry, flesh a little paler than the surface of the pileus; lamellæ close, adnate or slightly rounded behind, at first pale-brown, then purplish-brown; stem equal, flexuous, hollow or stuffed with a whitish pith, slightly silky-fibrillose, brownish or subrufescent with a white mycelium at the base; spores purplish-brown, .0003 to .00032 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus 4 to 8 lines broad, stem .5 to 1 line thick.

Rich grassy ground by roadsides. Sandlake. June.

The species appears to be closely allied to *Agaricus squalens*, which may be distinguished by its lurid color, decurrent lamellæ and ferruginous-brown spores. Moreover its habitat is unlike that of our plant. In very wet weather both the pileus and lamellæ sometimes have a watery-brown appearance, and then the striations of the former sometimes extend to the disk, which is rarely slightly umbonate. In drying, the moisture first disappears from the center of the pileus. The young pileus is usually chestnut-colored, and its margin and the stem are adorned with a few whitish fibrils.

#### **Psilocybe fuscofulva.**

Pileus thin, convex or subcampanulate, subumbonate, glabrous, hygrophanous, dark watery-brown and striatulate on the margin when moist, subochraceous when dry; lamellæ rather broad, moderately close, aduate, subventricose, purplish-brown; stem slender, flexuous, stuffed, slightly silky, reddish-brown; spores purplish-brown, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant 1.5 to 2.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among sphagnum. Karner. October.

The species is related to *Agaricus atrobrunneus*, but its smaller size and differently colored lamellæ will serve to distinguish it.



**Dermocybe simulans.**

Pileus fleshy, thin, convex, then expanded, at first grayish-violaceous and silky-fibrillose, then pale-cinereous, often tinged with yellow or brownish-yellow on the disk, flesh pale-violaceous or pale-cinereous; lamellæ rather broad, subventricose, rounded behind, moderately close, violaceous, becoming cinnamon-colored; stem short, equal or slightly thickened at the base, silky-fibrillose, shining, stuffed or hollow, violaceous, becoming whitish or pallid; spores subglobose or broadly elliptical, .0003 to .00035 in. long, .00025 to .0003 in. broad.

Plant 1 to 2 in. high, pileus 6 to 18 lines broad, stem about 2 lines thick.

Woods. Sandlake. July.

The colors of this species are so similar to those of *Inoloma albo-violacea* that the plant might at first sight be mistaken for a small form of that species, but its small size, thin pileus and short, hollow stem afford distinguishing characters.

**Telamonia gracilis.**

Pileus thin, convex or campanulate, then expanded, umbonate, floccose-fibrillose, hygrophanous, watery-brown or sordid-chestnut when moist, whitened on the margin with grayish fibrils, subochraceous or tawny-cinnamon when dry; lamellæ thin, subdistant, becoming subventricose, ferruginous-brown, becoming cinnamon-colored; stem long, slender, flexuous, fibrillose and slightly floccose-scaly, with a slight whitish evanescent annulus, colored like the pileus; spores elliptical, uninucleate, .0004 to .00045 in. long, .00025 to .0003 in. broad.

Plant 2 to 4 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Among moss and sphagnum in marshes. Sandlake. August.

The umbo is small and sometimes acute, rarely obsolete. The dry pileus varies much in color, it being tawny, cinnamon, subochraceous or grayish-cervine. The young lamellæ also vary from ferruginous-brown to reddish-umber and sometimes have a slight violaceous tint. The species is apparently related to *Telamonia flexipes* and *T. rigida*, but the first is described as having the stem violaceous at the apex, and the second as having the pileus glabrous, both of which characters are wanting in our plant.

Variety *brevipes* has the stem but 1 or 2 inches long. It occurs on decaying wood.

**Hydrocybe præpallens.**

Pileus fleshy, thin, subconical, then convex or expanded, glabrous, hygrophanous, watery-brown or chestnut-colored when moist, pale-ochraceous when dry, flesh yellowish-white; lamellæ close, lanceolate, rounded behind or slightly emarginate, reddish-umber, becoming tawny-cinnamon; stem short, equal, subflexuous, fleshy-fibrous, slightly silky, pallid or brownish; spores subelliptical, .0003 to .0004 in. long, .00025 in. broad.

Plant 1 to 3 in. high, pileus 6 to 18 lines broad, stem 2 to 4 lines thick.

Naked soil in woods. Sandlake. June.

The difference in the color of the moist pileus and the dry one is quite decided. The change from the dark-chestnut color of the one to the dingy-yellow or isabelline hue of the other is very noticeable and suggestive of the specific name. The fibrils of the veil are grayish-white, and the margin, which is at first incurved, is apt to become wavy, irregular or reflexed in large specimens. In the thinner specimens it is striatulate when moist. The lamellæ are narrowed toward the outer extremity and when young are of a peculiar reddish-brown or dark-ferruginous hue. The stem is usually hollow, but apparently from the erosion of insects. The species belongs to the section FIRMIORES.

**Hygrophorus minutulus.**

Pileus thin, submembranous, convex or expanded, subumbilicate, bright-red, viscid and distantly striatulate when moist, pale-red or yellowish when dry; lamellæ rather broad, subdistant, sometimes ventricose, adnate or subsinnate and slightly decurrent, whitish, tinged with red or yellow; stem short, slender, fragile, solid, viscid when moist, yellowish; spores narrowly elliptical, .0004 in. long, .0002 in. broad, borne on slender spicules which are .0002 to .0003 in. long.

Plant 6 to 10 lines high, pileus 3 to 5 lines broad, stem scarcely half a line thick.

Grassy ground in pastures. Sandlake. July.

This is one of our smallest species of Hygrophorus. Its nearest relative is *H. aurantiacoluteus* B. & C., from which the viscid pileus and stem and less decurrent lamellæ separate it. As the moisture escapes from the fresh plant the pileus becomes paler and assumes a slight silky appearance, but often the thoroughly dried specimens

resume the bright-red hue of the fresh plant. Often several basidia grow from the same filament.

**Russula albida.**

Pileus thin, broadly convex, then expanded or depressed, glabrous, viscid when moist, white, sometimes slightly tinged with yellow, the spreading or erect margin at length slightly and narrowly tuberculose-striate, flesh white; lamellæ adnate or subdecurrent, moderately close, some of them forked near the stem, white, the interspaces venose; stem nearly equal, glabrous, stuffed or hollow, white; spores white, minutely rough, subglobose or broadly elliptical, .00035 in. long, .0003 in. broad; taste mild or bitterish.

Plant 1 to 3 in. high, pileus 1 to 2.5 in. broad, stem 3 to 6 lines thick.

Woods. Sandlake. July and August.

This *Russula* belongs to the section **FRAGILES**. It may be distinguished from white forms of *Russula emetica* by its adnate or slightly decurrent lamellæ and by its milder taste.

**Russula uncialis.**

Pileus thin, convex, then expanded or centrally depressed, viscid when moist, glabrous or very minutely rivulose-granulose, red or pinkish-red, the margin obscurely tuberculose-striate, flesh white; lamellæ moderately close, narrowed toward the stem, at which a few of them are sometimes forked, adnate or slightly emarginate, white, the interspaces venose; stem equal, glabrous, stuffed or spongy within, white or reddish; spores white, globose, rough, .0003 to .00035 in. in diameter; taste mild.

Plant 1 to 1.5 in. high, pileus 1 to 1.5 in. broad, stem 2 to 4 lines thick.

Thin woods. Sandlake. June and July.

A small species, generally about 1 in. high, with the pileus about the same in breadth. Like the preceding species, to which it is closely related, it belongs to the white-spored group of the section **FRAGILES**, a group to which Europe contributes but a single mild species. The color of the pileus is nearly uniform and generally a pale-red or pinkish-red. The lamellæ in the fresh plant are white, but in the dried specimens they are pallid.

**Hydnum albidum.**

Pileus fleshy, thin, convex or nearly plane, subpruinose, white,

flesh white; aculei white; stem short, solid, central or eccentric, white; spores subglobose, .00016 to .0002 in. in diameter.

Plant 1 to 2 in. high, pileus 1 to 1.5 in. broad, stem 3 to 5 lines thick.

Ground in thin woods. Sandlake. June and July.

The species is closely allied to *Hydnum repandum*, with which it appears to have been united by some authors, but its small size, white color and smaller spores appear to me to make it worthy of specific distinction. It is quite unlike *Hydnum candidum*. The pileus is often irregular and lobed on the margin.

#### **Clavaria divaricata.**

Stem short, small, whitish, much branched; branches widely spreading, terete, even or slightly longitudinally wrinkled, more or less curved, pale-ochraceous, the ultimate ones tapering outward and terminating in one or more acute points; spores .0004 to .0005 in. long, .0002 to .00025 broad.

Tufts 2 to 4 in. high, and nearly as broad.

Woods. Sandlake. August.

This is a rare species, and is remarkable for and easily distinguished by its divaricate branches which give to the plant a very spreading, straggling aspect.

The following species were described in the Thirty-second Report of the State Museum, but owing to the limited edition and the incomplete manner (without plates) of the publication of that Report it has been thought best to repeat these descriptions here.

#### **Clitocybe subhirta.**

Pileus at first convex, then expanded or slightly depressed, tomentose-hairy and pale-yellow or buff, becoming subglabrous and whitish with age, the margin incurved; lamellæ close, adnate or decurrent, whitish or pale yellow; stem subequal, stuffed or hollow, whitish; spores subglobose or broadly elliptical, .0002 to .00025 in. long.

Plant 1 to 3 in. high, pileus 1 to 3 in. broad, stem 2 to 4 lines thick.

Woods. Brewerton. September.

The species belongs to the section DISCIFORMES, and is near *Clitocybe subabutacea*, but distinct from it and all its other allies by the hairy pileus. Sometimes the hairs are more conspicuous on the margin than on the disk.

**Collybia cremoracea.**

Pileus thin, submembranous, convex or campanulate, obtuse, dry, slightly silky, dingy cream-colored, the margin sometimes wavy; lamellæ broad, ventricose, emarginate, with a decurrent tooth, whitish; stem slender, equal, slightly silky, stuffed or hollow, pallid or colored like the pileus; spores subglobose or broadly elliptical, about .00025 in. long, .0002 in. broad.

Plant 1.5 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods. Gansevoort. August.

The species belongs to the section LÆVIPEDES.

**Collybia hygrophoroides.**

Plate 2. Figs. 23-26.

Pileus subconical, then convex or expanded, smooth, hygrophanous, reddish or yellowish-red when moist, paler when dry; lamellæ broad, subdistant, rounded behind or deeply emarginate, eroded on the edge, whitish; stem subequal, striate, stuffed or hollow, whitish; spores subelliptical, .0002 to .00025 in. long, .00016 in. broad.

Plant subcæspitose, 2 to 3 inches high, pileus 1 to 1.5 inches broad, stem 2 to 3 lines thick.

Decaying half-buried wood. Knowersville. May.

The young pileus resembles that of *Hygrophorus conicus*, both in shape and in color. When dry it becomes pallid or subochraceous. The species belongs to the section TEPHROPHANÆ.

**Mycena lutcopallens.**

Pileus submembranous, convex, glabrous, striatulate on the margin when moist, bright-yellow, paler when dry; lamellæ subdistant, slightly arcuate, yellow; stem equal or slightly tapering upward, smooth, hollow, yellow, furnished at the base with yellow hairs and fibrils.

Plant scattered or cæspitose, about 2 in. high, pileus 3 to 6 lines broad, stem about 1 line thick.

Among fallen leaves in woods. Adirondack mountains. August.

It resembles *Hygrophorus parvulus* in color, but it is readily distinguished from that species by its subcæspitose mode of growth, its proportionately longer and more slender stem and the yellow hairs at its base.

**Inocybe eutheloides.**

Pileus thin, broadly conical or campanulate, becoming nearly plane with age, distinctly umbonate, silky-fibrillose, more or less rimose, varying in color from grayish-cervine to chestnut-brown, the disk sometimes squamulose, the flesh white; lamellæ moderately close, rather broad, ventricose, narrowed or rounded behind, adnexed, whitish, becoming ferruginous-brown, white and denticulate on the edge; stem equal, subflexuous, solid, fibrillose, whitish or pallid; spores even, uninucleate, subelliptical, .00035 to .00045 in. long, .00025 to .0003 in. broad.

Plant 1 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Woods. Brewerton. September.

The species belongs to the section **RIMOSI**. It agrees in many respects with the description of *Inocybe eutheles*, but differs in the character of the lamellæ, which are rather abruptly and strongly narrowed behind and adnexed, not aduate. The spores are longer than in that species and the plant is destitute of a farinaceous odor. The pileus is sometimes scarcely rimose and it varies considerably in color. The stem is decidedly paler than the pileus.

**Inocybe infelix.**

Pileus thin, subcampanulate, then convex or expanded, umbonate, fibrillose-squamulose, umber-brown or grayish-brown, flesh white; lamellæ close, rather broad, ventricose, emarginate, whitish, becoming ferruginous-brown; stem equal, solid, silky-fibrillose, whitish or pallid, pruinose above; spores oblong, even, .00045 to .0006 in. long, .0002 to .00025 in. broad.

Plant 1 to 2 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Sterile or mossy ground. Indian lake, Adirondack mountains. August.

The species belongs to the section **LACERI**. The pileus is more lacerated in wet weather than in dry, and generally becomes paler with age. A small form, variety *brevipes*, has the pileus 4 to 6 lines broad and but slightly umbonate, and the stem scarcely more than half an inch long. Sometimes the stem is white above and darker toward the base. The long narrow spores constitute a marked feature of the species.

**Myxaciium amarum.**

Pileus thin, convex or nearly plane, often irregular, smooth, glutinous, yellow, the disk often tinged with red, the margin whitish, flesh white, taste very bitter; lamellæ close, rounded behind, whitish, becoming ochraceous-cinnamon; stem soft, viscid in wet weather, solid, tapering upward, whitish, clothed with silky white fibrils; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant gregarious or subcæspitose, 1 to 2 in. high, pileus about 1 in. broad, stem 2 to 4 lines thick.

Under spruce and balsam trees. Adirondack mountains. August.

The very bitter taste is suggestive of the specific name. The stem is scarcely viscid except in wet weather.

**Russula compacta Frost MS.**

“Pileus white, firm, solid, cracked in age, sometimes tinged with red or yellow or both in spots, turning up in age, seldom depressed; lamellæ very white, almost free, not forked or dimidiate, becoming brown when bruised or dry; stem solid, white, even, smooth; flesh at first white, then brownish.”

Pileus fleshy, compact, convex or centrally depressed, whitish, sometimes tinged with red or yellow, becoming reddish-alutaceous or dingy-ochraceous with age, the margin thin, even, incurved when young; lamellæ rather broad, subdistant, nearly free, some of them forked, a few dimidiate, white, becoming brown with age or where bruised; stem short, equal, firm, solid, white, changing color like the pileus; spores subglobose, nearly even, .00035 in. in diameter.

Plant 2 to 4 in. high, pileus 3 to 5 in. broad, stem 8 to 12 lines thick.

Open woods. Sandlake and Brewerton. August and September.

The late Mr. C. C. Frost sent me specimens and manuscript descriptions of a few species of fungi collected by him in Vermont. He gave names to those which he considered new species, and it gives me pleasure to adopt his names whenever it is rendered possible by the discovery of the species within our limits. The plant here described does not fully agree with his manuscript description, which I have quoted, but it approaches so near an agreement that there cannot be much doubt of the specific identity of the two plants. In our plant the pileus is sometimes split on the margin. The change in the color of the pileus and stem is nearly the same, but the lamellæ sometimes become darker than either. When drying, the specimens emit

a strong and very disagreeable odor. The species belongs to the section COMPACTÆ.

**Russula flavida** Frost MS.

"Pileus fleshy, convex, slightly depressed, unpolished, bright-yellow; lamellæ white, adnate, turning cinereous; stem yellow, solid, white at the extreme apex."

Pileus fleshy, convex, then plane or slightly depressed, yellow, becoming paler with age, flesh white, taste mild, the margin at first even, then tuberculate-striate; lamellæ nearly simple, subdistant and broader before, adnate, white, the interspaces venose; stem short, equal or tapering upward, firm, glabrous, solid or merely spongy within, yellow; spores globose, .00025 to .0003 in. in diameter.

Plant gregarious, 1 to 2 in. high, pileus 1 to 2 in. broad, stem 4 to 6 lines thick.

Grassy places in copses and open woods. Sandlake. July.

The species belongs to the section RIGIDÆ. The pileus is dry and sometimes slightly mealy or granular. When young it is bright-yellow, but it fades with age and sometimes becomes white on the margin.

**Boletus rubinellus.**

Plate 2. Figs. 20-22.

Pileus at first broadly conical or subconvex, then nearly plane, subtomentose, red, becoming paler with age; tubes convex, adnate or slightly depressed about the stem, rather large, subrotund, pinkish-red, becoming sordid-yellow; stem equal, smooth, yellow with reddish stains; spores oblong-fusiform, .0004 to .0005 in. long, .00016 broad.

Plant about 2 in. high, pileus 1 to 2 in. broad, stem 2 to 3 lines thick.

Woods. Gansevoort. August.

Apparently related to *B. rubinus*, and also resembling *B. piperatus*, but the stem is differently colored, and I have not found the pileus at all viscid.

**Tremella subcarnosa.**

Small, tufted, compressed, irregular, wavy or contorted, subcarnose, externally gelatinous, whitish or pinkish-alutaceous, becoming brownish-incarnate and somewhat glaucous when dry; spores obovate, pointed at one end, .0002 to .0003 in. long, .00016 broad.

Tufts 2 to 4 lines high and about as broad.

Decaying wood of deciduous trees. Carlisle. June.



The affinities of this fungus are doubtful. It is provisionally referred to the genus *Tremella*, although the central part of the substance is fleshy rather than gelatinous. The plants revive on the application of moisture and when moist are somewhat tremelloid. The tufts form beautiful little rosettes.

***Grandinia membranacea*** P. & C., n. sp.

Effused, thin, membranaceous, whitish or subalutaceous, sometimes slightly tinged with greenish-yellow or olivaceous; granules numerous, crowded, unequal; spores broadly elliptical or subglobose, slightly rough, .00025 to .0003 in. long.

Much decayed wood, leaves, etc. Tonawanda. G. W. CLINTON.

Apparently related in texture to *G. papillosa*, but differing in color and in its even, not rimose, hymenium.

***Phoma callospora*** P. & C., n. sp.

Perithecia small, scattered, slightly prominent, covered by the epidermis, black; spores oblong or cylindrical, obtuse, straight or curved, containing 3 to 5 nuclei, .0006 to .0008 in. long, .0002 to .00025 broad.

Dead stems of *Polygonum*. Buffalo. October. G. W. CLINTON.

***Phoma cornina***.

Perithecia numerous, not crowded, minute, nearly covered by the stellately ruptured epidermis, black, opening by a large pore; spores oblong, obtuse, .0012 to .0016 in. long, .0005 to .00055 broad.

Dead branches of green osier, *Cornus circinata*. Sprakers. June.

This and the preceding species are erroneously referred to the genus *Sphæropsis* in the Thirty-second Report.

***Sphæropsis typhina***.

Perithecia scattered, subconical, slightly prominent, often compressed; spores fusiform, pointed at each end, colored, .0006 in. long, .00016 broad.

Dead leaves of *Typha latifolia*. Sprakers. June.

The fusiform pointed spores constitute a noticeable character in this species.

***Protomyces conglomeratus***.

Spores imbedded in the tissues of the stems of the host plant, large, globose, colored, .0016 to .002 in. in diameter, aggregated in

groups or clusters and forming small protuberances or tubercles on the dry stems.

Common saltwort, *Salicornia herbacea*. Syracuse. September.

The species is remarkable for the large size of the spores and their clustered mode of growth.

### **Periconia albiceps.**

Plate 1, figs. 8-11.

Stems short, .02 to .03 in. high, equal or slightly tapering upward, black; head subglobose, white; spores oblong or subfusiform, colorless, .0003 to .0006 in. long.

Dead stems of balmony, *Chelone glabra*. Sandlake. May.

The stems of the fungus are composed of compacted filaments, and I have followed the English mycologists in referring the species to the genus *Periconia*. It is *Sporocybe* of Bonorden.

### **Gonatobotryum tenellum.**

Patches thinly effused, subolivaceous; flocci subtufted, erect, slender, simple or rarely branched, not nodulose-inflated, septate, brown, .006 to .014 in. high; spores in verticels of 2 to 4 at the septa, oblong, simple, subfuliginous, .00045 to .0005 in. long, .00016 to .0002 broad.

Dead stems of stoneroot, *Collinsonia Canadensis*. North Greenbush. October.

By reason of the equal, not nodulose, flocci the species does not well agree with the character of the genus. Because of the colored flocci it would go no better in *Arthrimum*.

### **Ramularia effusa.**

Hypophyllous, often occupying the whole lower surface of the leaf, whitish; spores very variable, globose, obovate-elliptical, oblong or cylindrical, .00016 to .0011 in. long, .00016 to .0002 broad, sometimes uniseptate.

Living leaves of black huckleberry, *Gaylussacia resinosa*. Karner. July.

Sometimes all the leaves on a branch have the lower surface whitened by this fungus.

### **Ramularia albomaculata.**

Spots suborbicular, 2 to 3 lines in diameter, sometimes confluent, pale yellowish-green on the upper surface, becoming purplish

or brown with age, whitened by the fungus below; spores oblong or elliptical, generally binucleate, .0003 to .0004 in. long, .00016 broad.

Living leaves of hickory, *Carya alba*. Albany and Greenbush. June and July.

Sometimes the spots are angular, being limited by the veinlets of the leaf. In this species and in the next one I have not seen the spores septate, but suspecting that the nuclei indicate septa in more mature specimens, I have referred the species to this genus for the present. They may belong rather to *Cylindrium* or *Fusidium*.

#### **Ramularia angustata.**

Spots small, orbicular, sometimes confluent, pale greenish-yellow, becoming reddish-brown or brown, frosted on the lower surface by the fungus; flocci minute; spores narrowly fusiform or subcylindrical, .0003 to .0004 in. long, about .0001 in. broad, often containing two or three nucleoli.

Living leaves of pinxter plant, *Azalea nudiflora*. Central Bridge and Carlisle. June.

The very narrow spores suggest the specific name.

#### **Ramularia lineola.**

Spots suborbicular, sometimes confluent, brown, concentrically lineolate; flocci obscure, tufted, hypophyllous; spores slender, cylindrical, obtuse, .0005 to .0008 in. long, often uniseptate.

Living leaves of dandelion, *Taraxacum*, *Dens-leonis*. Greenbush. July.

The fungus is so minute that it is scarcely visible to the naked eye.

#### **Sporotrichum larvicolum.**

Flocci slender, simple or branched, forming a continuous, dense, soft, white or yellowish stratum coating the whole matrix; spores abundant, minute, globose, .00008 to .00012 in. broad.

Dead larvæ lying on the ground under alders. Adirondack mountains. July.

The larvæ were very numerous and, but for the check imposed upon the increase of the species by the attacks of this fungus, they would probably in a short time have completely defoliated all the alders in that locality. In some specimens the fungus spores were so abundant that the surface of the stratum had a pulverulent appearance.

**Acremonium flexuosum.**

Plate 1, figs. 16-18.

Flocci procumbent, interwoven, branched, forming a thin, soft, tomentose, white or cream-colored stratum, the branches widely divergent, sometimes opposite, narrowed and flexuous toward the tips and bearing scattered, alternate spicules or sporophores; spores oval or elliptical, .0005 to .0008 in. long, .0003 to .0005 in. broad.

Decaying wood. Griffins, Delaware county. September.

From *Acremonium album* it differs in habit and habitat, as well as in the flexuous terminal portions of the flocci and their alternate pointed spicules; and from *Acremonium alternatum* it is distinguished by its elliptical spores.

**Sepedonium brunneum.**

Effused, pulverulent, brown; spores globose, rough, .0008 to .001 in. in diameter.

Decaying fungi. Gansevoort. August.

This is similar in habit to *Sepedonium chrysospermum*, from which its dark snuff-brown spores distinguish it. Like that fungus, this is also probably a mere state of some species of *Hypomyces*.

**Morchella angusticeps.**

Plate 1, figs 19-21.

Pileus narrowly conical or oblong-conical, acute or subobtuse, 1 to 2 in. long, its diameter at the base scarcely exceeding that of the stem, pale-buff or cream-colored, adnate, sometimes a little curved, the costæ longitudinal, anastomosing or connected by transverse veins; stem subequal, hollow, furfuraceous, even or sometimes marked by irregular longitudinal ridges and furrows, whitish, about equal to the pileus in length; asci cylindrical; spores elliptical, yellowish, .0008 to .001 in. long, .0005 to .0007 broad.

Borders of woods and open places. Albany and Karner. April and May. Edible.

This morel is perhaps too closely related to *Morchella conica* Pers., but if that species is correctly represented in *Mycographia*, plate 81, fig. 315, our plant is easily distinguished by its much more narrow pileus, which scarcely exceeds the stem in diameter. The paraphyses of that species are also represented as filiform, and are described (l. c. p. 182) as thickened above. In our plant I find no such paraphyses, but instead of them there are oblong or subclavate

bodies much shorter than the asci, but nearly as broad. They are often filled with large, unequal, crowded nuclei, and appear more like undeveloped asci than like ordinary paraphyses. The interior surface of the stem is scurfy like the exterior.

**Peziza orbicularis.**

Plate 2, figs. 4-6.

Receptacle 8 to 12 lines broad, sessile, appressed to the matrix, nearly plane, orbicular or sometimes irregular, externally whitish or subolivaceous and slightly gelatinous when moist, the disk reddish-brown or chestnut-colored; asci cylindrical; spores uniseriate, elliptical, .0009 to .0011 in. long, .00045 to .0005 in. broad; paraphyses filiform, thickened at the tips, brownish.

Wet, much decayed wood. Brewerton and Guilderland. September and October.

The spores usually contain one or two large nuclei. The contrast between the dark color of the disk and the light color of the external surface is quite noticeable. The flattened orbicular form of the receptacle when growing on smooth surfaces suggests the specific name. In the Thirty-second Report both this and the next species were referred to the genus *Bulgaria* under the respective names *B. bicolor* and *B. deligata*, but upon further observation their affinities appear to me to bring them in the genus *Peziza*, subgenus *Discina*, in consequence of which I am obliged to change the names.

**Peziza leucobasis.**

Plate 2, figs. 1-3.

Receptacles 1 to 3 lines broad, scattered or crowded, plane or convex, sessile, scarcely margined, purplish-black when moist, black and more or less angular when dry, surrounded at the base by dense whitish filaments; asci cylindrical, .01 to .012 in. long, .0009 to .001 broad; spores uniseriate, elliptical, even, binucleate, subhyaline, .001 to .0013 in. long, .0006 to .0007 broad; paraphyses numerous, filiform, septate, colored, slightly thickened above.

Wet, decaying hemlock wood. Catskill mountains. July.

The numerous white filaments that appear to bind the receptacles to the matrix, constitute a marked feature in this species and suggest the specific name.

**Peziza longipila.**

Plate 2, figs. 15-19.

Receptacle small, .014 to .02 in. broad, narrowed below into a short stem, densely clothed with long, rigid, erect, septate, tawny-

brown hairs, the uppermost .01 to .014 in. long, .0003 broad, the disk whitish, concealed in the dry plant by the hairs of the margin; asci cylindrical, .0025 to .003 in. long, .00025 to .0003 broad; spores oblong or subfusiform, straight or slightly curved, colorless, .0003 to .0004 in. long, .00008 to .00012 broad.

Dead stems of *Eupatorium maculatum*. Adirondack mountains. July.

Apparently near *P. relicina* Fr., but that is described as sessile and of a bay color.

This and the next following species belong to the subgenus *Dasyscypha*.

#### ***Peziza urticina*.**

Receptacle minute, .007 to .014 in. broad, sessile, subglobose, almost hyaline, and with the mouth connivent when moist, whitish and pulverulent-hairy when dry; asci subfusiform; spores crowded or biseriata, fusiform, .0004 to .0005 in. long; paraphyses filiform.

Dead stems of nettles, *Laportea Canadensis*. Catskill mountains. July.

When moist the hairs are appressed and the cups appear longitudinally striate. When dry the disk is generally concealed. The plants are so small that they appear to the naked eye like minute white grains.

#### ***Helotium fraternum*.**

Plate 1, figs. 12-14.

Receptacle small,  $\frac{1}{2}$  to 1 line broad, stipitate, the disk plane or slightly concave, pallid or reddish-yellow, becoming more concave and dull-red in drying, the stem about equal in length to the diameter of the receptacle; asci clavate or subcylindrical, .003 to .004 in. long, .0004 to .0005 broad; spores crowded or biseriata, subcylindrical, .00065 to .0008 in. long, .00016 to .0002 broad; paraphyses numerous, filiform, scarcely thickened at the tips.

Petioles and midveins of fallen leaves of maple, *Acer saccharinum*. Adirondack mountains. July.

#### ***Pezicula minuta*.**

Receptacle minute, .009 to .017 in. broad, numerous, scattered or two or three crowded together, attached to the matrix by a minute point, grayish, pulverulent, the margin obtuse or obsolete, the disk plane or convex, subochraceous; asci oblong-clavate; spores crowded,

oblong-elliptical; colorless, .0008 to .001 in. long; paraphyses filiform, thickened at the apex.

Dead stems of hobble bush, *Viburnum lantanoides*. Catskill mountains. July.

#### **Ascophanus tetraonalis.**

Receptacle sessile, 1 to 2 lines broad. externally cinereous, the margin sometimes wavy or flexuous, the disk blackish or blackish-brown; asci cylindrical, truncate at the apex; spores uniseriate, elliptical, smooth, colorless, .0006 to .0007 in. long, .0003 broad.

Excrement of partridges or ruffed grouse. Catskill mountains. July.

The receptacles are about equal in size to those of *Ascophanus gallinaceus*, which has a similar habitat, but a paler color and shorter spores. This and the next following species were erroneously referred to the genus *Peziza* in the Thirty-second Report.

#### **Ascophanus humosoides.**

Receptacles small, scarcely more than half a line broad, sessile, scattered or crowded, orange-colored inclining to vinous-red, the disk plane or slightly convex, slightly margined; asci short, cylindrical or clavate; spores crowded or elliptical, even, .0008 to .001 in. long, .0005 broad; paraphyses filiform, slightly thickened above.

Excrement of some wild animal. Catskill mountains. July.

The cups are attached to the matrix by a few white filaments.

#### **Patellaria pusilla.**

Receptacle small, .014 to .028 in. broad, sessile, slightly margined, black, the disk plane or convex when moist, slightly concave when dry; asci clavate; spores crowded or biseriate, subclavate, .00065 to .0008 in. long, .0001 to .00012 broad, six to eight nucleate; paraphyses numerous, filiform.

Decaying beech wood. Catskill mountains. July.

The spores are similar in shape to those of *P. atrata*. They are extremely narrow and probably become five to seven-septate when mature.

#### **Acanthostigma scopula.**

Perithecia small, .006 to .008 in. broad, subglobose, very black, bristly with short, rigid, divergent black hairs or setae which are .003 to .005 in. long, .00016 to .0002 thick; asci lanceolate or subclavate; spores crowded or biseriate, elongated, gradually narrowed

toward each end, straight or slightly curved, multinucleate, at length obscurely multiseptate, greenish-yellow, .0025 to .003 in. long, .00012 to .00016 broad.

Decaying wood of hemlock. Adirondack mountains. August.

This is *Sphaeria scopula* C. & P. in the Thirty-second Report. It is here referred to the genus *Acanthostigma* because of the shape of the spores. From *A. Clintonii* it may be distinguished by its larger perithecia and longer spores.

#### ***Lasiosphaeria intricata.***

Perithecia scattered or crowded, somewhat elongated, .025 to .035 in. long, .018 to .02 broad, generally narrowed toward the base, obtuse, subfragile, tomentose-hairy, brown or blackish-brown; subiculum very thin or none; asci slender, elongated, .005 to .008 in. long, .0004 to .0005 broad; spores crowded, linear, curved or flexuous, greenish-yellow, .0016 to .0025 in. long, .00016 to .0002 broad.

Decaying wood and leaves in damp places. Sandlake.

The species belongs to the section LEPTOSPORA. The perithecia, though small, resemble in shape those of *Bombardia fasciculata*. The minute papillate ostiolum is often concealed by the tomentum of the perithecia. This is composed of intricate, matted, slender, septate, brown filaments, which, by their soft, tomentose character, readily distinguish this species from the related *L. strigosa*, *L. hispida*, *L. hirsuta*, etc.

#### ***Herpotrichia leucostoma.***

Perithecia small, .012 to .018 in. broad, numerous, somewhat crowded, subglobose, seated upon or involved in a blackish-brown tomentum, the ostiola naked, not prominent, whitish when moist, grayish or sordid when dry; asci cylindrical or subclavate, .006 to .008 in. long, .0004 to .0006 broad; spores crowded or biseriate, oblong-fusiform, at first uniseptate, constricted at the septum and containing two or three nuclei in each cell, then three to five-septate, colorless, .0015 to .002 in. long, .0003 to .00035 in. broad.

Dead branches of mountain maple-bush, *Acer spicatum*. Catskill mountains. September.

The whitish ostiola constitute a marked feature in this species. It is distinguished from *Herpotrichia Schiedermayeriana* Eckl. by its much smaller perithecia, and the more numerous septa of the spores. I have observed no globose appendages at the ends of the spores in



our plant. The threads of the subiculum are obscurely septate and sometimes slightly branched. The more classical name "leucostoma" is here substituted for "albidostoma."

#### **Zignoella humulina.**

Perithecia small, .011 to .014 in. broad, depressed-hemispherical, slightly sunk in the matrix, subglabrous, black, with a minute papillate ostiolum; asci cylindrical, .0025 to .003 in. long, .0003 to .0004 in. broad; spores uniseriate or obliquely monostichous, elliptical, four-locular, appearing obscurely triseptate, colorless, .0005 to .0006 in. long, .00025 to .0003 in. broad.

Dead stems of hops, *Humulus lupulus*. Carlisle. June.

The spores are not distinctly triseptate, and the species apparently belongs to the subgenus *Zignoina*. The perithecia have a dull, squalid, unpolished or subscabrous appearance.

#### **Acrospermum album.**

Perithecia elongated, subfusiform, somewhat compressed, pointed at the apex, narrowed below into a short, terete, stem-like base, white; spores very long, filiform.

Dead stems of spikenard, *Aralia racemosa*. Catskill mountains. July.

This resembles *A. compressum* in size, but it is at once distinguished from that and other related species by its persistently white color.

## ADDITIONS, REMARKS AND OBSERVATIONS.

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The first fourteen species of the following list are additions to our State flora, and have not before been reported.

### **Hieracium Pilosella** L.

Door yards. Aurora, Cayuga county. *C. Atwood, M. D.*

This plant has been introduced from Europe, and is yet scarce and perhaps not thoroughly established.

### **Atriplex hortensis** L.

Roadsides. High Bridge, Onondaga county. *Mrs. S. M. Rust* and *Mrs. C. Barnes.*

Probably a stray from cultivation, and perhaps not permanently established.

### **Amanita pantherina** DC.

Thin woods. Sandlake, Rensselaer county. July.

According to the figure and description of this species the pileus is brown or brownish, but in all our specimens it is white or merely tinged with brown on the disk. In other respects they agree so well with the description that there can be no doubt of their specific identity. They afford a striking instance of the tendency in some of our American forms to depart from the color of the European plant. The different character of its volva will distinguish it from white forms of *A. muscarius*, and the warts on the pileus and annulus on the stem will separate it from *A. nivalis*.

### **Clitocybe phyllophila** Fr.

Among fallen leaves in woods. Karner. September.

### **Clitocybe pithyophila** Fr.

Among fallen leaves in woods. Sandlake.

### **Collybia aquosa** Bull.

Among sphagnum. Karner. October.

In our specimens the lamellæ, instead of being rounded behind and free, according to the description of the species, are adnate or

slightly decurrent. They are therefore designated, variety *adnati-folia*. In drying, the moisture escapes from the thicker, central part of the pileus sooner than from the thin margin.

**Mycena clavicularis** Fr.

Under pine trees. Sandlake. June.

**Psilocybe bullaceus** Fr.

Manured ground. Sandlake. July.

**Lactarius cilicioides** Fr.

Sandy soil. West Albany. October.

A small, white form with very sparse milk.

**Hygrophorus virgineus** Fr.

Roadsides and grassy fields. Sandlake. August.

**Cortinarius cinnabarinus** Fr.

Thin woods and bushy places. Sandlake. June.

**Hydnum scrobiculatum** Fr.

Woods. Sandlake. July.

The disk is sometimes very uneven with irregular prominences.

**Valsa sepincola** Fekl.

Dead stems of raspberry, *Rubus strigosus*. Karner. October.

**Cryptospora Betulæ** Tul.

Dead bark and twigs of white birch, *Betula populifolia*. Karner. October.

**Ampelopsis quinquefolia** Mx.

Specimens sometimes occur with some of the leaves trifoliolate.

**Geranium Robertianum** L.

A white-flowered form. Isley island, Sodus Bay, Wayne county. F. W. Battershall.

**Galium lanceolatum** Torr.

A white-flowered form. Sandlake.

**Rhodora Canadensis** L.

Thirteenth pond, Johnsburgh, Warren county. May. Mrs. I. B. Sampson.

The specimens are in flower, but the leaves had not yet developed. The original herbarium specimens bear old capsules, but no leaves,

so that leaf-bearing specimens are yet wanting. I do not find this plant recorded in any of the local catalogues of plants of various parts of the State, and Dr. Torrey admitted it in the New York Flora with the following explanatory remark: "I am not quite certain that I have received specimens of this plant from within the limits of the State; but it doubtless grows in some of the northern counties." The result has proved the accuracy of his supposition, but the plant is evidently rare in our State.

**Potamogeton pauciflorus** *Pursh.*

A peculiar form of this species occurs in Glass lake, Rensselaer county. The stems are 1 to 2 feet long, the spikes numerous and axillary and the foliage of a dull-brownish or reddish-brown color, quite unlike the ordinary bright-green hue of the species.

**Pogonia affinis** *Aust.*

In a swamp near Tappantown, Rockland county. June. *E. F. Smith.*

**Juncus Canadensis** var. *coarctatus* *Engelm.*

This plant sometimes has the flower heads wholly or in part changed to enlarged leafy buds, or rather galls, for they are produced by the attacks of insects.

**Clitopilus Noveboracensis** *Pk.*

Sometimes the pileus is dark-brown, much darker than in the typical form. There is also a variety *tomentosipes*, in which the stem is clothed with a whitish or grayish hairy tomentum. The plants are also sometimes cæspitose. Sandlake. July.

**Entoloma strictior** var. *isabellinus* *Pk.*

Pileus, when moist, of a watery isabelline hue and striatulate on the margin, when dry, whitish or pale straw color. Sphagnous marshes. Sandlake. August.

**Clavaria amethystina** *Bull.*

Woods. Sandlake. July.

Sometimes the color inclines to a grayish-violaceous hue. Both the small sparsely branched and the abundantly branched forms occur.

**Dacrymyces conglobatus** *Pk.*

Plate 1, figs. 1-4.

In the Thirty-second Report, this was provisionally referred to the genus *Dacrymyces*. It is apparently *Peziza rubella* Pers., and *Om-*

*brophila rubella* Quel., which is figured in *Tabulæ Analyticæ Fungorum*, by M. Patouillard, Fasc. 11, fig. 157. But unless it shall yet be found to have an ascigerous form it can not well be received in either of these genera. It may yet be necessary to institute a genus for its reception.

**Glomerularia Corni Pk.**

Plate 2, figs. 10-14.

This species was originally found on leaves of dwarf cornel, *Cornus Canadensis*. It also occurs in the Adirondack forests on leaves of fly honeysuckle, *Lonicera ciliata*. On this host it forms extensive patches, sometimes occupying nearly the whole leaf, and its filaments are more highly developed. It has been described in *Sylloge Fungorum*, vol. IV, p. 10.

**Geoglossum irregulare Pk.**

Plate 1, figs. 5-7.

A description of this fungus is contained in *Revue Mycologique*, 1882, p. 212, under the name *Geoglossum vitellinum* Bres. Owing to the imperfect publication of the Thirty-second Report it will be better to adopt this later name.

**Helotium vibrisseoides Pk.**

Plate 2, figs. 7-9.

In 1881 this fungus was published under the name of *Vibrissea turbinata* Phillips. It is *Gorgoniceps turbinata* Sacc., a name which should be adopted for the reason already given.

## NEW YORK SPECIES OF PAXILLUS.

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### PAXILLUS Fr.

“Hymenophorum continuous with the stem, decurrent. Lamellæ membranous, scissile, somewhat branched and often anastomosing behind, *distinct from the hymenophorum and easily separable from it.* Spores sordid-whitish or ferruginous.

“*Fleshy putrescent fungi continuously and gradually unfolding and expanding from an involute margin.*” *Hymen. Europ.*, p. 400.

The species of this genus are related to the Agarici on one hand, and to the Boleti on the other. The important distinguishing character is afforded by the lamellæ, which are easily and smoothly separable from the pileus, just as the tubes of a Boletus are from the pileus that supports them. This relationship between the Paxilli and Boleti is still further indicated by the anastomosing of the lamellæ, which in one species, *Paxillus porosus*, is carried to such an extent that the hymenium is as distinctly porous as it is in some Boleti. On the other hand, the close relationship that exists between this genus and the genus Agaricus may be inferred from the fact that *Agaricus personatus* and *A. cinerascens* are still retained by Fries among the Agarici, although he makes the remark that they belong rather to the Paxilli. In the second edition of *Epicrisis* he has modified the diagnosis of the genus, and at the same time admitted that it is “not yet correctly defined.” Neither is the limitation of the two tribes into which he divides the species very satisfactory, for a central stem and sordid spores, characters assigned to Lepista, are not always associated together, nor are ferruginous spores found only in species with the stem commonly lateral or eccentric. It has, therefore, seemed best to me, for the present, to refer to this genus such species only as have the spores colored and the separable lamellæ more or less branched, crisped or anastomosing. This reduces our species to five, three of which are found also in Europe. They grow chiefly in woods and occur in the latter part of summer and in autumn. The separable character of the hymenium can only be ascertained by the mutilation of a specimen.

*Synopsis of the Species.*

- |                               |                    |
|-------------------------------|--------------------|
| 1 Hymenium clearly lamellate. | 2.                 |
| 2 Pileus white, stem present. | P. simulans.       |
| 2 Pileus colored.             | 3.                 |
| 3 Stem glabrous.              | P. involutus.      |
| 3 Stem densely hairy.         | P. atrotomentosus. |
| 3 Stem none.                  | P. panuoides.      |
| 1 Hymenium wholly porous.     | P. porosus.        |

**Paxillus simulans** *n. sp.*

Simulating Paxillus.

Pileus broadly convex, expanded or subinfrundibuliform, compact, subglabrous, even or somewhat scabrous-pustulate, *white or whitish*, the involute margin often tomentose-hairy, flesh white; lamellæ close, forked, crisped near the stem, adnate or decurrent, *white, then ochraceous-yellow tinged with salmon color*; stem *central*, short, firm, equal, *stuffed or hollow*, pubescent, white; spores pale ochraceous-yellow, subglobose or broadly elliptical, .0002 to .0003 in. long, .0002 in. broad.

Plant 1 to 3 in. high, pileus 2 to 4 in. broad, stem 6 to 12 lines thick.

In thin woods. Sandlake. July. Rare.

A large species externally resembling *Lactarius vellereus*, and perhaps hitherto confused with it, but easily distinguished from it by the absence of a milky juice and by the lamellæ which are crisped near the base and which soon assume a peculiar salmon-yellow hue, which also appears in the spores when collected on white paper. This change of color begins in the crisped portion near the stem and gradually advances toward the outer extremity. In the dried specimens the lamellæ are ochraceous-brown and they have the edge more or less beaded with white granules. They are often forked near the outer extremity as well as toward the inner. The length of the stem sometimes scarcely exceeds its breadth. In but a single instance was it eccentric, and in that case the pileus was lobed and irregular. The surface of the pileus is sometimes roughened with minute pustules or papillæ and sometimes has a pitted appearance. Rarely the margin is obscurely zonate. The taste is bitterish and unpleasant, and some times the plant emits a subacid odor. It is a singular species.

**Paxillus involutus** *Fr.*

Involute Paxillus.

Pileus compact, convex or expanded, sometimes centrally depressed, glabrous, *viscid when moist*, varying in color from grayish

or sordid-buff to ferruginous or brownish-ochraceous, the margin at first *strongly involute and covered with a dense grayish tomentose villosity*, flesh grayish-white or pallid ; lamellæ close, decurrent, branched and anastomosing behind, whitish, then yellowish or subferruginous, becoming reddish-brown or fuscous where cut or bruised, the interspaces venose ; stem equal or slightly thickened at the base, central or sometimes eccentric, glabrous, solid ; spores elliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 2 to 4 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

In woods on the ground and on decaying wood. Common in the Adirondack mountains and not rare in the mixed woods of all our hilly districts. August to November.

This species is said, by Fries and other authors, to be edible, but I have not tested its edible qualities. It is said to be held in high estimation as an article of food in Russia. It is somewhat solitary in its mode of growth and prefers a soil chiefly composed of vegetable mold. Damp shaded mossy banks and deep hemlock and spruce woods are favorite habitats for it. It sometimes grows on much decayed stumps and old prostrate trunks of trees. In such cases the stem is sometimes eccentric, but when growing on the ground it is almost always central, though Fries places the species in the tribe Tapinia. Neither do the spores of our plant agree well with the dimensions given in the Handbook of British Fungi, still it does not appear to me to be specifically distinct. The pileus is generally regular in outline and, when expanded, bears upon its margin short, distant and somewhat irregular striations. The hairiness of the margin is more distinct in the young plants. The color of the pileus is not very decided, being somewhat variable, and a peculiar mixture of gray, ochraceous, ferruginous and brown. The surface is sometimes opaque, sometimes shining. The lamellæ and often other parts of the plant change color when cut or bruised. In drying, the lamellæ of this and also of the preceding and the two following species frequently assume a smoky-brown or blackish hue.

**Paxillus atrotomentosus Fr.**

Dark-Downy Paxillus.

Pileus compact, convex, then expanded or centrally depressed, varying from subglabrous to scabrous-granulose, sometimes tomentose-hairy on the disk, often minutely rivulose, ochraceous-red, ferruginous-brown or reddish-brown, the margin sometimes paler, flesh



white ; lamellæ close, rather broad, adnate or slightly decurrent, somewhat branched and anastomosing at the base, pale creamy-yellow, the interspaces venose ; stem firm, stout, solid, eccentric or lateral, rarely central, *densely tomentose-hairy, dark-brown* ; spores elliptical, .0002 to .00025 in. long, .00016 in. broad.

Plant single or cæspitose, 3 to 6 in. high, pileus 3 to 6 in. broad, stem 6 to 15 lines thick.

Ground and much decayed wood of pine and hemlock. Helderberg mountains, Sandlake and Gansevoort. August.

This is a large species, easily recognized by the dark-brown coarsely velvety or densely hairy coat of the stem, which character is suggestive of the specific name. It sometimes grows in large tufts, and then the pileus is frequently irregular by reason of mutual compression. In wet weather the pileus is moist and sometimes obscurely mottled with dark spots. Occasionally it emits an unpleasant, dirt-like odor.

#### **Paxillus panuoides Fr.**

Panus-like Paxillus. Stemless Paxillus. Pale Paxillus.

Pileus fleshy, thin, convex or nearly plane, *sessile* or resupinate, sometimes narrowed behind into a short stem-like base, pubescent or glabrous, yellowish or brownish-yellow ; lamellæ narrow, close, anastomosing and crisped at the base, yellow ; spores subglobose or broadly elliptical, .00018 to .0002 in. long, .00013 to .00016 in. broad.

Pileus 1 to 2 in. broad and long.

Decaying wood, usually of pine and hemlock. Albany, Maryland and Adirondack mountains. August and September.

This is our only sessile species. It grows in open places as well as in woods. It is quite variable in Europe, according to the description in Hymenomycetes Europæi. A form with a whitish pileus (*Agaricus lamellirugis* Dec. Fl., *Merulius crispus* Turpin) is the variety B of Fries. A form with a resupinate cup-like pileus, variety *pezizoides*, is his variety C, and *Gomphus pezizoides* Pers. The Handbook also describes a form with a white pileus tinged with violet. Of these, only the var. *pezizoides* has been found here. It occurs in the Adirondack mountain region.

#### **Paxillus porosus Berk.**

Porous Paxillus.

Pileus fleshy, broadly convex or expanded, often irregular or subreniform, dry, glabrous or minutely tomentose, reddish-brown, some-

times ochraceous-brown, flesh yellowish; lamellæ wholly connected by numerous narrow transverse branches, causing the hymenium to consist of large angular pores, decurrent, bright-yellow; stem short, hard, eccentric or lateral, generally reticulated above, colored like the pileus; spores elliptical, unijnucleate, .00035 to .00045 in. long, .00024 to .00032 in. broad.

Plant 1 to 2 in. high, pileus 2 to 4 in. broad, stem 3 to 6 lines thick.

Ground in woods and open places. Sandlake, Oneida, Brewerton and Catskill mountains. August.

A singular species remarkable for its boletoid or porous hymenium. It is thus far peculiar to this country. Its spores, according to Prof. A. P. Morgan, are bright-yellow. They are larger than in any of our other species of Paxillus. The author of the species makes the remark that "without examining the fructification it might be taken for a *Boletus*." It is admitted that the spores are broader in proportion to their length than are the spores of most *Boleti*, but in *Boletus strobilaceus* the spores make quite as wide a departure from the ordinary form. In fresh specimens the radiating lamellæ are distinguishable, being somewhat broader than the connecting veins or branches, but in the dried specimens this difference is so obscured that the hymenium appears in no manner to differ from that of some of the large and angular-pored *Boleti*. Indeed this same kind of union of radiating lamellæ is discernible in the hymenium of *Boletus paluster* in which the spores approach much more closely to the ordinary form of *Boletus* spores; from which it may be inferred that if the species just described is a genuine Paxillus, the distinction between that genus and the genus *Boletus* is very slight indeed, consisting in this case merely in the eccentric or lateral stem.

The stem in *P. porosus* is most often lateral, and at the point of its insertion there is generally an excavation in the margin of the pileus which gives to it a somewhat reniform outline. The pileus has been described as "viscid when moist," but I have never observed this character in our plant. The color of the hymenium in the fresh plant is a bright chrome-yellow. The fresh plant sometimes emits a disagreeable, dirt-like odor.

*Paxillus strigosus* Pk. does not have the lamellæ branched or crisped at the base, and it has been omitted. It probably belongs rather to *Inocybe*.

## NEW YORK SPECIES OF CANTHARELLUS.

### CANTHARELLUS *Adans.*

“Hymenophorum continuous with the stem, descending unchanged into the trama. Lamellæ thick, fleshy or waxy, *fold-like*, sub-branched, *obtuse on the edge*. Spores white. *Fleshy or membranous putrescent fungi destitute of a veil.*” *Hymen. Europ.*, p. 455.

The prominent distinguishing characters of this genus are the fleshy substance of the plants and the obtuse edge of the lamellæ. In nearly all the species these are either dichotomously branched or reticulately or anastomosingly connected with each other. They are so narrow and thick in some species that they appear more like folds or veins than like lamellæ. When a transverse section of the lamellæ is made their fold-like character becomes apparent. The hymenial substance covers the entire lower surface of the pileus and hence the interspaces are fertile as well as the lamellæ. Although some species formerly included in this genus are now excluded, it still contains some incongruous members. Thus *C. floccosus* bears very little general resemblance to *C. infundibuliformis*, and *C. aurantiacus* looks strangely by the side of *C. pruinosus*. It has, therefore, seemed best to group the species into subgenera or sections according to their natural affinities.

In the section AGARICOIDES the pileus is fleshy and is rapidly narrowed below into the stem. The lamellæ are very thin and close, resembling much those of the Agarici, but they are obtuse on the edge and regularly and sometimes repeatedly dichotomous. The species of this group are closely related to the Agarici.

In EUCANTHARELLUS the pileus is narrowly obconic and tapers downward gradually till it is lost in the short stem. Sometimes the spreading margin makes it trumpet-shaped. The lamellæ are very narrow, thick and abundantly and reticulately branched.

In CANTHARELLUS (proper) the pileus is fleshy, glabrous and more horizontally expanded, and the lamellæ are broader, more distant, and more sparingly branched than in the preceding group. The stem is also longer in proportion to the size of the pileus.

In *LEPTOCANTHARELLUS* the pileus is fleshy but thin, and floccose, fibrillose or pruinose. It is umbilicate, centrally depressed or funnel-shaped and sometimes pervious. The lamellæ are mostly sparingly branched, and the slender stem is generally hollow. The last three groups contain species which have their respective counterparts or corresponding species in the genus *Craterellus*.

In the diagnosis of the genus which I have quoted the spores are said to be white, but in some of our species they vary considerably from this color.

The name of the genus is derived from *cantharus*, a kind of drinking cup.

### *Synopsis of the Species.*

1 Lamellæ thin, regularly and repeatedly dichotomous.	2.
2 Lamellæ orange-colored.	<i>C. aurantiacus.</i>
2 Lamellæ white.	<i>C. umbonatus.</i>
1 Lamellæ thick, simple or irregularly branched.	3.
3 Stem very short, hairy or subtomentose.	4.
4 Pileus floccose-scaly.	<i>C. floccosus.</i>
4 Pileus glabrous.	<i>C. brevipes.</i>
3 Stem longer, glabrous.	5.
5 Pileus glabrous, yellow.	6.
6 Pileus thick, stem solid.	<i>C. cibarius.</i>
6 Pileus thin, stem stuffed or hollow.	<i>C. minor.</i>
5 Pileus glabrous, cinnabar-red.	<i>C. cinnabarinus.</i>
5 Pileus not glabrous.	7.
7 Floccose or fibrillose.	8.
8 Dingy-yellow or brownish.	<i>C. infundibuliformis.</i>
8 Dingy-cinereous or blackish-cinereous.	<i>C. cinereus.</i>
7 Pruinose.	<i>C. pruinosus.</i>

**AGARICOIDES.** *Lamellæ thin, close, regularly dichotomous.*

#### ***Cantharellus aurantiacus* Wulf.**

Orange Chantarelle. False Chantarelle.

Pileus fleshy, thick, soft, minutely tomentose, plane or slightly depressed, *yellowish-orange*, often tinged with smoky-brown, the margin decurved or involute, flesh whitish or yellowish; lamellæ narrow, close, repeatedly forked, decurrent, *bright-orange*, sometimes yellowish; stem equal or slightly tapering upward, solid, subconcolorous; spores subelliptical, .00025 to .0003 in. long, .00016 to .00018 broad.

Plant 2 to 3 in. high, pileus 1 to 3 in. broad, stem 2 to 5 lines thick.

Ground and much decayed wood. Common in hilly and mountainous districts. July to October.

The bright color and regular bifurcations of the lamellæ render this a beautiful and easily recognizable species. The pileus is somewhat obconic in outline, but it is subject to some variation in color. The disk is often tinged with brown or smoky-brown and sometimes the whole surface fades to a dingy buff-red. The margin is sometimes a pale yellow or even whitish, and a form with whitish lamellæ has occurred in a sphagnous marsh near Albany. In the European plant the stem is said occasionally to become black. This form is *Merulius nigripes* Pers. The wholly white European form has not been found here.

The species is pronounced "poisonous" by some authors, and "scarcely esculent" by Rev. M. J. Berkeley. It is especially fond of a damp mossy soil filled with vegetable mold, and it sometimes occurs quite late in the season.

### ***Cantharellus umbonatus* Fr.**

Umbonate Chantarelle.

Pileus thin, soft, at first convex, then plane or centrally depressed, umbonate, papillate or even, smooth or flocculose-silky, rarely minutely squamulose, bluish-cinereous, grayish-brown or blackish-cinereous, the flesh white; lamellæ thin, straight, more or less decurrent, dichotomous, white; stem equal or slightly tapering upward, solid or stuffed, generally slightly silky, villose or white-tomentose at the base, whitish or tinged with the color of the pileus; spores white, oblong or subfusiform, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant 1 to 6 in. high, pileus 6 to 12 lines broad, stem 2 to 4 lines thick.

Damp, mossy ground in woods and open places. North Elba, Catskill mountains and Karner. August to October.

Var. *subcæruleus*. Pileus bluish or bluish-gray, silky and shining.

Var. *dichotomus*. Pileus even or the umbo reduced to a mere papilla, grayish-brown.

Var. *brevior*. Pileus as in variety *dichotomus*, but the stem very short, about 1 inch long, equal and scarcely silky.

This is a variable species. All the descriptions of the European plant which have come under my notice speak of it as umbonate, and some emphasize this character and describe it as "always persistent," "unchanged," etc. In the American plant it is often entirely absent, and when present it is generally a mere acute papilla.

If of fair size in the fresh plant it becomes small and inconspicuous in the dried specimen. In consequence of this disagreement between the American plant and the descriptions of the European, the former was supposed to be distinct, and described in the Twenty-third Report as *Cantharellus dichotomus*; but from its close agreement in other respects I am now of the opinion that our plant is but a variety of the European, and I have modified the description of the species so that it may include our forms. I have looked in vain for a description of the spore characters of this species in any of the European works at my command. These characters here given are taken from the American plant. Should they be found to differ from those of the European plant, it will be necessary to keep our plant distinct. In ours, as in the European, wounds of the flesh and lamellæ often change to a reddish hue, and sometimes the lamellæ assume this color in drying. When growing among mosses the stem is often considerably elongated, and the white tomentum at its base so closely invests the surrounding mosses that it is difficult to pluck the plant entire without taking with it a tuft of moss.

*EUCANTHARELLUS.* Lamellæ very narrow, thick, vein-like, abundantly branching or anastomosing; pileus narrowly obconic; stem very short.

The species of this section appear thus far to be peculiar to America.

### **Cantharellus floccosus** Schw.

Floccose Chantarelle.

Pileus fleshy, firm, elongated funnel-form or trumpet shape, floccose-scaly, ochraceous-yellow; lamellæ thick, narrow, close, abundantly anastomosing above, long-decurrent and subparallel below, subconcolorous; stem very short, thick, sometimes with a flexuous, root-like prolongation; spores ochraceous, narrowly elliptical, .0005 to .0006 in. long, .0003 in. broad, with an oblique apiculus at one end.

Plant 2 to 5 in. high, pileus 2 to 4 in. broad, stem 4 to 8 lines thick.

Woods and their borders. Common. July and August.

This is our largest species of Chantarelle. At first the plant is almost cylindrical, it being scarcely broader at the top than at the base; but it gradually expands above and spreads its margin until it becomes trumpet-shaped. The pileus of the young plant is some-

times tinged with orange. The scales are sometimes thick and persistent, and again thin and subevanescent. The pileus is depressed or umbilicate at a very early age, and it frequently becomes perversive when mature. The interstices or reticulations formed by the anastomosing of the lamellæ are in some specimens as broad as long, in others much longer than broad. The stem is often, though not always, somewhat tomentose.

### **Cantharellus brevipes** *Pk.*

Short-stemmed Chantarelle.

Pileus fleshy, narrowly obconic, *glabrous, alutaceous or dingy cream color*, the thin margin erect, often irregular and lobed, tinged with lilac in the young plant, flesh soft, whitish; lamellæ numerous, nearly straight on the margin, abundantly anastomosing below, *pale amber tinged with lilac*; stem short, tomentose-pubescent, solid, cinereous, often tapering downwards; spores yellowish, oblong-elliptical, uninucleate, .0004 to .0005 in. long, .0002 in. broad.

Plant subcæspitose, 3 to 4 in. high, pileus 2 to 3 in. broad, stem 4 to 6 lines thick.

Woods. Ballston. July.

This is a very rare species. It occurred in very limited quantity in 1879, in the locality mentioned, and has not since been found. It is smaller than *C. floccosus*, more cæspitose in its mode of growth, and with thinner lamellæ. The thick fleshy pileus is neither perversive nor umbilicate and but slightly depressed.

**CANTHARELLUS.** *Lamellæ narrow, distant, sparingly and irregularly branched or anastomosing; pileus fleshy, glabrous; stem fleshy, generally solid.*

### **Cantharellus cibarius** *Fr.*

Edible Chantarelle.

Pileus fleshy, firm, convex, then expanded or slightly depressed, glabrous, *yellow*, the margin at first involute, then spreading, often wavy or irregular, flesh white within; lamellæ narrow, thick, distant, decurrent, somewhat branched or anastomosing, *yellow*; stem firm, glabrous, *solid, yellow*, sometimes tapering downwards; spores sub-elliptical, .0003 to .0004 in. long, .0002 to .00025 broad.

Plant 1.5 to 4 in. high, pileus 1.5 to 4 in. broad, stem 3 to 6 lines thick.

Woods, copses and open places. Common. June to September.

The edible Chantarelle, though often irregular in shape, is beautiful in color. The whole plant is of a clear, rich egg-yellow hue, and this, with its solid stem, renders its identification easy. The American plant scarcely varies in color, but in Europe there is said to be a white variety of it. When old, the margin first begins to dry, and soon assumes a dull reddish-brown hue. The flesh both of the pileus and stem is white, though often tinged with yellow near the surface. Some authors attribute to it an odor like that of ripe apricots, but I have not been able to detect any decided odor in it. The lamellæ vary somewhat in their degree of proximity to each other and in the extent of their ramification. They are sometimes wavy or crisped as in some species of Paxillus. The interspaces are usually venose. The length of the stem is generally about equal to the breadth of the pileus. It is more frequently curved or flexuous than straight, and sometimes it is narrowed downward. The spores are described by most authors as white, but if they are collected on white paper they have a slight yellowish or salmon-yellow tint. The plant grows either in a scattered manner or arranged in curved lines, as if attempting to form a "fairy ring." A favorite habitat is in the deep shade of hemlock trees, but it also grows freely and plentifully in thin woods of deciduous trees in damp, showery weather. The species is quite celebrated for its edible qualities. Fries says that "it is justly enumerated among the most sapid fungi;" Badham, that "no fungus is more popular;" Berkeley, that "it is occasionally served up at public dinners at the principal hotels in London on state occasions, when every effort is made to secure the rarest and most costly dainties;" Cooke, that "it is alike esteemed in France, Germany, Austria and Italy," and that "it is not at all uncommon to hear from epicures rapturous encomiums of this golden fungus." According to Badham, "it requires to be gently stewed, and a long time, to make it tender; but by soaking it in milk the night before, less cooking will be requisite."

**Cantharellus cinnabarinus Schw.**

Cinnabar-colored Chantarelle.

Pileus fleshy, rather thin, firm, convex, then depressed or subinfundibuliform, often irregular, *cinnabar-red*, the margin at first inflexed, often lobed in large specimens, flesh whitish, externally tinged with red; lamellæ subdistant, branched, decurrent, *cinnabar-*



*red*; stem glabrous, solid, *cinnabar-red*; spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant 1 to 2 in. high, pileus 8 to 16 lines broad, stem 2 to 4 lines thick.

Thin woods and open places. Sandlake, Brewerton and Forestburgh. July to September.

This Chantarelle is beautifully colored, though frequently irregular in shape. It is closely related to the preceding species, from which its color, smaller size and comparatively broader lamellæ distinguish it. It varies slightly in the depth of its color, the pileus being sometimes tinged with yellow. It is difficult to preserve its red hue in the dried specimens. The width of the lamellæ is generally equal to or greater than the thickness of the flesh of the pileus. The flesh has a slightly pungent or peppery taste. The species was placed by Fries in the genus *Hygrophorus*, but it is a genuine *Cantharellus*.

#### **Cantharellus minor** *Pk.*

Small Chantarelle.

Pileus fleshy, thin, convex, then expanded, often umbilicate or centrally depressed, glabrous, *yellow*, flesh, pale-yellow; lamellæ narrow, distant, sparingly branched, yellow; stem *slender*, subflexuous, subequal, smooth, *stuffed or hollow*, yellow, with a whitish mycelium at the base; spores subelliptical, .00025 to .0003 in. long, .00016 to .0002 in. broad.

Plant gregarious or subcæspitose, 1 to 1.5 in. high, pileus 6 to 12 lines broad, stem 1 to 2 lines thick.

Thin woods and open places. Greubush and Sandlake. June and July.

This is a very small Chantarelle. It is colored like *C. cibarius*, from which it is distinguished by its smaller size, thin and frequently umbilicate pileus, comparatively broader lamellæ, and more slender stem, and smaller spores. In very small or young specimens the stem sometimes appears to be solid, but in large and mature specimens it is stuffed or hollow, especially in the upper part. By this character it connects this section with the next. In wet weather the pileus is moist and has a watery-yellow hue which fades slightly in drying.

LEPTOCANTHARELLUS. *Pileus thin or submembranous, not glabrous; stem subelongated, generally hollow.*

***Cantharellus infundibuliformis* Scop.**

Funnel-shaped Chantarelle.

Pileus thin or submembranous, convex and umbilicate, then funnel-shaped and often pervious, slightly floccose or fibrillose, uneven, varying in color from dingy-yellow to dark watery-brown when moist, grayish or grayish-yellow or grayish-brown when dry, the margin frequently wavy, irregular or lobed; lamellæ narrow, thick, decurrent, distant, irregularly or dichotomously branched, yellow or subcinereous, *becoming pruinose*, the interspaces generally venose; stem rather slender, glabrous, hollow, *yellow*; spores broadly elliptical, .00035 to .00045 in. long, .0003 to .00035 in. broad.

Var. *typicus*. Pileus dingy-yellow; stem pale-yellow.

Var. *luteolus*. (*Cantharellus lutescens*, 23d Rep., p. 122.) Pileus convex, umbilicate, dingy-yellow; lamellæ very distant, sparingly branched, yellowish; stem yellow, tinged with red or orange.

Var. *zonatus* Fr. Pileus zonate.

Var. *subcinereus*. Pileus dark watery-brown when moist, gray or grayish-brown when dry; stem yellowish, dingy above.

Plant gregarious or subcæspitose, 1.5 to 4 in. high, pileus 6 to 18 lines broad, stem 1.5 to 3 lines thick.

Woods and swamps among moss or fallen leaves and on decayed wood. Common. June to October.

This species is so variable that it seems desirable to designate its principal varieties by name. Through variety *subcinereus* it approaches *C. cinereus* on one hand, and, through variety *luteolus*, *C. tubæformis* on the other. Indeed, so closely is it allied to this last-named species that the two were united in *Systema Mycologicum*. But in all our forms or varieties the lamellæ become frosted or pruinose in appearance, and this character, according to the descriptions of Professor Fries, is a distinguishing feature of *C. infundibuliformis*. In the description of *C. tubæformis*, as given in the Handbook, the lamellæ of it also are said to be "frosted with a white bloom," but the dimensions there ascribed to its stem and spores do not correspond to those of any of our specimens. In our plant the pileus of fresh growing specimens has a moist or watery appearance, and as the moisture evaporates the color becomes paler. The surface of the pileus is a little uneven, and the fibrils are so arranged that they give it a somewhat streaked or virgate appearance approaching sometimes to a subreticulate aspect. Occasionally the pileus is slightly zonate,

but such specimens grow intermingled with others that are not zonate and are evidently the same species. In the larger specimens the pileus is frequently more lobed and irregular than in the others. In these also the lamellæ are apt to be less distant and more branched and the interspaces more venose than usual. The color of the lamellæ may be yellow, grayish-yellow, subcinereous or even tinged with lilac. The stem in variety *typicus* is pale-yellow or flavid, in variety *luteolus* it is more or less tinged with red, and in variety *subcinereus* it has a dingy or smoky tint above. This variety occurs especially among Sphagnum in marshes.

### **Cantharellus cinereus Pers.**

Gray Chantarelle.

Pileus thin, submembranous, centrally depressed or funnel-shaped, often becoming pervious, minutely hairy or scaly, *cinereous* or *blackish-cinereous*, the margin frequently lobed or irregular; lamellæ thick, distant or subdistant, decurrent, branched and anastomosing, *cinereous*; stem hollow, often compressed or irregular, *cinereous* or *blackish-cinereous*; spores elliptical, .0003 to .00035 in. long, .0002 to .00025 broad.

Plant gregarious or cæspitose, 1.5 to 3 in. high, pileus 1 to 2 in. broad, stem 2 to 4 lines thick.

Woods. Greig, Sandlake and Albany. August and September.

The gray Chantarelle is less common than the preceding species to which it is closely related, but from which it may be distinguished by the absence of yellow hues from its pileus and stem. Its stem is generally comparatively thicker and its mode of growth more cæspitose.

### **Cantharellus pruinosis Ph.**

Frosted Chantarelle.

Pileus thin, convex, subumbilicate, *pruinose, white*; lamellæ *rather broad*, distant, long-decurrent, *simple or rarely branched, white*; stem long, slender, slightly enlarged above, *pruinose, whitish*; spores *globose*, .0002 to .00025 in. in diameter.

Plant about 1 in. high, pileus 2 to 3 lines broad, stem scarcely 1 line thick.

Ground in pastures. Sageville. August.

This is our smallest species, and is one most readily recognized by its slender habit, white color and minutely mealy or pruinose surface.

In some respects it approaches the European *C. Brownii* B. & Br., but is clearly distinct from it, by its broad and very decurrent lamellæ, by its pruinose surface and by its umbilicate instead of an umbonate pileus.

*Cantharellus crispus* differs from all the preceding species in habit and texture and is now referred to the genus *Trogia*.

Satisfactory examples of *Cantharellus tubæformis* have not occurred within our limits. The specimens formerly referred to this species and to *C. lutescens* prove to be only forms of *C. infundibuliformis*.

Several dimidiate and resupinate species of this genus are found in Europe, but none have occurred within our limits.

## NEW YORK SPECIES OF CRATERELLUS.

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### CRATERELLUS Fr.

“Hymenium waxy-membranous, distinct, but adnate to the hymenophorum, definitely inferior, continuous, glabrous, even or rugose. Spores white.

“*Terrestrial, fleshy or membranous, autumnal fungi, related to the Cantharelli and furnished with an entire pileus and a stem.*” *Hymen. Europ.*, p. 630.

This genus is intimately related to *Cantharellus* on one hand, and by its nearly even hymenium it approaches *Thelephora* and *Clavaria* on the other. So intimate is its relationship with *Cantharellus* that, in the *Systema Mycologicum*, its species were referred to that genus, and in his later work, the *Hymenomycetes Europæi*, Professor Fries justly remarks that the analogy between various species of the two genera is wonderful. Indeed, some of the species of these genera cannot readily be distinguished without an inspection of the hymenium, so closely do they resemble each other in size, shape and color. The species of *Craterellus* have the hymenium nearly even, or merely rugose or rugose-wrinkled, the folds or wrinkles being irregular or indistinct, or so interwoven and lost in each other and in the hymenium that any particular one cannot readily be traced from the stem to the margin of the pileus, as they can be in species of *Cantharellus*. In the same species the wrinkles are more distinct in some specimens than in others, and often they are more distinct in the fresh plant than in the dried one. In all our species the hymenium is decurrent. The pileus is frequently more or less split or lobed on the margin and sometimes is divided nearly to its base. It is not clear why the genus should be characterized as “autumnal,” for some of the species occur as early as July. In some of the older works these fungi are distributed in the genera *Cantharellus*, *Merulius*, *Elvella* and *Peziza*. The name *Craterellus* signifies a little cup, and has reference to the shape of the pileus in some species.

*Synopsis of the Species.*

- |  |                    |
|--|--------------------|
| 1 Stem hollow, pileus mostly pervious.                   | 2.                 |
| 2 Hymenium cinereous or brown.                           | 3.                 |
| 3 Pileus tubiform, spores .0005 to .0007 in. long.       | C. cornucopioides. |
| 3 Pileus funnel-shaped, spores .00025 to .0003 in. long. | C. dubius.         |
| 2 Hymenium yellow.                                       | C. lutescens.      |
| 1 Stem solid, pileus not pervious.                       | 4.                 |
| 4 Hymenium and stem similarly colored.                   | C. Cantharellus.   |
| 4 Hymenium and stem dissimilarly colored.                | C. clavatus.       |

**Craterellus cornucopioides Pers.**

Cornucopia-like Craterellus. Horn-like Craterellus.

Pileus thin, submembranous, *tubiform*, pervious, sometimes granular or minutely scaly, cinereous, smoky-brown or blackish, the spreading or decurved margin generally lobed, wavy or irregular; hymenium even or rugose-wrinkled, cinereous or brown; stem very short, hollow, *blackish-brown or black*; spores *narrowly elliptical*, .0005 to .0007 in. long, .0003 to .0004 broad.

Plant gregarious or subcaespitose, 2 to 3 in. high, pileus 1 to 2.5 in. broad, stem 2 to 3 lines thick.

Woods. Common. July to September.

This is our most common Craterellus. It is easily recognized by its elongated tubular or narrowly trumpet-shaped pileus and its dingy-gray or smoky-brown hue. The pileus is thin but rather tough and elastic. The hymenium is generally a little paler than the pileus and varies in color from cinereous to reddish-brown and dark smoky-brown. It sometimes becomes pruinose when dry. The stem is short or almost obsolete, the hymenium extending nearly or quite to the surface of the ground. The spores are larger than in any of our other species. It grows especially on naked soil on shaded banks or knolls or in old roads in woods. In shape it corresponds very closely to *Cantharellus floccosus*, but in every other respect it differs decidedly from that species. In color it resembles *Cantharellus cinereus*, from which its more elongated pileus, shorter stem and different hymenium at once separate it. *Cantharellus cornucopioides* Fr., *Peziza cornucopioides* L., *Merulius cornucopioides* Pers., *Merulius purpureus* With. and *Helvella cornucopioides* Scop. are ancient synonyms.

**Craterellus dubius Pk.**

Doubtful Craterellus.

Pileus thin, *infundibuliform or subtubiform*, subfibrillose, dark-brown or lurid-brown, pervious, the margin generally wavy and

lobed ; hymenium dark-cinereous and rugose when moist, the obscure crowded irregular wrinkles abundantly anastomosing, nearly even and paler when dry ; stem short, hollow, *colored like the hymenium* ; spores *broadly elliptical or subglobose*, .00025 to .0003 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem about 2 lines thick.

Ground under spruce trees. Adirondack mountains. August.

This very rare species has not been found by us since its discovery in Keene Valley, Essex county, in 1877. It is closely related to *C. cornucopioides*, from which its shorter more funnel-shaped pileus, longer paler stem and smaller spores will distinguish it. It is also apparently similar to *C. sinuosus* and *C. crispus*, and both it and they may yet prove to be different forms of one very variable species. In all of our specimens the pileus is pervious and the stem hollow to the base. This last character will distinguish the species from both those mentioned. In some specimens the pileus is much lobed or multifid on the margin. The hymenium is darker colored and much more rugose or uneven when moist than it is when dry. In the dried specimens it is pale-cinereous, often with a tinge of yellow, and its color extends to the base of the stem. The darker color of the pileus is continued downwards in the cavity of the stem. In general appearance this species corresponds more closely to *Cantharellus cinereus* than does *C. cornucopioides*, which is sometimes compared with that species.

### **Craterellus lutescens Fr.**

Yellowish Craterellus.

Pileus thin, submembranous, varying from convex and umbilicate to tubiform or funnel-shaped, often becoming pervious, *yellowish, dingy-yellow or brownish*, the margin frequently lobed, wavy or irregular; hymenium nearly even or distinctly and sometimes densely rugose-wrinkled, *yellow* ; stem rather slender, subflexuous, glabrous, *hollow, yellow* ; spores subelliptical, .0004 to .0005 in. long, .00025 to .0003 in. broad.

Plant single or gregarious, occasionally cæspitose, 2 to 3 in. high, pileus 1 to 2 in. broad, stem 1.5 to 3 lines thick.

Moist places in woods and swamps. Sandlake and Helderberg mountains. July and August.

This species corresponds closely in size, color and general appearance to *Cantharellus infundibuliformis*, from which it is not readily distinguished except by its hymenium, which is neither pruinose nor furnished with distinct lamellæ, though its vein-like wrinkles sometimes make a close approach to the narrow lamellæ of that Chantarelle. It is commonly compared with *Cantharellus tubæformis*, with which, according to Fries, it was formerly confused, and to which it corresponds very closely by reason of its naked yellow hymenium. The pileus of the European plant is described as "flocculose," but in our plant it is usually almost glabrous or but slightly fibrillose. The hymenium is sometimes slightly reddish or orange-tinted and the stem is colored like it rather than like the pileus. In small or young plants it is not uncommon to find the stem stuffed below and hollow above only. The base of the stem is frequently hairy or strigose.

*Cantharellus lutescens* Fr., *Merulius lutescens* Pers., *Merulius xanthopus* Pers., *Helvella tubæformis* Schæff. and *Peziza undulata* Bolt. are synonyms of the older works.

#### **Craterellus Cantharellus Schw.**

Chantarelle Craterellus.

Pileus fleshy, firm, *convex, then centrally depressed or infundibuliform*, glabrous, yellow or pinkish-yellow, the margin commonly lobed, wavy or irregular, flesh white; hymenium nearly even or rugose-wrinkled, *yellow*; stem glabrous, *solid, yellow*; spores subelliptical, .0003 to .0004 in. long, .0002 to .00025 in. broad.

Plant single or cæspitose, 1.5 to 3 in. high, pileus 1.5 to 3 in. broad, stem 3 to 5 lines thick.

Thin woods and bushy places. Sandlake. August.

So closely does this plant resemble the edible Chantarelle, both in size, shape and color, that it would be natural to suppose it a form of that species with an undeveloped or abnormally developed hymenium. Its color is a vitelline or egg-yellow, as in that species, but sometimes there is a slight pinkish tinge to the pileus and a faint shade of salmon color or orange to the hymenium. The spores also, when collected on white paper, have a yellowish or salmon-yellow tint. The plant is more frequently cæspitose than *Cantharellus cibarius*, and consequently the pileus is generally more irregular. It was placed by Schweinitz in the genus *Thelephora*, section CRATERELLÆ, whence the synonym *Thelephora Cantharellus* Schw. In Grevillea, vol. 1, p. 147, this name is given as a synonym of *Craterellus late-*



*ritius* B., which is described as "brick-red" with a deeply umbilicate pileus. I have seen no such forms of our plant and hesitate to adopt the opinion there expressed. The species appears to be peculiar to this country.

***Craterellus clavatus* Pers.**

Pileus fleshy, soft, *clavate* or *narrowly obconic*, turbinate, truncate or slightly depressed, nearly glabrous, yellowish, flesh white; hymenium slightly corrugated or rugose-wrinkled, *dull-purplish* or *brownish incarnate*; stem short, solid, pallid or yellowish; spores subelliptical, .0004 to .0005 in. long, .0002 to .0003 in. broad.

Plant 2 to 3 in. high, pileus 1 to 2 in. broad, stem 3 to 6 lines thick. Hemlock woods. Brewerton. September. Rare.

This species has not been found by me since its discovery in our State in 1878. Its corresponding species among the Chantarelles is *Cantharellus brevipes*. Its resemblance to *Clavaria pistillaris* is also noticeable. The pileus is sometimes slightly uneven or rugose, and its margin is rather obtuse and sometimes crenately irregular. The color of the hymenium is a peculiar mixture of pink, brown, lilac and purple, which is not easy to define. It sometimes approaches a pale-liver color. Fries describes it as passing from violet-flesh color to fuliginous and umber-brown. These variations in the color of the hymenium have given rise to various synonyms; for example, *Merulius violaceus* Pers., *Merulius purpurascens* Pers., *Merulius carneus* Pers., and *Merulius umbrinus* Pers. Other synonyms are *Merulius clavatus* Pers., *Clavaria truncata* Schmidt, and *Clavaria elvelloides* Wulf.

*Craterellus cœspitosus* Pk. is a spurious species and is therefore omitted.





*Sordaria valsoides* Sacc.

*Hypocopra leucoplaca* Sacc.

*Coprolepa fimeti* Sacc.

*Philocopra canina* Sacc.

*Rosellinia aquila* De Not.

R. *Desmazierii* Sacc.

R. *mutans* Sacc.

R. *obtusissima* Sacc.

R. *pulveracea* Fckl.

R. *sordaria* Rehm.

R. *hirtissima* Sacc.

*Bombardia fasciculata* Fr.

*Anthostomella Closterium* Sacc.

A. *rostrispora* Sacc.

A. *smilacinina* Sacc.

*Anthostoma adustum* Sacc.

A. *cercidicolum* Sacc.

A. *atropunctatum* Sacc.

A. ? *scoriadeum* Sacc.

*Xylaria polymorpha* Grev.

X. *corniformis* Fr.

X. *grandis* Pk.

X. *acuta* Pk.

X. *Hypoxyton* Grev.

X. *digitata* Grev.

X. *graminicola* Ger.

X. *filiformis* Fr.

*Ustulina vulgaris* Tul.

*Daldinia concentrica* C. & D.

*Hypoxyton coccineum* Bull.

H. *argillaceum* Berk.

H. *Howeanum* Pk.

H. *fuscum* Fr.

H. *xanthocreas* B. & C.

H. *cohærens* Fr.

H. *perforatum* Schw.

H. *multiforme* Fr.

H. *Morsei* B. & C.

H. *serpens* Fr.

H. *Sassafras* Berk.

H. *atropurpureum* Fr.

H. *rubiginosum* Fr.

H. *fuscopurpureum* Berk.

H. *smilacicum* Sacc.

*Nummularia discreta* Tul.

N. *Bulliardi* Tul.

*Ceratostomella rostrata* Sacc.

*Gnomoniella tubiformis* Sacc.

G. *mirabilis* Sacc.

G. *vulgaris* Sacc.

G. *curvicolla* Sacc.

G. *eccentrica* Sacc.

*Sphæria valsoides* Pk.

S. *leucoplaca* B. & R.

S. *fimeti* Pers.

S. *canina* Pk.

S. *aquila* Fr.

S. *Desmazierii* B. & Br.

S. *mutans* C. & P.

S. *obtusissima* B. & C.

S. *pulveracea* Ehrh.

S. *sordaria* Fr.

S. *hirtissima* Pk.

S. *bombarda* Batsch.

S. *Closterium* B. & C.

S. *rostrispora* Ger.

S. *smilacinina* Pk.

*Diatrype adusta* C. & P.

D. *cercidicola* B. & C.

D. *atropunctata* Schw.

*Sphæria scoriadea* Fr.

*Hypoxyton ustulatum* Bull.

H. *concentricum* Bolt.

H. *fragiforme* Pers.

*Diatrype smilacicola* Schw.

D. *discreta* Schw.

*Hypoxyton nummularia* Bull.

*Sphæria rostrata* Fr.

S. *tubæformis* Tode.

S. *mirabilis* Pk.

S. *Gnomon* Tode.

S. *curvicolla* Pk.

S. *eccentrica* C. & P.

- Gnomoniella fimbriata Sacc.*  
 G. *Coryli Sacc.*  
 G. *melanostyla Sacc.*  
*Læstadia carpinea Sacc.*  
 L. *fraxinicola Sacc.*  
 L. *brunnea Sacc.*  
*Physalospora minutella Sacc.*  
 P. *ceanothina Sacc.*  
*Trichosphæria fissurarum Sacc.*  
 T. *subcorticalis Sacc.*  
*Wallrothiella Arceuthobii Sacc.*  
 W. *squalidula Sacc.*  
*Botryosphæria Quercuum Sacc.*  
*Cryptosporella leptasca Sacc.*  
 C. *anomala Sacc.*  
*Sphærella punctiformis Rabh.*  
 S. *maculiformis Auersw.*  
 S. *spleniata C. & P.*  
 S. *orbicularis Pk.*  
 S. *colorata Pk.*  
 S. *indistincta Pk.*  
 S. *Impatientis P. & C.*  
 S. *Vaccinii Cke.*  
 S. *sparsa Auersw.*  
 S. *Sarracenizæ Sacc.*  
 S. *smilacicolæ Cke.*  
*Stigmatea Robertiana Fr.*  
*Didymella Sphærellula Sacc.*  
 D. *onosmodina Sacc.*  
*Melanopsamma recessa Sacc.*  
 M. *Papilla Sacc.*  
*Bertia moriformis De Not.*  
*Venturia ditricha Karst.*  
 V. *Clintonii Pk.*  
 V. *compacta Pk.*  
 V. *Kalmizæ Pk.*  
 V. *orbicula C. & P.*  
 V. *pulchella C. & P.*  
 V. *Dickiei C. & D.*  
 V. *Myrtilli Cke.*  
*Endothia gyrosa Fekl.*  
*Melanconis stilbestoma Tul.*  
 M. *thelebola Sacc.*  
*Diaporthe platasca Sacc.*  
 D. *acerina Sacc.*  
 D. *Woolworthii Sacc.*  
 D. *leiphæma Sacc.*  
 D. *impulsa Sacc.*  
 D. *Cratægi Fekl.*  
 D. *bicincta Sacc.*  
 D. *oxyspora Sacc.*  
 D. *obscura Sacc.*
- Sphæria fimbriata Pers.*  
 S. *Coryli Batsch.*  
 S. *melanostyla Fr.*  
*Sphærella carpinea Fr.*  
*Depazea fraxinicola Curt.*  
 D. *brunnea B. & C.*  
*Sphæria minutella Pk.*  
 S. *ceanothina Pk.*  
 S. *fissurarum B. & C.*  
 S. *subcorticalis Pk.*  
 S. *Arceuthobii Pk.*  
 S. *squalidula C. & P.*  
*Melogramma Quercuum Fr.*  
*Valsa leptasca P. & C.*  
*Diatrype anomala Pk.*  
*Sphæria punctiformis Pers.*
- S. *Sarracenizæ Schw.*  
*Depazea smilacicolæ Schw.*  
*Dothidea Robertiana Fr.*  
*Sphæria Sphærellula Pk.*  
 S. *onosmodina P. & C.*  
 S. *recessa C. & P.*  
 S. *Papilla Schw.*  
 S. *moriformis Tode.*
- S. *gyrosa Schw.*  
*Valsa stilbestoma Fr.*  
 V. *thelebola Fr.*  
*Diatrype platasca Pk.*  
*Valsa acerina Pk.*  
 V. *Woolworthii Pk.*  
 V. *leiphæma Fr.*  
 V. *impulsa C. & P.*  
 V. *Cratægi Curr.*  
 V. *bicincta C. & P.*  
 V. *oxyspora Pk.*  
 V. *obscura Pk.*

- Diaporthe mucronata* Sacc.  
*D. salicella* Sacc.  
*D. spiculosa* Nitsch.  
*D. aculeata* Sacc.  
*D. racemula* Sacc.  
*D. Desmodii* Sacc.  
*D. exercitalis* Sacc.  
*D. picea* Sacc.  
*Didymosphæria Parnassiæ* Sacc.  
*Massariella bufonia* Spég.  
*Parodiella perisporioides* Spég.  
*Amphisphæria phileura* Sacc.  
*A. salebrosa* Sacc.  
*A. thujina* Sacc.  
*Otthia alnea* Sacc.  
*O. seriata* Sacc.  
*Valsaria Peckii* Sacc.  
*V. moroides* Sacc.  
*Massaria Corni* Sacc.  
*M. Argus* Tul.  
*M. vomitoria* B. & C.  
*Leptosphæria Doliolum* De Not.  
*L. subconica* Sacc.  
*L. viridella* Sacc.  
*L. ramulicola* Sacc.  
*L. scapophila* Sacc.  
*L. sorghophila* Sacc.  
*L. orthogramma* Sacc.  
*L. culmifraga* C. & D.  
*L. Crepini* De Not.  
*L. Marcyensis* Sacc.  
*L. taxicola* Sacc.  
*L. platanicola* Sacc.  
*Clypeosphæria Hendersoniæ* Sacc.  
*Chætosphæria leonina* Sacc.  
*C. phæostromoides* Sacc.  
*Melanomma pulvis-pyrius* Fekl.  
*Trematosphæria pertusa* Fekl.  
*Sporormia minima* Auersw.  
*Aglaospora profusa* Lamb.  
*Pseudovalsa bicornis* Sacc.  
*P. laucif.* v. *elliptica* Pk.  
*P. sambucina* Sacc.  
*P. hapalocystis* Sacc.  
*Melogramma vagans* De Not.  
*Metasphæria Semen* Sacc.  
*M. staphylina* Sacc.  
*Lasiosphæria hirsuta* C. & D.  
*L. cæsariata* Sacc.  
*L. viridicoma* Sacc.  
*L. canescens* Karst.  
*L. xestothele* Sacc.  
*Valsa mucronata* Pk.  
*Sphæria salicella* Fr.  
*S. spiculosa* Pers.  
*S. aculeata* Schw.  
*S. racemula* C. & P.  
*S. Desmodii* Pk.  
*S. exercitalis* Pk.  
*S. picea* Pers.  
*S. Parnassiæ* Pk.  
*Massaria bufonia* Tul.  
*Sphæria perisporioides* B. & C.  
*S. phileura* C. & P.  
*S. salebrosa* C. & P.  
*S. thujina* Pk.  
*Cucurbitaria alnea* Pk.  
*C. seriata* Pk.  
*Valsa Peckii* Howe.  
*Diatrype moroides* C. & P.  
*Massaria gigaspora* Desm.  
  
*Sphæria Doliolum* Pers.  
*S. subconica* C. & P.  
*S. viridella* Pk.  
*S. ramulicola* Pk.  
*S. scapophila* Pk.  
*S. sorghophila* Pk.  
*S. orthogramma* B. & C.  
*S. culmifraga* Desm.  
*S. Crepini* West. †  
*S. Marciensis* Pk.  
*S. taxicola* Pk.  
*S. platanicola* Howe.  
*S. Hendersoniæ* Ellis.  
*S. leonina* C. & P.  
*S. phæostromoides* Pk.  
*S. pulvis-pyrius* Pers.  
*S. pertusa* Pers.  
*S. minima* Auersw.  
*Valsa profusa* Fr.  
*Melanconis bicornis* Cke.  
*M. elliptica* Pk.  
*Valsa sambucina* Pk.  
*V. hapalocystis* B. & Br.  
*Melogramma Bulliardii* Tul.  
*Sphæria Semen* C. & P.  
*S. staphylina* Pk.  
*S. hirsuta* Fr.  
*S. cæsariata* C. & P.  
*S. viridicoma* C. & P.  
*S. canescens* Pers.  
*S. xestothele* B. & C.

Lasiosphæria Pezizula *Sacc.*  
 L. spermoides *C. & D.*  
 L. ovina *C. & D.*  
 Acanthostigma Clintonii *Sacc.*  
 Zignoella exigua *Sacc.*  
 Pleospora herbarum *Rabh.*  
 Pyrenophora phæocomes *Sacc.*  
 Iulella monosperma *Sacc.*  
 Teichospora obducens *Fckl.*  
 T. interstitialis *Sacc.*  
 T. phellogena *Sacc.*  
 Cucurbitaria elongata *Græv.*  
 C. Berberidis *Gray.*  
 Thyridium Spraguei *Sacc.*  
 Fenestella superficialis *Sacc.*  
 F. Xanthoxyli *Sacc.*  
 Ophiobolus fulgidus *Sacc.*  
 O. porphyrogonus *Sacc.*  
 O. acuminatus *Duby.*  
 O. Urticæ *Sacc.*  
 Sillia ferruginea *Karst.*  
 Cryptospora suffusa *Tul.*  
 C. femoralis *Sacc.*  
 C. cinctula *Sacc.*  
 C. trichospora *Sacc.*

Sphæria Pezizula *B. & C.*  
 S. spermoides *Hoffm.*  
 S. ovina *Pers.*  
 S. Clintonii *Pk.*  
 S. exigua *C. & P.*  
 S. herbarum *Pers.*  
  
 S. monosperma *Pk.*  
 S. obducens *Fr.*  
 S. interstitialis *C. & P.*  
 S. phellogena *B. & C.*  
 S. elongata *Fr.*  
  
 S. Spraguei *B. & C.*  
 Melogramma superficialis *P. & C.*  
 Valsa Xanthoxyli *Pk.*  
 Sphæria fulgida *C. & P.*  
 S. rubella *Pers.*  
 S. acuminata *Sow.*  
 S. Urticæ *Rabh.*  
 Diatrype ferruginea *Fr.*  
 Valsa suffusa *Fr.*  
 V. femoralis *Pk.*  
 V. cinctula *C. & P.*  
 V. trichospora *C. & P.*

### Hypocreaceæ.

Nectriella mycetophila *Sacc.*  
 Melanospora lagenaria *Fckl.*  
 Hypomyces lateritius *Tul.*  
 H. Lactifluorum *Tul.*  
 H. floccosus *Fr.*  
 H. ochraceus *Tul.*  
 H. aurantius *Fckl.*  
 H. Van Bruntianus *Ger.*  
 H. polyporinus *Pk.*  
 H. transformans *Pk.*  
 Hypocrea rufa *Fr.*  
 H. Patella *C. & P.*  
 H. chromosperma *C. & P.*  
 H. gelatinosa *Fr.*  
 H. contorta *Schw.*  
 H. Richardsoni *B. & M.*  
 H. citrina *Fr.*  
 H. alutacea *C. & D.*  
 H. apiculata *C. & P.*  
 Nectria Ribis *Rabh.*  
 N. cinnabarina *Fr.*  
 N. Celastri *Schw.*  
 N. cucurbitula *Fr.*  
 N. sanguinea *Fr.*

Nectria mycetophila *Pk.*  
 Sphæria lagenaria *Pers.*  
 Hypocrea lateritia *Fr.*  
 H. Lactifluorum *Schw.*  
 H. floccosa *Fr.*

Nectria episphæria *Fr.*  
 N. Peziza *Fr.*  
 N. Apocyni *Pk.*  
 Gibberella pulicaris *Sacc.*  
 G. Saubinetii *Sacc.*  
 Claviceps purpurea *Tul.*  
 Cordyceps pistillariæformis *B. & Br.*  
 C. superficialis *Sacc.*  
 C. ophioglossoides *Tul.*  
 C. capitata *Lk.*  
 C. entomorrhiza *Fr.*  
 C. militaris *Lk.*  
 Epichloe typhina *Tul.*  
 Hypocrella Hypoxylon *Sacc.*

Sphæria pulicaris *Pers.*  
 S. Saubinetii *Mont.*  
 Cordyceps purpurea *Tul.*  
 Torrubia clavulata *Schw.*  
 T. superficialis *Pk.*  
 T. ophioglossoides *Tul.*  
 T. capitata *Fr.*  
 T. entomorrhiza *Fr.*

Epichloe Hypoxylon *Pk.*

**Dothideaceæ.**

Phyllachora Ulmi *Fekl.*  
 P. Lespedezæ *Sacc.*  
 P. graminis *Fekl.*  
 P. Caricis *Sacc.*  
 P. Trifolii *Fekl.*  
 P. flabella *Thum.*  
 P. Pteridis *Fekl.*  
 P. Dalibardæ *Sacc.*  
 P. episphæria *Sacc.*  
 Dothidiella Kalmiæ *Sacc.*  
 D. Osmundæ *Sacc.*  
 Plowrightia ribesia *Sacc.*  
 P. morbosa *Sacc.*  
 Dothidea Sambuci *Fr.*  
 D. tetraspora *B. & Br.*  
 D. Linderæ *Ger.*  
 Ropographus filicinus *Fekl.*  
 R. clavisporus *Sacc.*

Sphæria ulmea *Schw.*  
 S. Lespedezæ *Schw.*  
 S. graminis *Pers.*  
 Dothidea Caricis *Fr.*  
 D. Trifolii *Fr.*  
 D. flabella *B. & C.*  
 D. Pteridis *Pers.*  
 D. Dalibardæ *Pk.*  
 D. episphæria *Pk.*  
 D. Kalmiæ *Pk.*  
 D. Osmundæ *P. & C.*  
 D. ribesia *Pers.*  
 Sphæria morbosa *Schw.*

Dothidea filicina *Fr.*  
 Hysterium clavisporum *C. & P.*

**Microthyriaceæ.**

Myiocopron Smilacis *Sacc.*

Microthyrium Smilacis *De Not.*

**Lophiostomaceæ.**

Lophiotrema Spirææ *Sacc.*  
 L. Scrophulariæ *Sacc.*  
 L. sexnucleatum *Sacc.*  
 Lophiostoma triseptatum *Pk.*  
 L. prominens *Pk.*  
 L. turritum *C. & P.*  
 L. magnatum *C. & P.*  
 L. macrostomum *De Not.*  
 L. scelestum *Sacc.*  
 Lophidium obtectum *Sacc.*

Lophiostomum Spirææ *Pk.*  
 L. Scrophulariæ *Pk.*  
 L. sexnucleata *Cke.*  
 L. obtectum *Pk.*



## Hysteriaceæ.

- Aulographum subconfluens *Pk.*  
 Glonium stellatum *Muhl.*  
 G. parvulum *Ger.*  
 G. simulans *Ger.*  
 G. hyalospermum *Ger.*  
 G. lineare *De Not.*  
 Angelina rufescens *Duby.*  
 Hysterium pulicare *Pers.*  
 H. angustatum *A. & S.*  
 H. truncatulum *C. & P.*  
 H. ellipticum *Fr.*  
 H. macrosporum *Pk.*  
 H. Thuiarum *C. & P.*  
 H. magnosporum *Ger.*  
 H. Azaleæ *Schw.*  
 H. rimirium *Schw.*  
 Mytilidium tortile *Sacc.*  
 Dichæna faginea *Fr.*  
 Gloniopsis australis *Sacc.*  
 Hysterographium Fraxini *De Not.*  
 H. insidens *Sacc.*  
 H. Roussellii *Sacc.*  
 H. variabile *Sacc.*  
 H. vulvatum *Rehm.*  
 Hypoderma ilicinum *De Not.*  
 H. nervisequum *DC.*  
 H. Desmazieri *Duby.*  
 H. lineare *Pk.*  
 H. virgultorum *DC.*  
 H. commune *Duby.*  
 H. scirpinum *DC.*  
 H. Smilacis *Rehm.*  
 Lophodermium exaridum *C. & P.*  
 L. maculare *De Not.*  
 L. hysteroioides *Sacc.*  
 L. sphærioides *Duby.*  
 L. Pinastri *Chev.*  
 L. typhinum *Lamb.*  
 Lophium mytilinum *Fr.*  
 Colpoma morbidum *Sacc.*  
 C. lacteum *Pk.*  
 Acrospermum compressum *Tode.*
- Hysterium lineare *Fr.*  
 Ascobolus conglomeratus *Schw.*
- Dothidea rimicola *Schw.*  
 Hysterium tortile *Schw.*
- H. australis *Duby.*  
 H. Fraxini *Pers.*  
 H. insidens *Schw.*  
 H. Roussellii *De Not.*  
 H. variabile *C. & P.*  
 H. vulvatum *Schw.*  
 H. ilicinum *De Not.*
- Rhytisma lineare *Pk.*
- Hysterium commune *Fr.*  
 H. scirpinum *Fr.*  
 H. Smilacis *Schw.*
- H. maculare *Fr.*  
 H. xyloides *Chev.*  
 H. sphærioides *A. & S.*  
 H. Pinastri *Schrad.*  
 H. typhinum *Fr.*
- Triblidium morbidum *Pk.*

## NEW YORK SPECIES OF VISCID BOLETI.

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### BOLETUS *Dill.*

Hymenium composed of separable tubes crowded into a porous stratum, without a trama; distinct and easily separable from the hymenophore. Mouths of the tubes either porous, round or angular; spores normally fusiform, rarely oval or subrotund. *Terrestrial, fleshy, putrescent, centrally stipitate fungi. Many of them valuable for their edible qualities, a few poisonous. Hym. Europ., p. 495.*

This genus is related to Paxillus on one hand and to Polyporus on the other. It is more accurately limited than many others, but its species are numerous and less clearly defined. Some are very variable, others are too closely allied to be readily distinguished. Fries remarks that "no genus has given me more trouble than that of the Boleti." The difficulty is apparently due to the imperfect descriptions given by some authors and to the variability of some species whose limits have not been well ascertained.

Most of the Boleti grow in the warmest part of the season, and especially in very warm showery weather. They are scarce in dry weather. Some species attain a very large size, others exhibit a singular change of color in their tubes or flesh when cut or bruised. They are described as terrestrial, yet a few species sometimes occur also on much decayed wood.

The spores vary in color in different species, but this variation occurs in closely related species, so that it is not deemed available for classifying in series as in the genus Agaricus. It is, however, valuable as a specific character and should always be noted. Fries has taken the primary color of the tubes as the distinguishing character of the series, but the same objection holds in this case as in the other.

New York is rich in species of this genus. Two sections, LACERPEDES Pk. (Torr. Bull. 1883, p. 73) and HIRTIPELLES Pk. (in. ed.) are represented, of which no examples appear to have occurred in Europe. We attempt here an exposition of the species of the Viscipelles, the first section in the Friesian arrangement.

VISCIPELLES. *Pileus covered with a viscosa pellicle.* Stem solid, neither bulbous nor reticulated with veins. Tubes adnate to the stem, rarely sinuate, of one color. *Hym. Europ.*, p. 496.

In this section the species have the pileus either viscid or glutinous when moist, and in most of them the viscid pellicle is separable from the flesh. The flesh, when cut or exposed to the air does not, with one exception, assume the bluish tints so often seen in some of the members of other sections, yet in some, dull-pinkish or more obscure tints appear. In mature plants it generally becomes soft, almost floccose or cottony in texture. The tubes are mostly adnate or even slightly decurrent. In rare instances they may be somewhat depressed around the stem. The pores are usually of medium or large size and frequently angular. The dissepiments are often uneven or dentate. The mouths are colored like the rest of the tubes. Yellow or ochraceous hues prevail, but the tubes when young are paler than when mature. The stem is not distinctly bulbous, is always solid and generally glabrous or merely dotted. It is annulate in some, naked in others. In several closely related central species of the group it, as well as the tubes, exudes, when young, drops of a thick, gummy fluid, which soon hardens, becomes darker and forms sugary granules or glandular dots. The color of the spores is by no means uniform, but it is some shade of ochraceous, ferruginous or brown. The first and last species here described are exceptional by their slight viscosity. The first is also exceptional by its universal tomentose-pulverulent veil. Several species are edible. Nearly all occur in regions inhabited by pine or other coniferous trees, and are wanting in localities destitute of these trees.

*Synopsis of the Species.*

Stem annulate.	1.
Stem not annulate.	6.
1 Cuticle of the pileus red.	2.
1 Cuticle of the pileus not red.	3.
2 Pileus either wholly or on the margin yellow-pulverulent.	B. Ravenelii.
2 Pileus squamose.	B. spectabilis.
3 Young tubes whitish.	B. Elbensis.
3 Young tubes yellow.	4.
4 Stem not dotted.	B. Clintonianus.
4 Stem dotted.	5.
5 Stem 5 lines or more thick, annulus not glutinous.	B. luteus.
5 Stem less than 5 lines thick, annulus glutinous.	B. subluteus.
6 Stem dotted.	7.
6 Stem not dotted.	9.

- |   |                |
|---|----------------|
| 7 Pileus yellow.                                  | 8.             |
| 7 Pileus not clear yellow.                        | B. granulatus. |
| 8 Stem rhubarb color.                             | B. punctipes.  |
| 8 Stem yellow, 4 lines or more thick.             | B. subaureus.  |
| 8 Stem generally yellow, less than 4 lines thick. | B. Americanus. |
| 9 Pileus bay-brown or chestnut color.             | 10.            |
| 9 Pileus some other color.                        | B. piperatus.  |
| 10 Pileus very glutinous, stem very short.        | B. brevipes.   |
| 10 Pileus merely viscid when moist, stem longer.  | B. badius.     |

**Boletus Ravenelii B. & C.**

Ravenel's Boletus.

Pileus convex or nearly plane, slightly viscid when young or moist, at first covered with a sulphur-yellow pulverulent tomentum, the disk at length naked, dull-red, flesh whitish, sometimes with yellowish strains; tubes at first plane, adnate, pale-yellow, at length yellowish-brown or umber, sometimes becoming convex and slightly depressed around the stem, dingy-greenish when bruised, medium size, subrotund; stem nearly equal, clothed and colored like the young pileus, yellow within, with a slight somewhat evanescent tomentose annulus; spores ochraceous-brown, .0004 to .0005 in. long, .0002 to .00025 broad.

Plant solitary, rarely cæspitose, pileus 1 to 3 in. broad, stem 1.5 to 4 in. long, 3 to 6 lines thick.

Woods and copses. Rensselaer, Saratoga and Fulton counties.

This is a very distinct and beautiful species. Mr. Ravenel remarks in his notes that "this plant is not infested by larvæ, and preserves more constant characters than any other Boletus with which I am acquainted." The webby powdered filaments constitute a universal veil, which at first covers the whole plant and conceals the young tubes. As the pileus expands, the veil generally disappears from the disk and ruptures between the margin and the stem, a part adhering to each. In consequence of the peculiar veil and the slight viscidness of the pileus the species does not harmonize well with the associated species, and but for the slight annulus it might as well be placed near *B. piperatus*. The annulus is sometimes stained by the spores. These, when caught on white paper, at first appear to have a slight greenish tint.

**Boletus spectabilis Pk.**

Showy Boletus.

Pileus broadly convex, at first covered with a red tomentum, then squamose, viscid when moist, red, the tomentose scales becoming grayish-red, brownish or yellowish, flesh whitish or pale-yellow; tubes

at first yellow, concealed by a reddish glutinous membrane, then ochraceous, convex, *large, angular*, adnate; stem nearly equal, annulate, yellow above the annulus, red or red with yellow stains below; spores *purplish-brown*, .0005 to .0006 in. long, .00025 to .00028 broad.

Pileus 2 to 5 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods in swamps. Adirondack mountains. August.

This rare and showy species is at present known only from two localities, North Elba, where it was first discovered in 1869, and at Jacksons, near Cedar river, where it occurred in 1878. When cut the flesh emits a strong, unpleasant odor. Wounds of the flesh, made by insects or small animals, had a bright-yellow color. When young, the tomentose veil covers the whole plant, but it soon breaks up into scales on the pileus, and partly or wholly disappears from the stem. The color of the spores is darker than in any of the other species of this section.

#### **Boletus Elbensis** *Pk.*

Elba Boletus.

Pileus gibbous or convex, smooth, viscid when moist, *dingy-gray* or *pinkish-gray*, obscurely virgate-spotted, flesh white; tubes at first *whitish*, nearly plane, adnate or slightly decurrent, rather large, angular, becoming dingy or brownish-ochraceous; stem nearly equal, annulate, *whitish above the annulus*, colored like the pileus below, sometimes slightly reticulated at the apex by the decurrent walls of the tubes; spores *ferruginous-brown*, .0004 to .0005 in. long, .00016 to .0002 broad.

Plant subgregarious, pileus 2 to 4 in. broad, stem 3 to 5 in. long, 4 to 6 lines thick.

Thin woods of larch, spruce and balsam. Adirondack mountains. July to September.

This species is so closely related to the European *B. laricinus*, that it might almost be regarded as a variety of that species. I have separated it because of its smooth pileus and stem. I have never seen the former squamose, nor the latter scrobiculate. From *B. viscidus* it differs decidedly in its coloration.

#### **Boletus Clintonianus** *Pk.*

Clinton's Boletus.

Pileus thick, convex, very viscid or glutinous, smooth, soft, shining, varying in color, *golden-yellow, reddish-yellow* or *chestnut-color*, the margin thin, flesh pale-yellow, becoming less bright or dingy on exposure to the air; tubes nearly plane, adnate or subdecurrent, small,

angular or subrotund, pale-yellow when young, becoming dingy-ochraceous, changing to purplish-brown where bruised; stem equal or slightly thickened at the base, straight or flexuous, annulate, *yellow at the apex*, elsewhere reddish or reddish-brown, sometimes stained with yellow, slightly reticulate at the apex by the decurrent walls of the tubes, annulus *whitish or yellow, persistent*, forming a thick tomentose band about the stem; spores *brownish-ochraceous*, .0004 to .00045 in. long, .00016 to .0002 broad.

Plant single or rarely cæspitose, pileus 2 to 5 in. broad, stem 2 to 5 in. long, 4 to 9 lines thick.

Mossy ground in woods and grassy ground in open places; generally under or near larch trees.

This fine species is apparently the American analogue of the European *B. elegans*, from which it differs in its generally darker color, in its persistent, not fugacious, annulus, and in its stem, which is not at all dotted, either above or below the annulus. It is edible, and has a mild taste in the fresh uncooked state. It has occurred once in Washington Park, Albany, near some larch trees, with which it was probably introduced.

#### **Boletus luteus L.**

Yellow-brown Boletus.

Pileus gibbous or convex, sometimes nearly plane, viscid or glutinous when moist, virgate-spotted, yellowish-brown, flesh white or yellowish; tubes small, simple, adnate, at first pale-yellow, then dingy-ochraceous; stem *stout*, rather short, annulate, *rough with dots and yellowish above the ring*, brownish-white or yellowish below, the annulus *large, membranous*, whitish or brownish-white; spores ochraceo-ferruginous, nearly fusiform, .0003 in. long, .00015 broad.

Gregarious or rarely subcæspitose, pileus 2 to 5 in. broad, stem 1 to 2 in. long, 5 to 8 lines thick.

Under pine trees, *Pinus sylvestris*. Menands. October.

This is the only instance in which I have observed this species in our State. Possibly it may have been introduced in this place with the young pines under which it was growing. Its annulus is very conspicuous. It is sometimes torn and partly adherent in fragments to the margin of the pileus. In short-stemmed specimens it extends downwards and covers the lower part of the stem like a sheath, resembling in this respect the western *Boletus sphaerosporus*, a related species. In other specimens it forms a broad band with the upper margin widely spreading. In the dried specimens the pileus has assumed a dull-brownish or reddish-brown hue. The plant is edible.

**Boletus subluteus** *n. sp.*

Small Yellowish Boletus.

Pileus convex or nearly plane, viscid or glutinous when moist, sometimes obscurely virgate-spotted, dingy-yellowish inclining to ferruginous-brown, flesh whitish varying to dull-yellowish; tubes plane or convex, adnate, small, subrotund, yellow, becoming ochraceous; stem equal, slender, annulate, pallid or yellowish, *marked both above and below the annulus with reddish or brownish glandular dots*, annulus submembranous, glutinous, at first concealing the tubes, then *collapsing and forming a narrow whitish or brownish band* about the stem; spores ochraceo-ferruginous, subfusiform, .0003 to .0004 in. long, .00016 to .0002 broad.

Solitary or gregarious, pileus 1.5 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Sandy soil in pine woods or groves. Albany and Lewis counties. September and October.

In the Twenty-third Report this fungus was referred as an aberrant form to *B. luteus*, which it much resembles in its general characters. But I find it so constant in its peculiar features that I am disposed to regard it as a distinct species. It differs from *B. luteus* in its smaller size, more slender stem and glutinous collapsing annulus. This never extends downwards so as to sheathe the lower part of the stem, but forms a narrow band with scarcely any spreading margin. Besides the stem is conspicuously dotted both above and below the annulus. The markings of the pileus in this species, *B. luteus* and *B. Ellbensis* are similar and resemble little patches of innate brownish fibrils. The species is probably edible, but I have not tested it.

**Boletus Americanus** *n. sp.*

American Boletus.

Pileus thin, convex or nearly plane, soft, very viscid or glutinous when moist, slightly tomentose on the margin when young, soon glabrous or slightly squamose on the margin, rarely wholly squamose-spotted from the drying of the gluten, pale-yellow, becoming dingy or less bright with age, sometimes vaguely dotted or streaked with bright-red, flesh pale-yellow, less clear or pinkish-gray on exposure to the air; tubes plane or convex, adnate, rather large, angular, pale-yellow, becoming sordid-ochraceous; stem slender, equal or slightly tapering upwards, firm, *not at all annulate*, yellow, sometimes pallid or brownish toward the base, marked with numerous brown or

reddish-brown glandular dots, yellow within; spores *ochraceo-feruginous*, oblong or subfusiform, .00035 to .00045 in. long, .00016 to .0002 broad.

Gregarious, pileus 1 to 3 in. broad, stem 1.5 to 2.5 in. long, 2 to 4 lines thick.

Under or near pine trees in woods and open places. Very common. July to October.

This is one of our most common species. It is generally associated with *B. granulatus*, from which it is easily distinguished by its thinner pileus, yellow color and more slender stem. As in that and other related species, the stem and tubes exude drops of a turbid milk or juice which hardens and forms the glandular dots seen on them. These are sometimes so numerous that they become confluent. By them and the viscosity of the pileus in this and allied species the fingers become stained in handling the fresh plants. The species is closely related to the European *B. flavidus*, to which our plant has commonly been referred by American mycologists, and under which name it stands in the Twenty-third Report. I am satisfied by more recent investigation that it should be kept distinct, inasmuch as it constantly differs in the character of the veil and the dots of the stem. In *B. flavidus* the stem is described as sprinkled with fugacious glandules above the merely viscous annulus. In *B. Americanus* the stem is dotted from top to base with persistent glandules, there is no appearance of an annulus on it and the veil is somewhat tomentose on the margin of the young pileus. The plant has a slight subacid odor which is perceptible even in the dried specimens. The mycelium is white.

### **Boletus subaureus Ph.**

Pale-golden Boletus.

Pileus convex, becoming nearly plane, soft, viscose, *pale-yellow or golden-yellow*, sometimes adorned with darker spots or small tufts of hairs, the margin in the young plant slightly grayish-tomentose, flesh pale-yellow; tubes small or medium size, somewhat angular, adnate or subdecurrent, pale-yellow, becoming dingy-ochraceous; stem equal, *stout*, glandular-dotted, *yellow without and within*; spores *ochraceous-brown*, oblong or subfusiform, .00035 to .0004 in. long, .00016 broad.

Plant gregarious or rarely caespitose, pileus 2 to 4 in. broad, stem 1.5 to 2.5 in. long, 4 to 6 lines thick.



Thin woods. Albany and Saratoga counties. July to October.

This species resembles *B. Americanus* in color, but differs from it in its thicker pileus, stouter stem and differently colored spores. These have nearly the same color as those of *B. Ravenelii*. In its more robust habit it approaches *B. granulatus*. The minute hairy squamules of the pileus are a peculiar feature, but they are not always present. The glandular dots occur also on the tubes.

**Boletus punctipes** *Pk.*

Punctate-stemmed Boletus.

Pileus convex or nearly plane, glutinous when moist, yellow, the thin margin at first minutely grayish-pulverulent, becoming recurved with age; tubes short, nearly plane, adnate, small, subrotund, at first brownish, becoming sordid-ochraceous; stem rather long; tapering upwards, not annulate, glandular-dotted, rhubarb-yellow; spores .00035 to .0004 in. long, .00016 to .0002 broad.

Plant gregarious, pileus 2 to 3 in. broad, stem 2 to 3 in. long, 3 to 5 lines thick.

Woods. Gansevoort, Saratoga county. August.

The rhubarb-colored stem and the brownish color of the young hymenium are the distinguishing features of this species. The granulations occur also on the tubes. The species is a rare one, having been found but once.

**Boletus albus** *Pk.*

White Boletus.

Pileus convex, viscid when moist, white, flesh white or yellowish; tubes plane, rather small or medium size, subrotund, adnate, whitish, becoming yellow or ochraceous; stem equal or slightly tapering downwards, not annulate, both it and the tubes glandular-dotted, white, sometimes tinged with pink towards the base; spores ochraceous, subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious or subcæspitose, pileus 1.5 to 3 in. broad, stem 1.5 to 3 in. long, 3 to 5 lines thick.

Pine or hemlock woods. Saratoga county and Adirondack mountains. August to October.

This species is easily known by its white pileus. This, however, becomes dark-colored or brown in drying. The fresh plant sometimes has a peculiar fetid odor, but it does not appear to be constant. *Boletus Boudieri* Q. is a closely related European species. Another European species bears the name *Boletus albus* Gillet, but the name of the American plant, which was published in 1873, has priority.

**Boletus granulatus L.**

Granulated Boletus.

Pileus thick, convex or nearly plane, very viscid or glutinous when moist, variable in color, *pinkish-gray, reddish-brown, yellowish, tawny-ferruginous or brownish*, flesh white or tinged with yellow; tubes nearly plane, adnate, *small*, at first whitish or very pale-yellow, becoming dingy-ochraceous; stem subequal, rather short, not annulate, both it and the tubes marked with glandular dots, whitish or pallid, sometimes yellowish; spores *ochraceo-ferruginous*, subfusiform, .0003 to .00035 in. long, .00016 broad.

Plant gregarious, pileus 1.5 to 3 in. broad, stem 1 to 2 in. long, 4 to 6 lines thick.

Woods, especially of pine, and in open places. Very common. July to October.

The pileus in this species is very variable in color, but it is never wholly white as in the preceding species. Its stem is often dotted to the base, but the dots or granules are generally more numerous and distinct on the upper part. This and *B. Boudieri* appear to be the only European species with exannulate glandular-dotted stems. If we have correctly valued our forms, New York alone has five such species. It is true, they are closely related to each other, and might be regarded by some as mere varieties of a single extremely variable species, but to me the distinguishing characters here given appear to be constant and decisive.

*B. granulatus* is recorded as edible by most authors. I have not tested it. Gillet remarks that it ought to be regarded at least with suspicion. *B. collinitus* in the Twenty-third Report, *B. flavorufus* Schæff., *B. lactifluus* Sow. and *B. circinans* Pers. are synonyms.

**Boletus brevipes Pk.**

Short-Stemmed Boletus.

Pileus thick, convex, covered with a *thick, tough gluten* when young or moist, *dark-chestnut color*, sometimes fading to dingy-tawny, the margin inflexed, flesh white or tinged with yellow; tubes short, nearly plane, adnate, small, subrotund, at first whitish, then yellowish, becoming dingy-ochraceous; stem *very short*, not annulate, whitish, *not dotted or rarely with a few very minute and inconspicuous dots at the apex*; spores subfusiform, .0003 in. long, .00012 broad.

Solitary or gregarious, pileus 1.5 to 2.5 in. broad, stem .5 to 1 in. long, 3 to 5 lines thick.

Sandy soil in pine woods. Albany county. October.

The species is closely related to *B. granulatus*, from which it differs especially in its copious gluten, darker-colored pileus, shorter stem, and in the almost entire absence of granules from the tubes and stem. When present they are limited to the upper part of the stem and are extremely minute and inconspicuous. It occurs very late in the season. *B. viscosus* Frost is a synonym.

**Boletus badius** Fr.

Bay Boletus.

Pileus convex, even, soft, viscid or glutinous when moist, somewhat shining when dry, *tawny or chestnut color*, flesh whitish tinged with yellow, bluish next the tubes; tubes rather long and large, angular, adnate, *sinuate-depressed*, whitish-yellow, becoming tinged with green; stem nearly equal, rather long, even, paler than the pileus, *brownish-pruinose*; spores oblong, .0004 to .0005 in. long, .00016 to .0002 broad.

Pileus 2 to 3 in. broad, stem 2 to 4 in. long, 3 to 5 lines thick.

Woods. Rensselaer and Lewis counties. August and September.

The dimensions of the spores are derived from the American plant. They are smaller than those given by Karsten for the European plant. We have observed no greenish hue to the tubes nor bluish color to the flesh, and to this extent our specimens are doubtful. The plant needs further examination.

**Boletus piperatus** Bull.

Peppery Boletus.

Pileus convex or nearly plane, smooth, *slightly viscid* when moist, *yellowish, cinnamon or subferruginous*, flesh white or yellowish, *taste acrid*, peppery; tubes rather long and large, angular, plane or convex, adnate or subdecurrent, *reddish-ferruginous*, generally more highly colored than the pileus; stem slender, nearly equal, *tawny-yellow, bright-yellow at the base*; spores *ferruginous-brown*, subfusiform, .00035 to .00045 in. long, .00016 broad.

Pileus 1 to 3 in. broad, stem 1.5 to 3 in. long, 2 to 4 lines thick.

Woods and open places. Common and variable. July to October.

The species is readily known by the peppery taste of the flesh, and the bright yellow color of the base of the stem. The pileus is sometimes rimose-scaly or rimose-areolate. It is less viscid than most other species of this section. The color of the spores is similar to that of the spores of *B. Elbensis*. *B. ferruginatus* Batsch. is a synonym.

## EXPLANATION OF PLATE 1.

### ***Ombrophila rubella* Quel.**

- Fig. 1. Fragment of bark bearing the fungus.  
Fig. 2. A plant and its matrix magnified.  
Fig. 3. A branched filament bearing four clusters of spores magnified.  
Fig. 4. Five spores,  $\times 400$ .

### ***Geoglossum vitellinum* Bres.**

- Fig. 5. Five plants of various forms.  
Fig. 6. Three asci; two containing spores and two united below.  
Fig. 7. Four spores,  $\times 400$ .

### ***Periconia albiceps* Pk.**

- Fig. 8. Piece of a stem bearing the fungus.  
Fig. 9. Two plants magnified.  
Fig. 10. Filaments of the head; two of them bearing spores,  $\times 400$ .  
Fig. 11. Four spores,  $\times 400$ .

### ***Helotium fraternum* Pk**

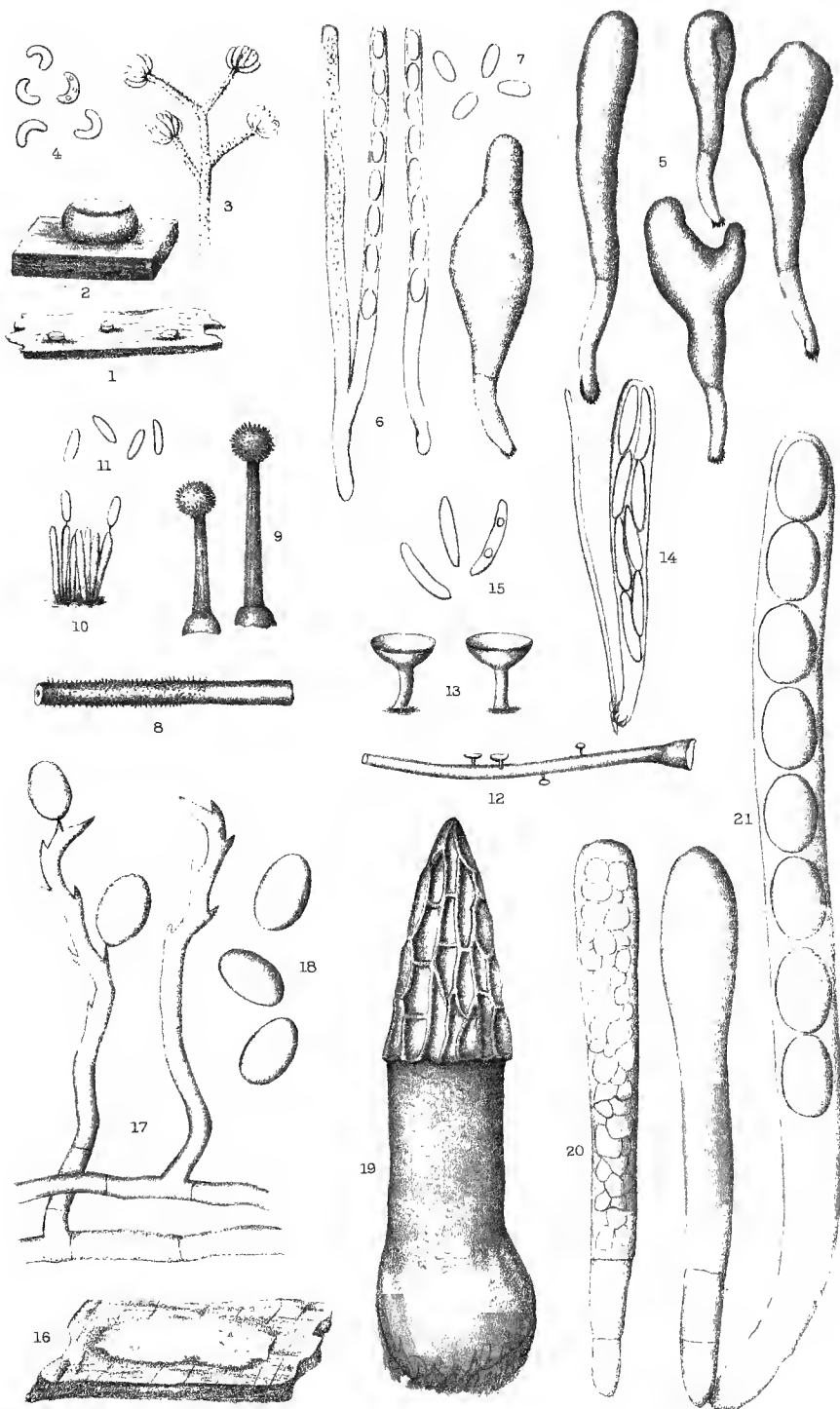
- Fig. 12. A petiole bearing four examples of the fungus.  
Fig. 13. Two plants magnified.  
Fig. 14. A paraphysis and an ascus containing spores,  $\times 400$ .  
Fig. 15. Three spores,  $\times 400$ .

### ***Acremonium flexuosum* Pk.**

- Fig. 16. A piece of wood bearing the fungus.  
Fig. 17. Branching filaments; one of them bearing two spores,  $\times 400$ .  
Fig. 18. Three spores,  $\times 400$ .

### ***Morchella angusticeps* Pk.**

- Fig. 19. A plant of medium size.  
Fig. 20. Two undeveloped asci; one containing crowded nuclei,  $\times 400$ .  
Fig. 21. An ascus containing spores,  $\times 400$ .



## EXPLANATION OF PLATE 2.

### ***Peziza leucobasis* Pk.**

- Fig. 1. A piece of wood bearing the fungus.
- Fig. 2. A plant magnified.
- Fig. 3. A paraphysis and an ascus containing spores,  $\times 400$ .

### ***Peziza orbicularis* Pk.**

- Fig. 4. A plant and its matrix.
- Fig. 5. A paraphysis and an ascus containing spores,  $\times 400$ .
- Fig. 6. Three spores,  $\times 400$ .

### ***Gorgoniceps turbinata* Sacc.**

- Fig. 7. Piece of a branch bearing the fungus.
- Fig. 8. A plant magnified.
- Fig. 9. A paraphysis and an ascus containing spores,  $\times 400$ .
- Fig. 9'. A spore,  $\times 400$ .

### ***Glomerularia Corni* Pk.**

- Fig. 10. A leaf spotted by the fungus.
- Fig. 11. Short branching flocci,  $\times 400$ .
- Fig. 12. Flocci and spores,  $\times 400$ .
- Fig. 13. A mass of adhering spores,  $\times 400$ .
- Fig. 14. A single spore,  $\times 400$ .

### ***Peziza longipila* Pk.**

- Fig. 15. Piece of a stem bearing the fungus.
- Fig. 16. Two plants magnified.
- Fig. 17. A hair from the cup,  $\times 400$ .
- Fig. 18. A paraphysis and two asci containing spores,  $\times 400$ .
- Fig. 19. Five spores,  $\times 400$ .

### ***Boletus rubinellus* Pk.**

- Fig. 20. A plant of medium size.
- Fig. 21. Vertical section of a pileus and upper part of the stem.
- Fig. 22. Four spores,  $\times 400$ .

### ***Collybia hygrophoroides* Pk.**

- Fig. 23. A young plant.
- Fig. 24. An older plant with the pileus more expanded.
- Fig. 25. Vertical section of a pileus and upper part of the stem.
- Fig. 26. Five spores,  $\times 400$ .

