THE THELEPHORACEÆ OF NORTH AMERICA III[1]

CRATERELLUS BOREALIS AND CYPHELLA

EDWARD ANGUS BURT

Mycologist and Librarian to the Missouri Botanical Garden
Associate Professor in the Henry Shaw School of Botany of
Washington University

Since the publication of Part II, on *Craterellus*, Dr. Farlow has very kindly called my attention to, and permitted me to study, a specimen of a rare species from Labrador which was not included in my account of our North American species. This species is now described here so as to bring its description and illustration continuous with those of our other species of *Craterellus*.

The following is suggested for insertion in "Key to the Species," on page 328 (Ann. Mo. Bot. Gard. 1: 328. 1914).

6. Pileus membranaceous, infundibuliform, pale buff; hymenium pale buff; spores 5–7 x 4–5½ μ; from Labrador. See page 357 (Ann. Mo. Bot. Gard. 1: 357. 1914) ..... *C. borealis*

Craterellus borealis Burt, n. sp. Plate 19. fig. 1.

Type: in Farlow Herb.

Fructifications solitary, small; pileus infundibuliform, tapering uniformly to the stem, glabrous, drying between cartridge buff and cream-buff, the margin entire; stem nearly equal,

NOTE.—Explanation in regard to the citation of specimens studied is given in Part I, Ann. Mo. Bot. Gard. 1: 202. 1914, footnote. The technical color terms used in this work are those of Ridgway, Color Standards and Nomenclature. Washington, D. C., 1912.

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slender, minutely downy, pale mouse-gray; hymenium colored like the pileus, remotely ribbed, with the ribs radiating from the stem, thin, branching; spores colorless, even, 5–7 x 4–5½ μ.

Fructification 2 cm. high; pileus 1 cm. broad, 13 mm. long; stem 7 mm. long, ½ mm. thick, enlarging to 1 mm. where joining the pileus.

In moss. Labrador. August 8, 1908.

The above description is based on the single dried specimen collected by the Bryant Labrador Expedition. The small size, regular obconic form, and very pale color of the membranaceous pileus and the slender stem are characters making *C. borealis* clearly distinct from other species of *Craterellus*.

Specimens examined:

Labrador: Gready Harbor, Gready Island, *Owen Bryant*, type (in Farlow Herb.)

CYPHELLA

Cyphella Fries, Syst. Myc. **2**: 201. 1823.

Fructifications somewhat membranaceous, cup-shaped, rarely plane, adnate behind, commonly extended in stem-like form, pendulous; hymenium typically concave or disk-shaped, definitely inferior in the pendulous species, even or at length rugulose; basidia typically four-spored; spores subovate or globose, hyaline, rarely colored.

C. digitalis Fries is the type species of this genus.

The fructifications of all our North American species are comparatively small, ranging in diameter from a fraction of a millimeter for some species to five to fifteen millimeters for those of the largest species. The fructifications are produced on the bark of small rotting twigs on the ground and on dead herbage, and can only be distinguished from small *Peziza* by demonstrating basidia rather than asci in the hymenium. This demonstration is simply made by crushing under a cover glass a portion of a fructification in water containing a little seven per cent solution of potassium hydrate, and then examining the preparation with the compound microscope. The basidia are usually four-spored; in a few species I have as yet been able to detect only two-spored basidia.

Cyphella is closely related to *Solenia* by such species as *C. fasciculata* and *C. mellea*, but is separated from it in such cases

by the absence of a hyphal subiculum over the area on which the fructifications are distributed, and by the less cylindric form of fructifications of *Cyphella*. *Cyphella* is allied to *Merulius* by *C. muscigena* and also to *Craterellus* by this species, specimens of which were described as a *Craterellus*.

A few species of *Cyphella* are common and widely distributed, but most of our North American species are apparently extremely local and are known only from their respective type collections. The lack of specimens available for carrying about to compare with types has been a serious disadvantage in my study of this genus. Basidia and basidiospores have not as yet been found for some species which, although originally referred to *Cyphella*, have to be regarded as even doubtful *Basidiomycetes*. I have supplemented the original descriptions with measurements of dried fructifications and with such data in regard to basidia and spores as the specimens afford. In the case of very scanty types, the few fructifications are too precious for gross comparison to be used for microscopic study. For such species, it seems to me that the descriptions should stand on the original data, without prejudice, until new collections become available. Such imperfectly known and partially described species are grouped together under the heading "Species Imperfectly Known." *Cyphella convoluta* Cke., *C. Cupressi* (Schw.) Fries and *C. subcyanea* Ell. & Ev. are excluded species.

Key to the Species

Fructifications sulphur-colored; hymenium even; spores 4½x2½–3 μ *1. C. sulphurea*
Fructifications sulphur-colored; hymenium minutely pitted; spores 6–8 x 3–4 μ ..... *2. C. lata*
Fructifications white or whitish; on mosses 1
Fructifications white; not on mosses 2
Fructifications neither white nor sulphur-colored 3
1. Fructifications helmet-shaped; hymenium slightly wrinkled; spores 10 x 8 μ ..... *3. C. galeata*
1. Fructifications flattened, irregular in form, sometimes stipitate; spores 3–5 x 2–3 μ ..... *4. C. muscigena*
1. Fructifications seated upon or developing from webby strings of mycelium *5. C. arachnoidea*
2. Fructifications villose, not easily crushed, with a firm base or a short stem; spores 12–18 x 6–6½ μ ..... *6. C. Tiliæ*
2. Fructifications villose, easily crushed, sessile; spores 10–12 x 5–7 μ *7. C. villosa*
2. Fructifications whitish, minutely webby-hairy, easily crushed, sessile; spores 8–13 x 4 μ ..... *8. C. caricina*

2. Fructifications glabrous, with an oblique stem; spores 4½–6 x 3–3½ μ *9. C. capula*
2. Fructifications villose, snow-white, sessile, very minute and delicate; spores 5–6 x 4–4½ μ; from New England ..... *10. C. minutissima*
2. Compare with *C. cinereo-fusca*, *C. Palmarum*, *C. Peckii*, *C. perexigua*, *C. pezizoides* and *C. trachychæta* of "Species Imperfectly Known."
3. Fructifications wholly pale ivory-yellow, downy-pubescent, cup-shaped, sessile; spores 4–7 x 3–4 μ ..... *11. C. Langloisii*
3. Fructifications wholly cream-color, not hairy, helmet-shaped, sessile, resupinate-reflexed; hymenium wrinkled; spores 7½ x 4½ μ; on prickle-bearing stems, Jamaica ..... *12. C. porrigens*
3. Fructifications mineral-gray, tomentose, cup-shaped, sessile; hymenium fuscous; spores angular, 4½–6 x 4½ μ; on *Juniperus* ..... *13. C. cupulæformis*
3. Fructifications wholly gray-pallid, flocculose, sessile; spores 4 x 3 μ ..... *14. C. griseo-pallida*
3. Fructifications externally cinereous, farinaceous, flattened, sessile; hymenium convex, brown; spores 8 x 3½ μ; on *Alnus* ..... *15. C. subgelatinosa*
3. Fructifications darker colored than the above 4
4. Fructifications vinaceous-buff, hairy, sessile, ½ mm. broad; spores 10–12 x 6–8 μ; on bark of *Carya* ..... *16. C. Ravenelii*
4. Fructifications drying Isabella-color, hairy, sessile, 1–1½ mm. broad; spores 13 x 8 μ; on *Quercus* ..... *17. C. texensis*
4. Fructifications Isabella-color, hairy, sessile, ⅓–½ mm. broad; some spores colored, 5–6 x 4–4½ μ; on *Salix* ..... *18. C. mellea*
4. Fructifications tawny-olive, tomentose, stipitate; often cespitose; spores 7–9 x 2–2½ μ; usually on *Alnus* ..... *19. C. fasciculata*
4. Fructifications fuscous when moist, drying mouse-gray, cespitose and sessile on a common short trunk, glabrous, structure gelatinous *20. C. conglobata*
4. Fructifications sepia or olive-brown, cup-shaped, probably glabrous, sessile or with a very short stem; spores 6–8 x 3½–4 μ; on rotting leaves of *Gladiolus* ..... *21. C. fumosa*
4. Compare *C. Bananæ*, *C. filicicola* and *C. musæcola* in "Species Imperfectly Known."

1. **C. sulphurea** Batsch ex Fries, Hym. Eur. 665. 1874.

Peziza sulphurea Batsch, Elenchus Fung. Contin. 1: 209. *pl. 27. f. 146.* 1786.—*P. campanula* Nees, System d. Pilze 268. *f. 295.* 1816.—*Cyphella sulphurea* Batsch, in Patouillard, Tab. Anal. Fung. 114. *f. 256.* 1883; Peck, Rep. N. Y. State Mus. 31: 38. 1879.

Illustrations: Batsch, Elenchus Fung. Contin. *pl. 27. f. 146.* —Nees, System d. Pilze *f. 295.*—Patouillard, Tab. Anal. Fung. *f. 256.*—Oudemans, Ned. Kruidk. Archief III. 2: *pl. 3. f. 1–5.*

Fructifications scattered or gregarious, membranaceous, broadly campanulate, somewhat irregular, extended into a short stem, even, glabrous, sulphur-yellow, the margin somewhat repand; hymenium even; basidia cylindric, 16 x 4½ μ, 4-spored;

spores colorless, even, broadly ovoid, somewhat flattened on one side, $4\frac{1}{2}$ x $2\frac{1}{2}$–3 μ.

Fructifications about 2–3 mm. high; pileus 1–2 mm. broad; stem 1 mm. long, $\frac{1}{4}$ mm. thick.

On living stems of herbs in damp places. New York. September. Rare.

The minimum dimensions given above for the fructifications are about those of European specimens of this species as figured; the American specimens run rather larger in Peck's collection. Peck noted that some of his specimens were white when collected, but that they dried yellow like the others of the collection. In other respects our American specimens agree closely with the figures and description of European specimens. Oudemans gives the spore dimensions as 10–12 x 4–5 μ, but Patouillard gives them as they are in American specimens.

Specimens examined:

New York: Griffins, Delaware Co., *C. H. Peck* (in Coll. N. Y. State).

2. C. læta Fries, Epicr. 568. 1836–1838.

Illustrations: Patouillard, Tab. Anal. Fung. *f. 362.*

Fructifications membranaceous, obliquely cup-shaped, extended at the vertex into a stem, pendulous, entire, everywhere glabrous and sulphur-colored; stem straight or somewhat flexuous, hymenium minutely pitted; spores colorless, even, 6–8 x 3–4 μ, borne four to a basidium.

Fructifications 3–5 mm. high, 2–4 mm. broad; stem 1–2 mm. long, about $\frac{1}{2}$ mm. thick.

On dead stems of large herbs lying on the ground. New York. August.

Fries described the fructifications as 6–8 mm. broad; the dimensions given above are those of Patouillard's figures and of the specimens collected by Peck. Patouillard notes that the specimens blacken when old; Peck states, "The beautiful sulphur-color is lost in drying." The pitted surface of the hymenium is a noteworthy character of *C. læta* and this and the larger spores of *C. læta* distinguish it from *C. sulphurea.*

Specimens examined:

New York: East Berne, *C. H. Peck* (in Coll. N. Y. State).

3. **C. galeata** Schum. ex Fries, Epicr. 567. 1836–1838.

Plate 19. fig. 2.

Merulius galeatus Schum. Plant. Sællandiæ **2**: 371. 1803.—*Cantharellus galeatus* Fries, Syst. Myc. **1**: 524. 1821; Flor. Dan. **12**: fasc. 34. 11. *pl. 2027. f. 1.* 1830.

Illustrations: Flor. Dan. *pl. 2027. f. 1.*

Fructifications membranaceous-soft, somewhat sessile, obversely cup-shaped and then dimidiate, helmet-shaped, even, whitish, the margin entire; hymenium at length rufescent, slightly wrinkled; spores ovate or obovate, 10 x 8 μ.

Fructifications 4–15 mm. in diameter.

On mosses. Ohio.

When young entire, cup-shaped; gray when moist, snow-white when dry, then rufescent. The above description is that given in European works. The species has been reported from Ohio by Morgan but I have not studied his specimens nor any European specimens of this species. The form and coloration of the pileus and the large spores should distinguish *C. galeata* from the other species which occur on mosses in North America.

4. **C. muscigena** Pers. ex Fries, Epicr. 567. 1836–1838.

Plate 19. fig. 3.

Thelephora muscigena Pers. Syn. Fung. 572. 1801; Fries, Syst. Myc. **1**:524. 1821.—*T. vulgaris* α *candida* Pers. Myc. Eur. **1**:115. *pl. 7. f. 6.* 1822.—*Cantharellus lævis* Fries, Syst. Myc. **1**:524. 1821; Elenchus Fung. 55. 1828.—*Craterellus Pogonati* Peck, Bull. Torr. Bot. Club **33**: 218. 1906.

Illustrations: Persoon, Myc. Eur. **1**: *pl. 7. f. 6.*—Patouillard, Tab. Anal. Fung. *f. 465.*—Oudemans, Ned. Kruidk. Archief III. **2**: *pl. 11. f. 2.*

Pileus membranaceous-soft, sessile, stipitate or attached by upper surface, irregular, flattened, white, externally minutely tomentulose or silky under a lens; stem when present lateral or eccentric, slender, white; hymenium even or sometimes rugulose, drying pinkish buff; spores white in collection on slide, even, apiculate at base, flattened on one side, $4\frac{1}{2}$–5 x $2\frac{1}{2}$–3 μ but only 3–$4\frac{1}{2}$ x 2–3 μ in preparations of the hymenium, borne four to a basidium.

Pileus 2–6 mm. in diameter; stem when present 3–5 mm. long, $\frac{1}{2}$ mm. thick.

On *Polytrichum* and other mosses. New England and New York. August and September.

The fructifications are very variable in form and they are attached in various ways to the moss plants; they may be somewhat incrusting but at some distance above the ground. The substance of the pileus is very soft and its upper surface is somewhat bibulous and shows its interwoven fibers under a lens. The spores of this species are given in Saccardo's 'Sylloge' as 8–10 x 5 μ, but the European specimens of exsiccati cited below have small spores of the dimensions which I give for American specimens, and Bresadola, Ann. Myc. 1: 111. 1903, gives the spore dimensions as 3–4 x 3 μ. The specimens of *C. Pogonati* were described as sterile by Peck; I find them to be rather immature but bearing spores 3 x 2 μ.

Specimens examined:

Exsiccati: Karsten, Fung. Fenn., 441; Krieger, Fung. Sax., 1564.
Finland: *Karsten* (in Herb. Fries), and Fung. Fenn., 441.
Germany: Saxony, *W. Krieger*, Krieger, Fung. Sax., 1564.
Vermont: near Falls of Lana, Salisbury, *E. A. Burt.*
Connecticut: South Windsor, *C. C. Hanmer, 1956*, the type collection of *Craterellus Pogonati* Pk.
New York: Floodwood, *E. A. Burt.*

5. C. arachnoidea Peck, Rep. N. Y. State Mus. 44: 134 (22). 1891.

Type: in Collection New York State.

Fructifications membranaceous, very thin, tender, white, externally downy, irregularly cup-shaped; hymenium somewhat uneven in large specimens; spores colorless, even, somewhat flattened on one side, 4–5 x 3½–4 μ, borne at least two to a basidium.

Fructifications 2–4 mm. in diameter.

On bark and mosses. Vermont and New York. September.

The cups are seated upon or developing from fine, white, loosely branching, webby strings of mycelium. This is a marked character in the type and is the chief character for separating this species from *C. muscigena*. The spores are slightly more globose than in the latter and it may be that the hymenium of *C. arachnoidea* is superior; in *C. muscigena* it is inferior. The hyphæ are about 2 μ in diameter in each species.

Specimens examined:

Vermont: South Lincoln Notch, near Middlebury, *E. A. Burt.*

New York: Carrollton, *C. H. Peck*, type (in Coll. N. Y. State).

6. C. Tiliæ Peck ex Cooke, Grevillea **20**: 9. 1891.

Plate 19. fig. 16.

Peziza Tiliæ Peck, Rep. N. Y. State Mus. **24**: 96. 1872.—*Trichopeziza Tiliæ* (Peck) Sacc. Syll. Fung. **8**: 428. 1889; Seaver, Proc. Iowa Acad. Sci. **12**: 116. 1905; Mycologia **1**: 110. 1909.

Type: in Collection New York State and a portion from it in Kew Herbarium.

Fructifications gregarious, rather fleshy, minute, sessile or nearly so but with firm base, white, globose, then expanded and concave, drying cup-shaped, densely white villose; hairs straight, cylindric, granular incrusted, 200 x 6 μ; hymenium concave, even, ivory-yellow to vinaceous buff; spores white in a collection on a slide, simple, even, ovate, somewhat curved, 12–18 x 6–6½ μ, borne four to a basidium.

Fructifications ½–1 mm. high, ⅓–1 mm. broad; stem, when present, about one-half the height of the whole fructification.

On bark of dead branches of *Tilia Americana* and *Ulmus* on the ground. Canada and Vermont westward to Missouri. March to October. Probably common.

C. Tiliæ has somewhat the habit of *C. albo-violascens* but differs from the latter in having no violaceous tints, in being more hairy, in having slenderer spores, and in having at the base a very firm tubercle which offers considerable resistance when the fructification is crushed under a cover glass or sectioned. While not cespitose the fructifications of *C. Tiliæ* are often so near together that seven or eight have been counted on an area a centimeter square. I refer to *C. Tiliæ* many American specimens which have been distributed under the name *C. pezizoides* Zopf. The European specimens which Sydow has distributed under the latter name seem to me from the studies and comparisons which I made in Kew Herbarium to be *C. Curreyi* B. & Br. rather than *C. Tiliæ*.

Specimens examined:

Exsiccati: Shear, N. Y. Fungi, 55; Ell. & Ev., N. Am. Fungi, 2316a, under the name *C. pezizoides;* Ell. & Ev., Fung.

Col., 5, under the name *C. pezizoides;* Rabenhorst, Fung. Eur., 3942, under the name *C. pezizoides.*

Quebec: Hull, *J. Macoun, 672.*

Ontario: Ottawa, *J. Macoun, 318, 430;* London, *J. Dearness,* Ell. & Ev., N. Am. Fungi, 2316a, and Fung. Col., 5.

Vermont: Middlebury, *C. O. Smith,* and also *E. A. Burt.*

New York: Knowersville (Altamont), *C. H. Peck,* type (portion in Kew Herb.); Alcove, *C. L. Shear,* Shear, N. Y. Fungi, 55.

Ohio: Oberlin, *F. D. Kelsey* (in Mo. Bot. Gard. Herb., 4942).

Michigan: Agricultural College, *G. H. Hicks,* comm. by W. G. Farlow, 6 (in Mo. Bot. Gard. Herb., 43807).

Wisconsin: Blue Mounds, *I. E. Melhus,* comm. by C. J. Humphrey, 2410 (in Mo. Bot. Gard. Herb.).

Missouri: *C. H. Demetrio,* Rabenhorst, Fung. Eur., 3942.

7. C. villosa Pers. ex Karsten, (Mycol. Fenn. 3) Bidrag Finska Vet.-Soc. **25**: 325. 1876. Plate 19. fig. 13.

Peziza villosa Pers. Syn. Fung. 655. 1801; Fries, Syst. Myc. **2**: 104, pr. p. 1823.—An *Cyphella pezizoides* Zopf, in Morgan, (Myc. Fl. Miami Val.) Jour. Cincinnati Soc. Nat. Hist. **10**: 202. 1888?

Illustrations: Patouillard, Tab. Anal. Fung. *f. 257.*

Fructifications gregarious, membranaceous, sessile, drying globose or obconic and with the pore nearly closed by the hairs, white, externally white-villose; the hairs granular incrusted, cylindric, 200 x 5–6 μ; hymenium even, concave; spores hyaline, even, ovoid, flattened on one side, broadest near the base, 10–12 x 5–7 μ.

Fructifications about $\frac{1}{5}$ mm. high, $\frac{1}{5}$–$\frac{1}{4}$ mm. broad.

On dead stems of *Artemisia, Helianthus,* and *Solidago.* South Carolina, Missouri and California. June and July.

The fructifications of *C. villosa* resemble those of *C. Tiliæ* in form, color, and hairiness but are much smaller than those of *C. Tiliæ,* more membranaceous and easily crushed under a cover glass, and have smaller spores. The hymenium is very pale with not more than a very slight yellowish tint.

Specimens examined:

Exsiccati: Krieger, Fung. Sax., 1457; Ravenel, Fung. Am., 459; Ell. & Ev., N. Am. Fungi, 2316b, under the name *Cyphella pezizoides* Zopf.

South Carolina: Aiken, *Ravenel*, Ravenel, Fung. Am., 459.

Missouri: Emma, *C. H. Demetrio*, Ell. & Ev., N. Am. Fungi, 2316b.

California: Half-moon Bay, San Mateo Co., *E. B. Copeland*, Baker, Pacific Coast Fungi, 3611 (in Mo. Bot. Gard. Herb., 4944).

8. **C. caricina** Peck, Rep. N. Y. State Mus. **33**: 22. 1880. Plate 19. fig. 8.

Type: in Collection New York State.

Fructifications scattered, membranaceous, sessile, wholly white, externally minutely webby-hairy; hymenium glabrous, uneven in large specimens; basidia cylindric, 20 x 5 μ, 4-spored; spores colorless, even, lanceolate or subclavate, pointed at base, 8–13 x 4 μ.

Fructifications 1–2 mm. broad.

On culms and leaves of carices. New York. August.

The spores of the type are noteworthy by their tapering base.

Specimens examined:

New York: Verona, *C. H. Peck*, type (in Coll. N. Y. State).

9. **C. capula** Holmsk. ex Fries, Epicr. 568. 1836–1838. Plate 19. fig. 4.

Peziza Capula Holmsk. Nov. Act. Havn. **1**: 286. *f. 7;* Fung. Dan. **2**: 41. *pl. 22.* 1899.

Illustrations: Holmskiold, Nov. Act. Havn. **1**: 286. *f. 7;* Fung. Dan. **2**: *pl. 22.*—Flor. Dan. **33**: *pl. 1970. f. 3.*—Patouillard, Tab. Anal. Fung. **1**: *f. 35.*

Fructifications membranaceous, obliquely campanulate, extended into an oblique stem, glabrous, whitish, the margin sinuate, irregularly shaped; hymenium even. . . . On dead stems of herbaceous plants.

—Translation of description in Fries' 'Epicrisis.'

Fructifications in the figures of Holmskiold 4–9 mm. high; pileus 2–7 mm. long, 2–4 mm. broad; stem 1–2 mm. long.

On dead stems of *Fœniculum* and other herbs. New York and South Carolina.

I have not been able to study any European specimens of this species. In the copy of Cooke's 'Fungi Britannici' in the herbarium of the Missouri Botanical Garden the packet labeled *C. capula*, 112, contains only some pieces of stubble. The Amer-

ican specimens distributed in Ravenel's 'Fungi Americani,' 458, were determined by Cooke. In their present dried condition these specimens agree well with Holmskiold's illustrations in form; the stem of these specimens is now hair-brown and the pileus pale olive-buff; their dimensions are: fructifications 1–3 mm. long, pileus ½–2 mm. long and broad; stem ⅓–1 mm. long x 100 μ thick. The basidia are 16–20 x 3½–4½ μ; spores colorless, even, flattened on one side, 4½–6 x 3–3½ μ.

Specimens examined:

Exsiccati: Ravenel, Fung. Am., 458.

South Carolina: Aiken, *Ravenel*, Ravenel, Fung. Am., 458.

10. **C. minutissima** Burt, n. sp. Plate 19. fig. 5.

Type: in Mo. Bot. Gard. Herb. and in Farlow Herb.

Fructifications gregarious, very minute, membranaceous and very delicate, sessile, globose, snow-white, externally villose, often with mouth oblique, margin inrolled; hairs white, incrusted, 75–90 x 4 μ; hymenium concave, white; basidia clavate, 16 x 4 μ; spores colorless, even, 5–6 x 4–4½ μ.

Fructifications 200–500 μ broad, about 200–500 μ high.

On inner bark of *Populus*. New Hampshire: August.

The characters of this species agree in some details with those in the incomplete description of *C. globosa* Pat., the specimens of which were collected on the under side of leaves of ferns in Ecuador by von Lagerheim, but as no mention is made of spore characters for *C. globosa* and as other species of *Cyphella* have not been found to vary widely with regard to kind of substratum, it seems best to regard our New England species as probably distinct. *C. punctiformis* (Fries) Karst. is a small white *Cyphella*, described by Karsten as having spores 5–8 x 2–4 μ; I have not been able to study authentic specimens of *C. punctiformis*, but comparison of *C. minutissima* with this species of northern Europe should be made.

I refer to *C. minutissima* a collection made by myself in Vermont on bark of rotting locust limbs. The fructifications of this collection lack spores but agree in all other respects with the type.

Specimens examined:

New Hampshire: Chocorua, *W. G. Farlow, 3*, type (in Mo. Bot. Gard. Herb., 43803, and in Farlow Herb.).

Vermont: Middlebury, *E. A. Burt.*

11. **C. Langloisii** Burt, n. sp. Plate 19. fig. 6.

Type: in Farlow Herb. and Burt Herb.

Fructifications gregarious, membranaceous, cup-shaped, sessile, drying pale ivory-yellow, externally downy pubescent, the margin inrolled; hairs colorless, somewhat crinkled together, granular incrusted, 100–150 x 3½–4½ μ; hymenium concave, even, pale ivory-yellow to cream color; spores colorless, even, pointed at the base, 4–7 x 3–4 μ; basidia clavate, 20 x 5μ, 2-spored.

Fructifications about ¼ mm. high; ¼–½ mm. broad.

On dead stems of *Arundinaria* and on decaying pieces of wood lying on the ground. Louisiana. September and April.

The fructifications of *C. Langloisii* are about as small as those of *C. minutissima* but differ from them in being somewhat extended laterally and occasionally somewhat laterally confluent rather than always globose, in having an ivory-yellow rather than snow-white color, and in having the hymenium colored and the hairs longer than in *C. minutissima*. Comparison should be made with *C. fraxinicola* B. & Br., of which I have studied no specimens but which seems distinct by some characters of the incomplete published description.

Specimens examined:

Louisiana: St. Martinville, *A. B. Langlois, 1802*, type (in Farlow Herb.), and *cz*, type, in Burt Herb., and *cy*, and from the same collector but comm. by W. G. Farlow, 5 (in Mo. Bot. Gard. Herb., 43791).

12. **C. porrigens** Burt, n. sp. Plate 19. fig. 7.

Type: in Burt Herb. and New York Bot. Gard. Herb.

Fructifications scattered, membranaceous, thin, wholly cream-color, sessile, obversely cup-shaped or helmet-shaped, resupinate by the upper surface of one side but with the greater portion of the pileus extended and reflexed; hymenium inferior, somewhat wrinkled when moistened, concave, basidia clavate, 20–25 x 4–4½ μ, with four sterigmata; spores colorless, even, flattened on one side, obovate, 7½ x 4½ μ.

Fructifications ½–1 mm. broad.

On dead prickle-bearing stems, possibly *Rubus sp.* Wet mountainous region at altitude 4500–5200 feet. Cinchona, Jamaica. About January 1.

This species does not appear closely related to any other

species; it is marked by the resupinate-reflexed habit of most fructifications; only rarely is a fructification attached by its vertex. The dried specimens are externally minutely fibrillose under a lens but do not show hairs in microscopic preparations. When the fructifications are moistened the hymenium shows two or three minute wrinkles radiating from an eccentric point.

Specimens examined:

Jamaica: Cinchona, *W. A. and Edna L. Murrill*, N. Y. Bot. Gard., Fungi of Jamaica, 607, type.

13. C. cupulæformis Berk. & Rav. Grevillea **2**: 5. 1873. Plate 19. fig. 9.

Type: type and cotype in Kew Herb. and in Curtis Herb. respectively.

Fructifications scattered, rarely in clusters of two or three, sessile, cup-shaped, somewhat globose, externally mineral gray and obscurely tomentose, the margin incurved; hymenium concave, even, fuscous; basidia clavate, 20–25 x 4–6 μ, having 2–4 sterigmata which become finely attenuated; spores colorless, angular, $4\frac{1}{2}$–6 x $4\frac{1}{2}$ μ.

Fructifications $\frac{1}{2}$ mm. high, $\frac{1}{2}$–1 mm. broad.

On bark of *Juniperus virginiana*. South Carolina and Georgia.

The hairiness of the exterior of the pileus is due to the irregularly curved and interwoven hyphæ which form the surface layer of the pileus; these hyphæ are colorless and about 3 μ in diameter, and they bear scattered but large incrusting granules. The angular spores of this species are often octahedral in form and are noteworthy for *Cyphella;* at maturity, they are attached to the basidium by sterigmata becoming 6 μ long and so finely attenuated that the attachment of the spores to the basidia is made out with difficulty. This species may be readily known by its occurrence on bark of *Juniperus virginiana* and by its angular spores.

Specimens examined:

Exsiccati: Ravenel, Fung. Am., 224.

South Carolina: *Ravenel, 1403,* type (in Kew. Herb.).

Georgia: Darien, *Ravenel*, Ravenel, Fung. Am., 224.

14. C. griseo-pallida Weinm. Hymeno- et Gastero-mycetes in Rossico. 522. 1836.

Illustrations: Patouillard, Tab. Anal. Fung. *f. 255.*

Fructifications gregarious, adnate-sessile, membranaceous, wholly gray-pallid, externally flocculose; hymenium glabrous, even.

At first having the form of globose, closed granules, soon open, campanulate or crateriform, often dimidiate in old stages.

Fructifications ½ mm. high, ½–2 mm. broad.

On moist ground and on pine wood thinly covered with earth and on old cracked trunks of *Lonicera tartarica* (in Europe).

—Translation of original description.

On bark, twigs and leaves lying on the ground. New York and Ohio. November.

I have not seen the type of *C. griseo-pallida* nor any European specimens which have been compared with it, but Peck, Rep. N. Y. State Mus. **30**: 48. 1879, has referred to this species a collection which he made at Sand Lake, New York. Peck notes that his specimens sometimes have a very short stem. I found the spores of these specimens hyaline, even, somewhat flattened on one side, 4 x 3 μ; basidia 12 x 4 μ.

Specimens examined:

New York: Sand Lake, *C. H. Peck* (in Coll. N. Y. State).

15. C. subgelatinosa Berk. & Rav. Grevillea **2**: 5. 1873.

Type: in Kew Herb.

Fructifications scattered, somewhat gelatinous, sessile, flattened, externally cinereous and farinaceous, the thin margin inflexed; hymenium slightly convex, even, brown; basidia clavate, about 25 x 5–6 μ, probably 2-spored; spores colorless, even, ellipsoidal, 8 x 3½ μ.

Fructifications about 1½ mm. broad.

On *Alnus serrulata*. South Carolina.

The fructifications of the type have dried with the slightly convex hymenium so prominently visible that they resemble brown apothecia of lichens with a pale margin (exciple). The most of the basidia are immature; I found one showing two sterigmata distinctly. No spores were found attached to basidia; the spore characters, which are given above, are those of loose spores in the preparation. *C. subgelatinosa* is so very distinct from our other species of *Cyphella* that it will probably be overlooked by botanists collecting *Basidiomycetes* only, unless especially kept in mind.

Specimens examined:

South Carolina: Aiken, *Ravenel, 1714*, type (in Kew Herb.).

16. C. Ravenelii Berk. Grevillea **2**: 5. 1873. Plate 19. fig. 14.

Type: type and cotype in Kew Herb. and in Curtis Herb. respectively.

Fructifications single or gregarious, sessile, subglobose, somewhat flattened, depressed at the pore, minutely hairy under a lens, vinaceous buff; hairs minutely rough, about 300 μ long, 4 μ thick, tapering towards the free end, olive-yellow under the microscope; spores hyaline, or perhaps very slightly colored, even, broadly ellipsoidal, 10–12 x 6–8 μ.

Fructifications 0.6 mm. high, 0.8 mm. broad; pore 0.15 mm. in diameter.

On bark of *Carya*. South Carolina.

The specimens of this species which I have seen have been on thick and cracked portions of bark apparently from large branches or the main trunk of the tree. Sometimes only one fructification occurs on a piece of bark a centimeter square; sometimes such a piece bears from 3 to 6 fructifications with some of them barely in contact with one another. The type specimen contains so few fructifications that I made a microscopic preparation at Kew Herbarium from the specimen distributed by Ravenel in Ellis, N. Am. Fungi, 721, which seems to me to be certainly the same species as the type. Berkeley described the spores in his original description as "elliptic, .00025 (in.) long"; I found them about twice this length in my preparation referred to and also in a preparation recently made from the specimen in Ravenel, Fung. Am., 130, in the Mo. Bot. Gard. Herb.

Specimens examined:

Exsiccati: Ravenel, Fung. Am., 130; Ellis, N. Am. Fungi, 721.

South Carolina: Aiken, *Ravenel, 1755*, the type and cotype (in Kew Herb. and in Curtis Herb. respectively); and also Aiken, *Ravenel*, Ravenel, Fung. Am., 130, and Ellis, N. Am. Fungi, 721.

17. C. texensis Berk. & Curtis, Grevillea **20**: 9. 1891. Plate 19. fig. 10.

Type: in Kew Herb.

Fructifications scattered, sessile, pallid but at present time

Isabella-color (melleus of 'Chromotaxia'), cup-shaped, at length flattened and disk-shaped, externally hairy; hairs olive-ocher under the microscope, granular incrusted, cylindric, 300–400 x 4½–6 μ; basidia clavate, 25–30 x 6–8 μ, 4-spored; spores hyaline, even, broadly ellipsoidal, 13 x 8 μ.

Fructifications 1–1½ mm. broad.

On *Quercus*. Texas.

The type is scanty, consisting of three fructifications, but these fructifications are in fine condition and present well the characters of the species. *C. texensis* now impresses me as more closely related to *C. Ravenelii* than I observed when studying the specimens of both in Kew Herbarium. The fructifications of *C. texensis* are the melleus of Saccardo's 'Chromotaxia' and the hairs are of a little greater diameter and have larger incrusting granules than those of *C. Ravenelii*, but the spores and basidia are very similar in form and dimensions in both species.

Specimens examined:

Texas: *Wright, 3779*, type (in Kew Herb.).

18. C. mellea Burt, n. sp. Plate 19. fig. 12.

Type: in Burt Herb. and in U. S. Dept. Ag. Herb.

Fructifications closely gregarious, sessile, Isabella-color, spherical and with margin inrolled in the dried state, sometimes obconic, externally hairy; hairs granular incrusted, baryta-yellow under the microscope, cylindric, 80–100 x 3½–4 μ; hymenium even, whitish or pale olive-buff; basidia clavate, 12–16 x 6 μ; spores mostly colorless but some pale baryta-yellow, even, broadly ellipsoidal, 5–6 x 4–4½ μ.

Fructifications about ⅕–½ mm. high and broad.

On rotten wood of *Salix nigra*. Louisiana. December.

In the specimen upon which the description is based, the most of the fructifications are about ⅕ mm. high and broad and are distributed on the rotten wood at the rate of about 200 per square centimeter. Rarely a short stem-like base is visible when the fructifications emerge from the bottom of small crevices between the fibers of the wood, but the fructifications are generally sessile. The species is intermediate between *Cyphella* and *Solenia* but is included in the former genus because the fructifications do not arise from a common subiculum and are more globose than in *Solenia*. The description of *C. mellea* suggests

those of *C. Ravenelii* and *C. texensis* in many respects, but the fructifications are much smaller and more numerous than in either of these species, and their various parts are also much smaller and some of the spores are colored.

Specimens examined:

Louisiana: Bohemia, Plaquemines Co., *A. B. Langlois, 864a*, type, in Burt Herb. and also (in U. S. Dept. Ag. Herb.); *A. B. Langlois, 864* (in U. S. Dept. Ag. Herb.).

19. C. fasciculata Schw. ex Berk. & Curtis, Jour. Acad. Nat. Sci. Phila. **3**: 207. 1856. Plate 19. fig. 17.

Cantharellus fasciculatus Schw. Trans. Am. Phil. Soc. N. S. **4**: 153. 1831.—*C. fasciculatus* Schw. in Saccardo, Syll. Fung. **5**: 495. 1887.—*Cyphella fasciculata* Berk. & Curtis, Grevillea **2**: 6. 1873.—*Solenia anomala* Pers. var. *orbicularis* Peck, Rep. N.Y. State Mus. **47**: 168 (42). 1894.—*Cyphella fulva* Berk. & Rav. Grevillea **2**: 5. 1873.—*C. Ravenelii* Saccardo, Syll. Fung. **6**: 672. 1888.—*C. Saccardoi* Sydow, in Saccardo, Syll. Fung. **14**: 233. 1900.—*C. furcata* Berk. & Curtis, Grevillea **2**: 5. 1873.

Type: in Herb. Schweinitz.

Fructifications gregarious, sometimes fascicled, pezizoid, tawny olive; pileus stipitate, cup-shaped, extended vertically or pendulous, tomentose with tawny-olive, even-walled hairs which are flexuous or somewhat spirally curved towards the tips, the margin strongly inrolled; stem short, variable in length, cylindric, tomentose, colored like the pileus; hymenium concave, even, drying olive-buff; spores hyaline, even, cylindric, slightly curved, 7–9 x 2–2½ μ, borne four to a basidium.

Fasciculate clusters about 2 mm. in diameter, 1 mm. high; fructifications ⅓–1 mm. in diameter, 1–2 mm. high; stem ½–1 mm. long, ⅕–½ mm. thick.

On bark of twigs of *Alnus* in swamps and rarely on *Prunus virginiana* and *Pyrus Malus*. Canada and Newfoundland to South Carolina and westward to Wisconsin. Throughout the year, more highly fasciculate from autumn to spring. Common.

This fungus is very common on dead twigs of *Alnus* in swamps. The color is similar to that of *Solenia anomala* but the fructifications are rather larger and more cup-shaped than those of the latter and have the hymenium merely concave rather than lining a tube. The fructifications burst out through the outer bark

either singly or in clusters of from two to twenty individuals more or less connected together at the base. The differences in habit between the extremes of highly fascicled forms and those with fructifications gregarious and largely single, impress one as of specific weight at first and I should like to recognize these extremes as two species but they intergrade too completely. The dated collections which I have seen, indicate that the specimens become highly fasciculate in autumn and winter.

I do not understand why Berkeley attempted authorship for this species. The *C. fasciculata* B. & C. is certainly that of Schweinitz both in description and in fascicled form of types; and as for *C. fulva* B. & Rav., it is noted in the original description that it is the same as *Cantharellus fasciculatus* Schw.

Specimens examined:

Exsiccati: Ellis, N. Am. Fungi, 936, fascicled form; Ell. & Ev., Fung. Col., 1818, fascicled form under the name *C. Ravenelii* Berk.; Shear, N. Y. Fungi, 308, fascicled form under the name *Solenia anomala* (Pers.) Fr. var. *orbicularis*. Pk. Peck det.; Ravenel, Fung. Car. IV., 16, the type distribution of *C. fulva* B. & Rav.; Ravenel, Fung. Am., 129 (bearing spores in abundance); Shear, N. Y. Fungi, 56.

Newfoundland: Headquarters, *B. L. Robinson & H. von Schrenk* (in Mo. Bot. Gard. Herb., 4764 and 43789, the latter communicated by W. G. Farlow); Bay of Islands, *A. C. Waghorne, 127* (in Mo. Bot. Gard. Herb., 42593).

Quebec: Hull, *J. Macoun, 355.*

Ontario: Ottawa, *J. Macoun, 23.*

Maine: *J. Blake* (in Curtis Herb., 6926, and in Kew Herb.).

New Hampshire: Conway, *W. G. Farlow;* North Conway, *W. G. Farlow* (in Mo. Bot. Gard. Herb., 43786); Shelburne, *H. von Schrenk* (in Mo. Bot. Gard. Herb., 4765), *W. G. Farlow* (in Mo. Bot. Gard. Herb., 43787); Franklin Falls, *Mrs. J. B. Harrison,* Ellis, N. Am. Fungi, 936.

Vermont: Middlebury, on *Alnus* and on *Prunus virginiana, E. A. Burt.*

Massachusetts: Newton, *W. G. Farlow* (in Mo. Bot. Gard. Herb., 42591, 42592 and 43788).

New York: *Torrey,* type (in Herb. Schw.); *Sartwell,* cotype and type of *C. fasciculata* B. & C. (in Curtis Herb., 2659, and in

Kew Herb. respectively) and specimen (in Mo. Bot. Gard. Herb., 4937); Ithaca, *G. F. Atkinson;* East Galway, *E. A. Burt;* Keeseville, *C. O. Smith,* Ell. & Ev., Fung. Col., 1818; Alcove, *C. L. Shear,* Shear, N. Y. Fungi, 56 and 308; Albany, *C. H. Peck,* comm. by H. D. House (in Mo. Bot. Gard. Herb., 43821); Karner, *C. H. Peck,* comm. by H. D. House (in Mo. Bot. Gard. Herb., 43820).

South Carolina: *Ravenel, 1683* (in Curtis Herb. and in Kew Herb.), and in Ravenel, Fung. Car. IV., 16; Aiken, *Ravenel,* Ravenel, Fung. Am., 129.

Alabama: *Beaumont,* the cotype and type of *C. furcata* (in Curtis Herb., 4022, and in Kew Herb. respectively).

Wisconsin: Madison, *W. Trelease* (in Mo. Bot. Gard. Herb., 42594).

20. C. conglobata Burt, n. sp. Plate 19. fig. 15.

Type: in Mo. Bot. Gard. Herb. and in Farlow Herb.

Fructifications cespitose, 10–30 together, sessile on a common short trunk which is erumpent through the bark; individual fructifications subglobose, fuscous and glabrous when moist, drying mouse-gray and with the margin inrolled; hymenium concave, black or nearly black; basidia simple, with four sterigmata; spores colorless, even, cylindric, slightly curved, 8–10 x $2\frac{1}{2}$–3 μ.

Cluster 1–2 mm. in diameter, emerging about $\frac{1}{2}$ mm. from the bark; cups 400–500 μ broad, nearly as high.

Clusters scattered on small limbs of *Alnus.* New Hampshire and New York. July and September.

The clusters of this curious fungus are distributed at the rate of about 5 or 6 clusters to the square centimeter on what I conclude to have been the under side of a horizontal limb—perhaps a limb prostrate on the ground; for cups in clusters exactly on this presumably under side have the pore central while in the clusters which emerged more obliquely from the limb the cups are somewhat auriform with oblique pore and are arranged in imbricated manner. The outer surface of the cups is composed of irregularly branched and interwoven pale brownish hyphæ about 2 μ in diameter. The substance of the fructifications and common trunk-like base is composed of colorless hyphæ with walls gelatinously modified.

One might regard this fungus as the type species of a new genus distinct from *Cyphella* or *Solenia* by the common central mass on which the individual cups are borne, but in *Cyphella fasciculata* the cups sometimes occur singly and sometimes branching from a common central or basal mass. For this reason it seems best to include the present species in *Cyphella* through its relationship in plan of structure to *C. fasciculata*, from which it is specifically distinct in other respects, however. Both these species are excluded from *Solenia* by their short and globose fructifications and by the absence of a subiculum on the general area over which the clustered fructifications are distributed.

Specimens examined:

New Hampshire: Lower Bartlett, *R. Thaxter*, comm. by W. G. Farlow, 4, type (in Mo. Bot. Gard. Herb., 43806, and in Farlow Herb.).

New York: Adirondack Mts., *C. H. Peck*, comm. by H. D. House (in Coll. N. Y. State and in Mo. Bot. Gard. Herb., 43818); North Elba, *C. H. Peck*, comm. by H. D. House (in Mo. Bot. Gard. Herb., 43819).

21. C. fumosa Cooke, Grevillea **20**: 9. 1891. Plate 19. fig. 11.

Type: in Kew Herb.

Fructifications gregarious, membranaceous, cup-shaped, flexuous, sepia or olive-brown and blackening, even, attenuated below into a very short stipe, or sessile; hymenium even; basidia cylindric-clavate, 20 x 4–5 μ; spores colorless, even, somewhat flattened on one side, 6–8 x $3\frac{1}{2}$–4 μ.

Fructifications 1–2 mm. broad.

On rotting leaves of *Gladiolus*. South Carolina.

Cooke described the spores of this species as globose, 4 μ in diameter, but I found no such spores in my preparation from the type. Spores 6–8 x $3\frac{1}{2}$–4 μ are abundant and are probably the spores of this species, although I could not find any spores still attached to the basidia. I conclude from my microscopical preparations that the fructifications are glabrous.

Specimens examined:

South Carolina: Aiken, *Ravenel, 3071*, type (in Kew Herb.).

SPECIES IMPERFECTLY KNOWN

C. cinereo-fusca Schw. ex Saccardo, Michelia **2**: 303. 1881.

Peziza cinereo-fusca Schw. Schrift. d. Naturforsch. Gesell., Leipzig, **1**: 119. 1822; Fries, Syst. Myc. **2**: 97. 1823.—*Cyphella cinereo-fusca* (Schw.) Sacc. Syll. Fung. **5**: 674. 1888.—*Lachnella cinereo-fusca* (Schw.) Sacc. Syll. Fung. **8**: 399. 1889.

Fructifications minute, gregarious, sessile, externally farinaceous-hirsute and ash-green, the margin incurved; hymenium fuscous-bay.

On decorticated branches of *Cercis*. [North Carolina.]
3 mm. broad. Cups often closed.

—Translation of original description.

I have not seen an authentic specimen of this species nor anything on *Cercis* which seems referable to it. The species is given here on the authority of Saccardo, *l. c.*, who refers to this species a *Cyphella* collected on *Vitis vinifera* near Toulouse, France, by Roumeguere. Saccardo does not state that he made comparison with an authentic specimen from Schweinitz, and he has entered the species in the 'Sylloge Fungorum' in both the *Basidiomycetes* and the *Discomycetes*.

C. Palmarum Berk. & Curtis, (Fung. Cub.) Jour. Linn. Soc. Bot. **10**: 337. 1867.

Type: type and cotype probably in Kew Herb. and Curtis Herb. respectively.

White, pileus cyathiform, externally obscurely pruinose; stem short, tomentose, rather thick.

Scarcely 2 mm. high; stem rather thick for the size of the pileus, often oblique.

On petioles of palms. Cuba. June. *C. Wright, 753.*

—Arranged from original description.

C. Peckii Sacc. Syll. Fung. **6**: 684. 1888.

C. candida Peck, Rep. N. Y. State Mus. **27**: 99. 1875.

Type: in Coll. N. Y. State.

Fructifications scattered or gregarious, membranaceous, soft, obconic, nearly or quite sessile, sometimes deflexed, wholly white, externally tomentose; hairs tapering to a sharp point, rough-walled, 60–70 x $3\frac{1}{2}$ μ.

Fructifications about 1 mm. broad.

On dead stems of ferns, *Osmunda cinnamomea*. New York. September.

The type specimens of this species are immature. I could make out neither distinct asci nor basidia in the hymenium. In a crushed preparation I found one spore, colorless, even, pointed at one end, 6 x 2½ μ. It may have been a basidiospore of this species or it may have been a foreign spore.

Specimens examined:

New York: Forestburgh, *C. H. Peck*, type (in Coll. N. Y. State).

C. perexigua Sacc. Michelia **2**: 136. 1880.

Cups bell-shaped, very short and obliquely stipitate, small, ½–¾ mm. long, thin-membranaceous, internally and externally whitish cinereous, externally minutely puberulent; spores not seen. Appears related to *C. erucæformis* and *cupuliformis* but is one-third as large. . . . On decorticated branches. South Carolina. *Ravenel.*—Translation of original description.

I have not seen the type of *C. perexigua*, which is probably in Saccardo Herb. As basidia and basidiospores have not been found for American specimens, it is uncertain whether this species is a *Cyphella*. Patouillard, Tab. Anal. Fung. 19. *f. 34.* 1883, referred to *C. perexigua* a species of *Cyphella* which he collected at Poligny, France, but that reference is doubtful in the absence of knowledge in regard to basidia and basidiospores for American specimens.

C. pezizoides Zopf, in Morgan, (Myc. Fl. Miami Val.) Jour. Cincinnati Soc. Nat. Hist. **10**: 202. 1888.

Type: probably in the State Univ. of Iowa Herb.

"Fructifications membranaceous, nearly sessile, globose then cup-shaped, clothed externally with long erect white hairs. Hymenium even, brownish; spores obovate, .012–.013 mm. in length.

"On old herbaceous stems; not common, cupule pezizoid, scarcely pedicillate, about half a line in diameter. The long hairs are erect and connivent over the hymenium; they are hyaline and incrusted with crystals of calcium oxalate."

—Original description.

The type is not accessible at present.

C. trachychæta Ell. & Ev. Jour. Myc. **4**: 73. 1888.

Type: in New York Bot. Gard. Herb.

Fructifications gregarious, sessile by a narrow base, white, cup-shaped, clothed outside with appressed hairs; hairs subhyaline, very rough, with a smooth tapering tip 12–15 μ long; hairs paler around the base of the fructification and coarsely roughened by irregularly shaped tubercles, some of which are prolonged into short spines; hymenium nearly white with a slight tinge of slate color; basidia and spores could not be well made out, but the latter are apparently very minute.

Fructifications 300–400μ high and broad, occasionally 1 mm. broad and with the margin distinctly lobed.

On fallen leaves of *Quercus*. Louisiana. July.

The above description is arranged from that originally published. I am under obligation to Dr. Murrill for recently sending to me a portion of the type for study, but the specimen proves too immature to show whether this species is a basidiomycete. The hymenium of this specimen is now pale olivebuff; the hairs are 50–75 x 6 μ, heavily encrusted except near the tips, but I failed to find any hairs roughened by tubercles or bearing spines.

Specimens examined:

Louisiana: *A. B. Langlois, 1424*, type (in N. Y. Bot. Gard. Herb.).

C. Bananæ Cooke, Grevillea **6**: 132. 1878.

Type: probably in Kew Herb.

Fructifications fuliginous or wood-brown, finger-shaped, pendulous-extended behind, glabrous, the margin entire; hymenium white, rugose; spores linear, obtuse, curved, 10–12 x $2\frac{1}{2}$ μ. —Translation of original description.

On dead leaves of *Musa*. Gainesville, Florida. *Ravenel.*

C. filicicola Berk. & Curtis, Grevillea **2**: 5. 1873.

Type: type and cotype probably in Kew Herb. and Curtis Herb. respectively.

Stem very short; cups irregular, sometimes oblique, externally very obscurely tomentose, umber.

On dead fern. North Carolina. Curtis Herb., 4934, type.

The above contains all the items of the original description; I overlooked this species when studying in Curtis Herb. and in Kew Herb.

C. musæcola Berk. & Curtis, Jour. Linn. Soc. Bot. **10**: 337. 1867.

Type: type and cotype in Kew Herb. and Curtis Herb. respectively.

Pileus crucible-form, pallid purple, with very short stem or sessile, externally tomentose; hymenium luteus (cadmium-yellow). —Translation of original description.

About 2 mm. across.

On sheaths of plantain leaves. Cuba. *C. Wright, 751.*

By the kindness of Dr. Farlow I have been permitted to examine a specimen from the type collection. I fail to find any fructifications of a *Cyphella* present. A leaf-spot fungus has caused some dark purple discolorations 1–2 mm. in diameter at various points in the surface of the leaf.

Specimens examined:

Cuba: *C. Wright, 751*, comm. by W. G. Farlow (in Mo. Bot. Gard. Herb., 43790).

EXCLUDED SPECIES

C. convoluta Cooke, (Fungi of Texas) Ann. N. Y. Acad. Sci. **1**: 179. 1878.

Type: In Kew Herb.

"Scattered, cup-shaped, then flattened, 1 to 2 mm. wide, margin membranaceous, involute, externally white, internally fleshy-red; spores oblong (.007 mm. long).

"On trunks. Ravenel (295)."—The original description.

I examined the type of this fungus, which was collected at Houston, Texas, and do not regard it as a *Cyphella*. The "basidia" are filiform and only 1-spored; spores are abundant, hyaline, even, 4–5 x 2–2½ μ.

C. Cupressi Schw. ex Fries, Epicr. 567. 1836–1838.

Merulius Cupressi Schweinitz, Schrift d. Naturforsch. Gesell., Leipzig, **1**: 92. 1822.

This species is an insect gall, not a Basidiomycete. Its true nature seems to have been first pointed out by Berkeley & Curtis, Jour. Acad. Nat. Sci. Phila. **3**: 207. 1856.

C. subcyanea Ell. & Ev. Jour. Myc. **2**: 37. 1885.

As this species is not mentioned in Saccardo's 'Sylloge Fungorum' and as the early numbers of the Journal of Mycology are rare, I quote the original description as follows:

"On living leaves of Sabal Palmetto, Louisiana, Nov. 1885. Rev. A. B. Langlois, No. 57. Shallow cup-shaped, thin, substipitate, oblique, less than 1 mm. across, whitish and nearly smooth outside, hymenium bluish or lead colored. Spores filiform multinucleate, upper end thickened, curved into a semicircle, 40–60 μ long by $1\frac{1}{2}$ μ thick, on short (11–12 x $1\frac{1}{2}$–2 μ) subcylindrical sporophores, which are a little thickened below."

This species was distributed in 1891 in Ell. & Ev., N. Am. Fungi, 2602, the specimens having been collected on living stems of *Smilax* in Louisiana by Mr. Langlois. Mr. Langlois communicated to me still better specimens on dead canes of *Arundinaria*. The fructifications occur scattered here and there in grayish areas 2–4 mm. long by $\frac{1}{2}$–1 mm. broad on the surface of the stems. Dr. Farlow informs me in a letter as the proofs are at hand that the above species is the lichen *Heterothecium Augustinii* Tuckm.

(To be continued.)

Explanation of Plate

PLATE 19

The figures of this plate have been reproduced natural size from photographs of dried herbarium specimens except in the cases noted otherwise.

Fig. 1. *Craterellus borealis*. From the type specimen collected at Gready Island, Labrador, by Owen Bryant.

Fig. 2. *Cyphella galeata*. From photograph, natural size, of the figure in Flor. Dan. *pl. 2027. f. 1.*

Fig. 3. *C. muscigena*. The two figures on the left are from specimens collected at Floodwood, New York, by E. A. Burt; the two on the right are from the type collection of *Craterellus Pogonati* collected at South Windsor, Connecticut, by C. C. Hanmer, 1956.

Fig. 4. *C. capula*. From photograph, natural size, of the figure in Fung. Dan. **2**: *pl. 22.*

Fig. 5. *C. minutissima*. From the type specimens collected at Chocorua, New Hampshire, by W. G. Farlow, 3. Drawings of, *a*, two fructifications, x14; *b*, spores, x510; *c*, a hair from outer wall of fructification, x510.

Fig. 6. *C. Langloisii*. From the type specimens collected at St. Martinville, Louisiana, by A. B. Langlois, ex. Drawings of, *a*, two fructifications, x17; *b*, spores, x510; *c*, a hair from outer wall of fructification, x510.

Fig. 7. *C. porrigens*. From the type specimens collected at Cinchona, Jamaica, by W. A. and Edna L. Murrill, 607. Drawings greatly enlarged of, *a*, a fructification showing attachment to a piece of woody stem; *b*, diagrammatic section of the same fructification; *c*, two spores, x510.

Fig. 8. *C. caricina*. Three spores, x510, from the type specimen collected at Verona, New York, by C. H. Peck.

Fig. 9. *C. cupulæformis*. From the specimens in Ravenel, Fung. Am., 224, collected at Darien, Georgia, by Ravenel. Drawings of, *a*, two fructifications, x6; *b*, a basidium, x510; *c*, four spores, x510.

Fig. 10. *C. texensis*. Three spores, x510, from the type specimens collected in Texas, by C. Wright, 3779.

Fig. 11. *C. fumosa*. Three spores, x510, from the type specimens collected at Aiken, South Carolina, by Ravenel, 3071.

Fig. 12. *C. mellea*. From the type specimens collected at Bohemia, Louisiana, by A. B. Langlois, 864a. Photograph, *a*, of a piece of wood bearing many fructifications, and drawings of, *b*, median longitudinal section of a fructification, x60; *c*, three spores, x510; *d*, a hair from outer wall of fructification, x510.

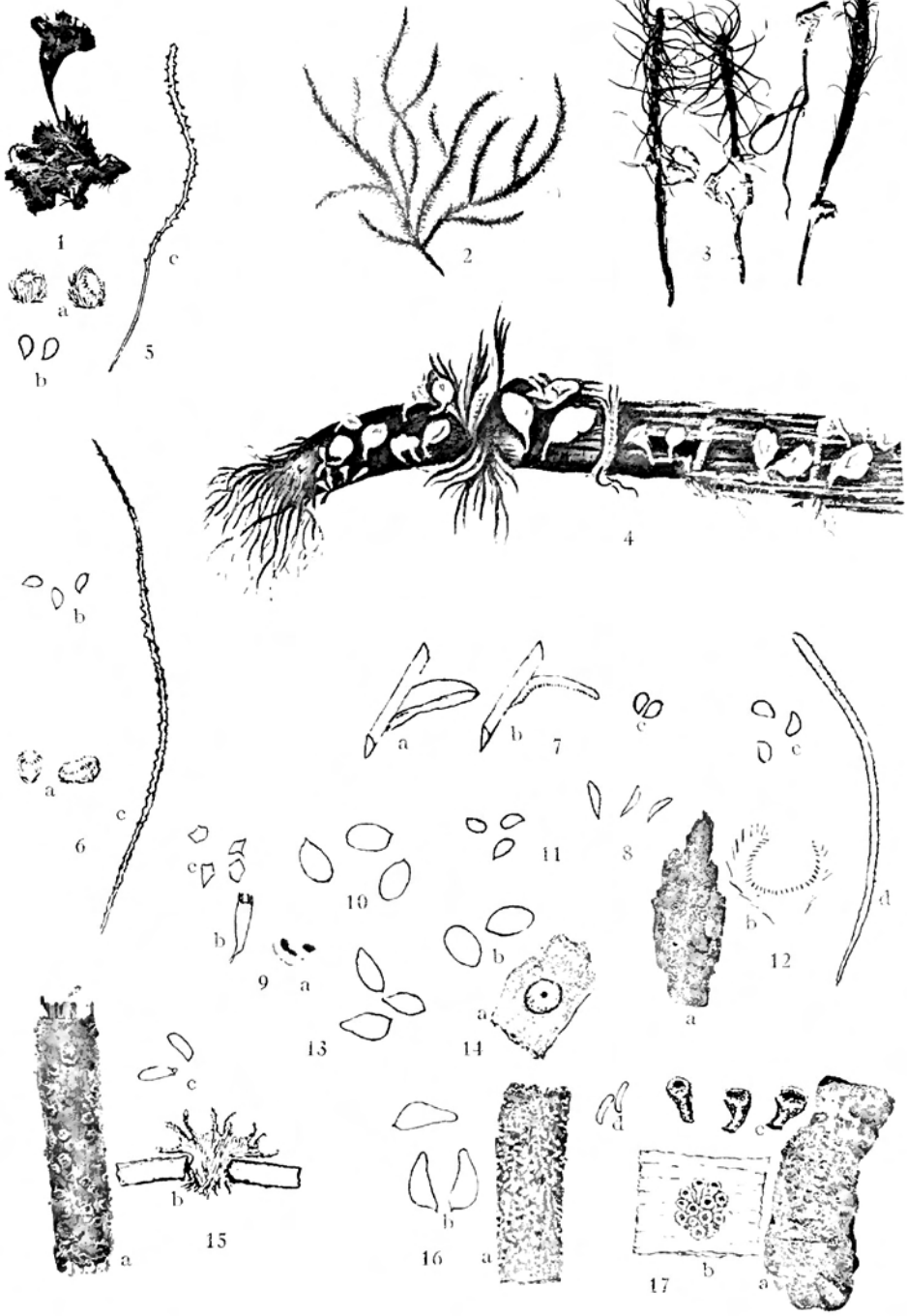
Fig. 13. *C. villosa*. Three spores, x510, from the specimens in Krieger, Fung. Sax., 1457, collected at Königstein, Germany, by W. Krieger.

Fig. 14. *C. Ravenelii*. From the specimens in Ravenel, Fung. Am., 130, collected at Aiken, South Carolina, by Ravenel. Drawings of, *a*, a fructification on a piece of bark, x6; *b*, two spores, x510.

Fig. 15. *C. conglobata*. From the type specimens collected at Lower Bartlett, New Hampshire, by R. Thaxter. Photograph, *a*, of a portion of a branch bearing many clusters of fructifications, and drawings of, *b*, a median vertical section through one cluster of fructifications, x6; *c*, two spores, x510.

Fig. 16. *C. Tiliæ*. From specimens collected at Middlebury, Vermont, by E. A. Burt. Photograph of, *a*, a piece of limb bearing many fructifications, and drawing of, *b*, three spores, x510.

Fig. 17. *C. fasciculata*. From specimens collected at Ottawa, Canada, by J. Macoun, 23. Photograph of, *a*, a piece of bark bearing many fructifications, and drawings of, *b*, a cluster of fructifications, x6; *c*, three fructifications, x10; *d*, two spores, x510.



BURT—THELEPHORACEAE OF NORTH AMERICA

1. CRATERELLUS BOREALIS.—2. CYPHELLA GALEATA.—3. C. MUSCIGENA.—4. C. CAPULA.—5. C. MINUTISSIMA.—6. C. LANGLOISII.—7. C. PORRIGENS.—8. C. CARICINA.—9. C. CUPULAEFORMIS.