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## Illustrations of the Fleshy Fungi of Iowa IV. Common Fleshy Ascomycetes

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## ILLUSTRATIONS OF THE FLEISHY FUNGI OF IOWA

### IV. Common Fleishy Ascomycetes

JOSEPH C. GILMAN

Superficially the fleshy Ascomycetes may be divided into the cup fungi and the sponge-mushrooms, or morels. The latter are undoubtedly the best known edible fungi in the state, for more people recognize them as mushrooms than they do the agarics. Because they are so well-known, the common forms and the more closely related similar species were chosen for illustration.

Although these species here presented are already very well discussed in the literature, especially by Seaver<sup>1</sup>, the purpose of this series of contributions to our Iowa flora would be incomplete

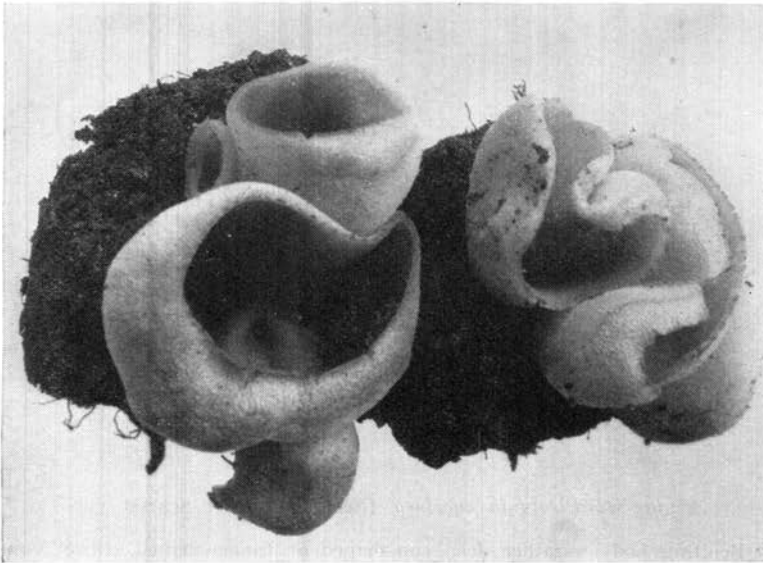


Figure 1. *Peziza vesiculosa* Bull.

Fruiting bodies, in groups or more often arising from a common base, at first closed and globose, gradually expanding and becoming deep cup-shaped, regular in form or irregularly contorted, sessile or with a very short, stout stem-like base, externally whitish or yellowish, with minute wart-like pustules, reaching a diameter of 7-8 cm.; interior of cup pale brown, paler than the outside; asci cylindric or subcylindric; spores obliquely in a single row, ellipsoid, smooth, colorless, 10-11 x 20-23 microns; paraphyses enlarged above, granular within, sub hyaline.

<sup>1</sup> Seaver, F. J. The North American Cup-fungi (Operculates) New York. 284 page 1938.

should they be omitted. For further information and species not treated here, the above book will be found very satisfactory. The descriptions included are adapted from it.

On manure piles and heavily fertilized soils. A dark brown woods species, *Peziza badia*, is also frequent in Iowa.

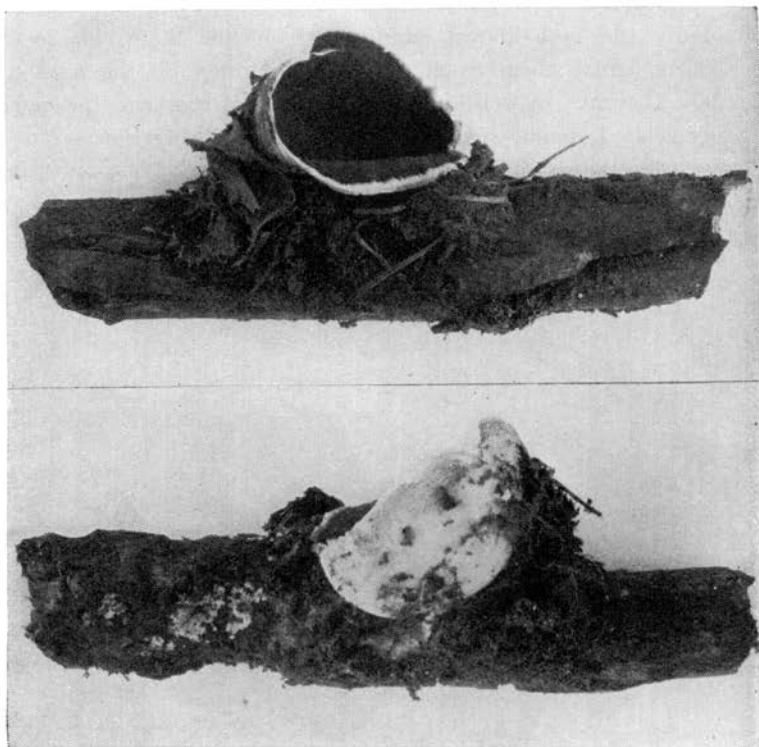


Figure 2. *Plectania coccinea* (Seop.) Funckel Scarlet cup

Fruiting body a rather deep cup-shaped or funnel-shaped scarlet cup, on a long or very short stalk; the margin of the cup usually strongly incurved, externally nearly white and more or less flecked with colorless hairs; interior deeply concave, scarlet, fading when dry; stem stout, 4-5 mm. thick and of variable length, often 2-3 cm. long and again almost lacking, the length of the stalk varying according to the depth at which the sticks on which it grew are buried; asci very long, cylindric, gradually tapering into a stem-like base, reaching a length of 400-500 microns and a diameter of 12-14 microns; spores mostly in one row, long ellipsoid, often containing two large oil drops and numerous small ones, 10-12 x 26-40 microns; paraphyses slightly enlarged above, containing numerous red granules.

On buried or partially buried sticks; early spring. The scarlet cup is usually the earliest of the cupfungi to fruit in the spring. This year a collection of it was made in January. Later in the year, two other members of this group are commonly present in the woods. They are the western cup (*Plectania occidentalis*) and the fringed cup (*P. floccosa*). They are both smaller than the scarlet cup but are red and have a similar habitat. They occur throughout the summer.

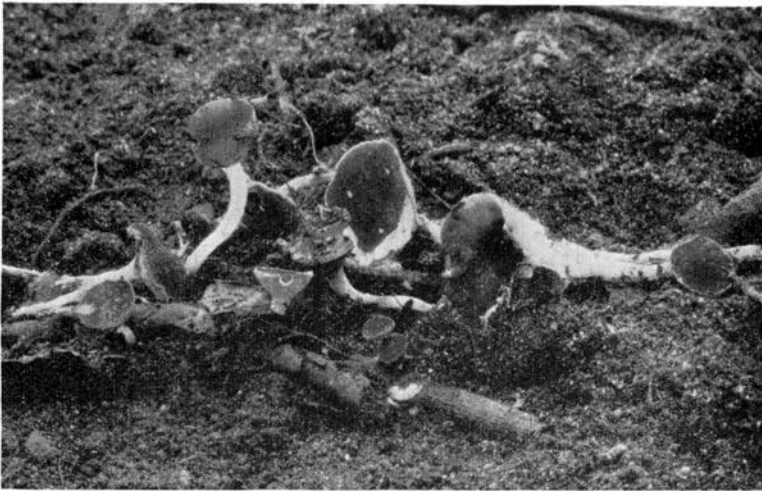


Figure 3. *Plectania occidentalis* (Schw.)

Cups in groups or clusters, shallow cup-shaped to discoid, stipitate, externally whitish, reaching a diameter of 1 cm., hymenium usually concave, bright-red, almost scarlet; stem varying in length according to the depth at which the sticks on which the plants grow are buried in the ground, up to 2 - 3 cm. long and 2 mm. in diameter, asci cylindrical or subcylindrical, up to 15 - 18 microns in diameter at the tip, tapering below into a long stem-like base; spores in a single row, parallel with the ascus walls or oblique and with ends slightly overlapping, ellipsoid, usually with two oil-drops one in either end which are often surrounded by smaller oil-drops and granules, hyaline or slightly yellowish, 10 - 12 x 20 - 22 microns; paraphyses slender, slightly thickened above, up to 3-4 microns at the tip.

On buried or partially buried sticks in moist soil. Throughout the summer.

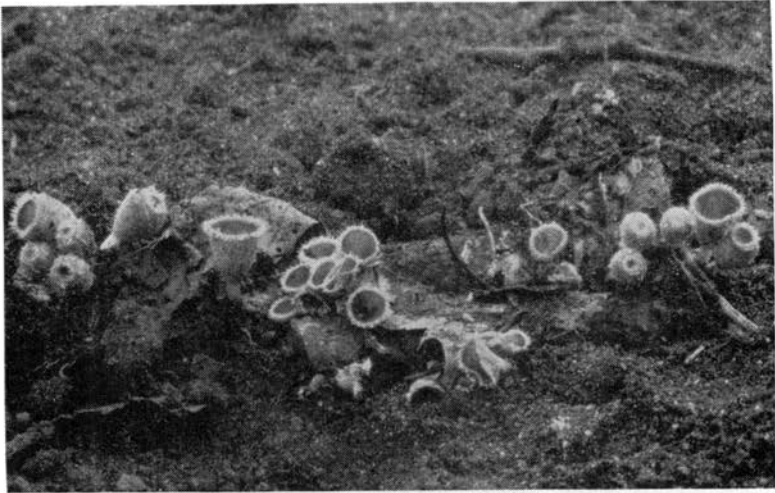


Figure 4. *Plectania floccosa* (Schw.) Seaver

Cups grouped or occasionally clustered, stipitate, infundibuliform with margin strongly incurved in young plants, reaching a diameter of 5-8 mm. and a depth of 1 cm., externally clothed with very long, rigid, hyaline hairs which give the cup a very shaggy appearance, rose red; stem slender, gradually expanding into the apothecium above, and variable in length, depending upon the depth of the sticks upon which the plants grow are buried in the ground, hairs about 15-18 microns in diameter at the base and gradually tapering into a bristle-like apex, reaching a length of more than 1 mm., septate, thick-walled; asci cylindrical, or subcylindric, rather abruptly narrowed into a long stem-like base, up to 300-325 microns long, (not including the constricted portion below,) and to 20 microns in diameter at the apex; spores in a single row or with the ends partially overlapping, ellipsoid, with rather strongly narrowed ends, smooth, hyaline or slightly yellowish, 15-17 x 20-35 microns, paraphyses slender, slightly enlarged above, reaching a diameter of 3 microns at their tips.

On burned sticks in woods. Summer.

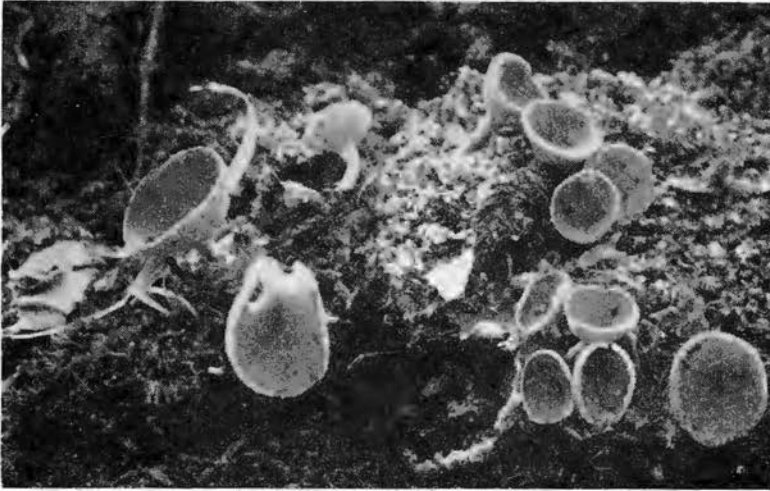


Figure 5. *Peziza subclavipes* (Phill. and Ellis) Seaver

Cups in groups, up to 2 cm. in diameter and 1 cm. in depth, externally cineritious to yellowish or more rarely olivaceous-brown, rough and the roughening consisting of bunches of hairs; hymenium darker than the outside of the cup, brownish; stem slender, even or nearly so, reaching an extreme length of 1 cm. but often much shorter, about 2 mm. thick, covered like the outside of the cup with tufts of hairs, hyaline or faintly yellowish, asci cylindric, up to 250 microns long by 15 microns in diameter; spores in single row, or slightly crowded near the tip of the ascus, ellipsoid, one-celled, containing a single large oil-drop and occasionally a few smaller ones, smooth, hyaline, 9-10 x 18-23 microns; paraphyses thread-like, about 3 microns in diameter, below, but enlarged above to 7 microns, yellowish-brown.

On ground in woods. June and July.

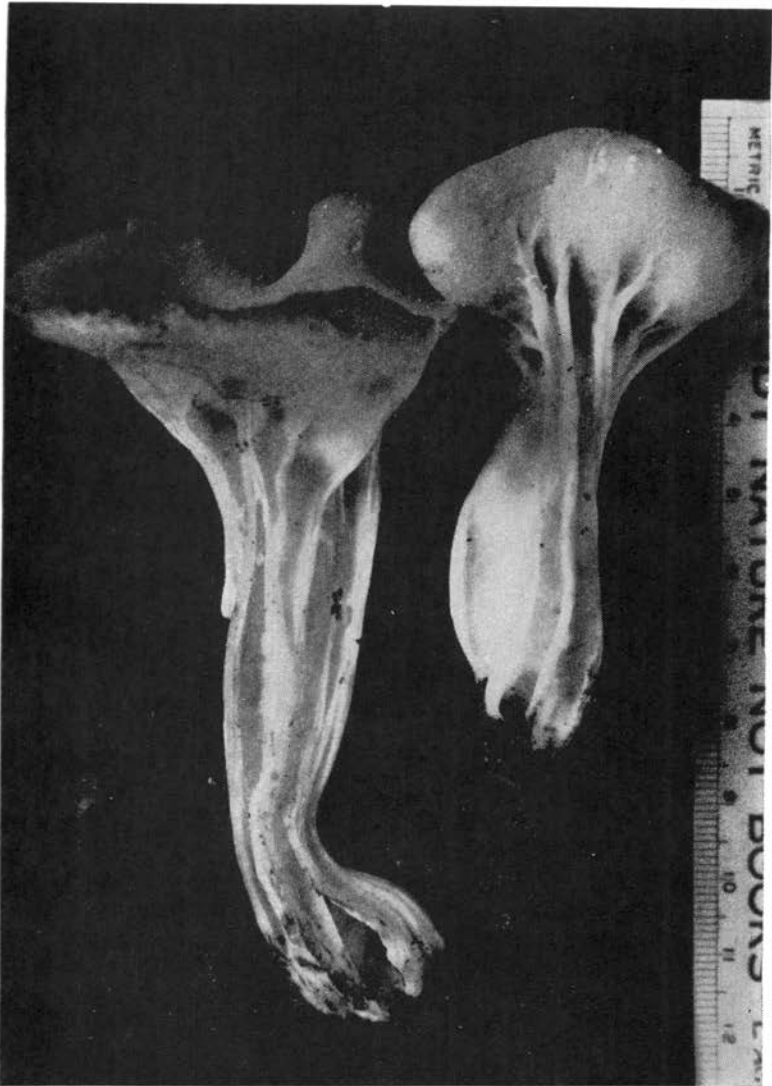


Figure 6. *Paxina acetabulum* (L.) Knutze

Cups, rather deep, reaching a depth of 2-3 cm. or more, rarely expanded and shallow, externally ash-grey to brownish, minutely tomentose and conspicuously veined, stipitate; hymenium darker than exterior, brown to blackish brown; stem short and thick, up to 1-1.5 cm. in length by 1 cm. in diameter, deeply ribbed, the ribs of the stem being continuous with the veins on the cup; the stem gradually expanding into the cup; tomentum consisting of bunches of poorly developed, hyaline hairs, the component cells of which are strongly swollen but contracted at the point of union; asci cylindric above, spores obliquely 1-seriate, ellipsoid, hyaline with a single oil drop, smooth, 12-14 x 18-22 microns, paraphyses straight, enlarged above.

On ground in woods and open places. Early summer.



Figure 7. *Urnula craterium* (Schw.) Fr. Black urn

Fructing body at first closed above, finally opening by a star-shaped mouth which leaves the margin notched and infolded, externally black or brownish-black and clothed with a dense covering of tomentum, reaching a diameter of 3-4 cm. and a depth of 4-6 cm., the substance tough and leathery; interior brownish-black, a little paler than the outside of fruitbody. Stalk reaching a length of 3-4 cm. and a diameter of 5-8 mm., even or very slightly grooved near the base, black or brownish-black and attached to the substratum by a dense mass of black mycelium, gradually expanding above into the fruit body; hairs variable in length, thin walled, sparingly septate, flexuous, about 10 microns in diameter and of nearly uniform thickness throughout their entire length. Asci cylindric above, tapering below into a long stem-like base, reaching a length of 600 microns and a diameter of 15-17 microns; spores in one row, broad ellipsoid, smooth, hyaline, 12-14 x 25-35 microns; paraphyses thread-like, slightly enlarged above, pale brown.

On the ground in deciduous woods, attached to buried or partially buried sticks. Frequent.





Figure 8. *Bulgaria rufa* Schw.

Cups grouped or clustered, sessile or more often short stipitate, attaining a diameter of 2-3 cm., at first closed, finally opening and becoming shallow cup-shaped, with the margin incurved, externally blackish-brown and covered over with clusters of hairs, the substance tough, internally with a gelatinous layer several mm. thick, giving the fresh plants a rubbery consistency, on drying becoming leathery and strongly wrinkled; hymenium slightly concave, pale-reddish or reddish-brown, stem reaching a length of 1 cm. and a diameter of 4-5 mm., attached below by means of a dense mass of black mycelium which reaches a diameter of 7-8 microns; hairs blackish-brown, similar to the mycelium at the base of the stem but shorter; asci cylindric above, gradually tapering below into a long stem-like base, reaching a length of 275 - 300 microns and a diameter of 12-14 microns; spores in a single row, ellipsoid, with the ends strongly narrowed, hyaline, granular within, 10 x 20 microns, paraphyses thread-like, scarcely enlarged above.

Common in woods attached to buried sticks. Early summer.

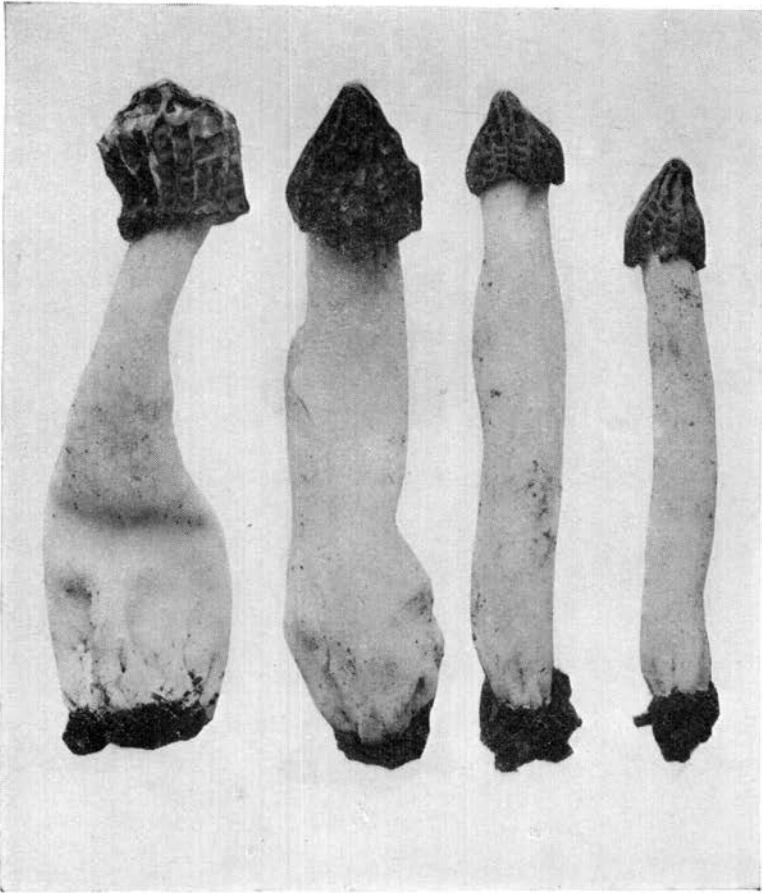


Figure 9. *Morchella hybrida* (Sow.) Pers. Hybrid morel

Head bell-shaped or subconic, reaching a length of 2 cm. and a diameter of 1.5 cm., the margin free about half way up; pits irregularly rounded or elongated, reaching a diameter of 5-10 mm., yellowish within; ribs inclined to be longitudinal or irregularly netted, about 1 mm. thick, lighter than the interior of the pits; stem thick, at first very short, finally reaching a length of 8-10 cm. and a diameter of 2 cm. at the base, gradually tapering upward to about half that diameter, delicately pubescent, whitish or yellowish, often irregularly grooved at the base, nearly even above; asci cylindric or sub-cylindric, reaching a length of 250 microns, and a diameter of 20 microns; spores in one row, ellipsoid, 12-14 x 22-26 microns, hyaline or faintly colored; paraphyses enlarged upwards, hyaline or subhyaline.

On the ground, usually in the margins of woods. May. Edible.

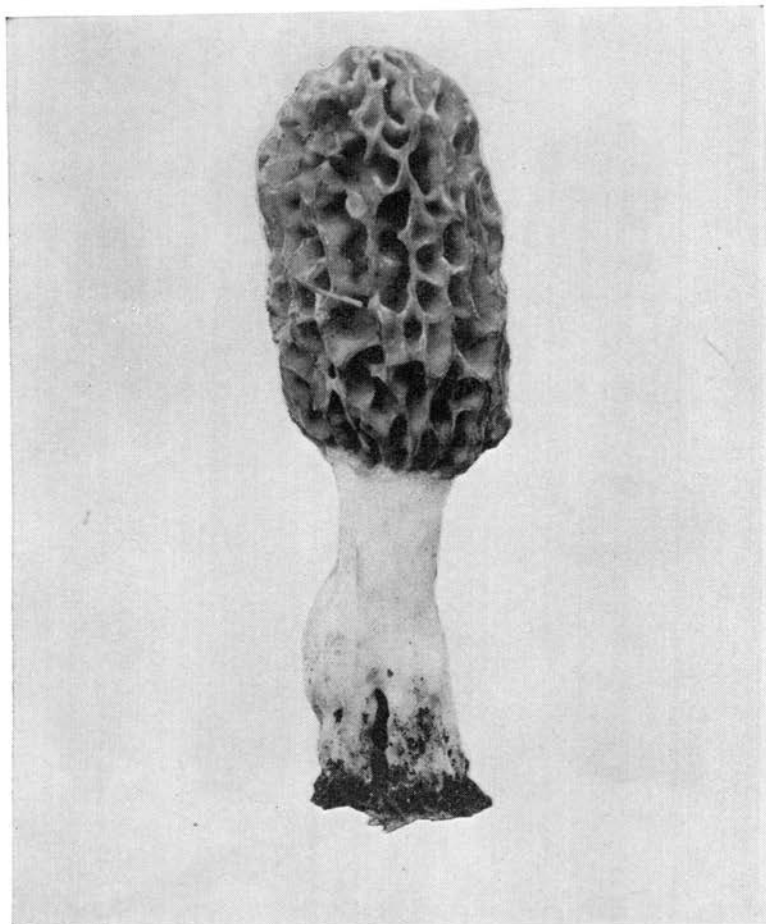


Figure 10. *Morchella esculenta* (L.) Pers. Morel

Head subglobose, ovoid, or elongated, occasionally pointed upward but obtuse at the apex, varying much in size but often reaching a diameter of 4-5 cm., and a length of 7-9 cm.; pits rounded, irregular, occasionally longitudinally elongated, yellowish within, becoming brownish or blackish when dry, reaching a diameter of 5 mm. to 1 cm.; ribs irregularly netted, not longitudinally disposed, the edges rounded about 1 mm. thick and lighter colored than the interior of the pits, usually whitish or yellowish; stem stout but usually not exceeding two-thirds the diameter of the pileus, usually a little enlarged at the base and irregularly grooved, nearly even above, whitish to yellowish, lighter than the head, delicately hairy, reaching a length of 200-250 microns and a diameter of 18-20 microns. Spores in one row, ellipsoid, hyaline, yellowish in mass, 12-14 x 20-24 microns; paraphyses strongly enlarged above, where they reach a diameter of 15 microns, faintly colored.

On the ground in woods and open places. May. Edible. Several other species are to be found in Iowa, the commonest being the following: *Morchella deliciosa*, *Morchella conica* and *Morchella crassipes*.



Figure 11. *Helvella caroliniana* (Bosc) Nees

Head irregularly lobed and folded and in places more or less twisted, the ridges often anastomosing and giving to the surface a netted appearance, whitish underneath, the margin adhering to the stem in various places, reaching a diameter of 5-12 cm.; hymenium brown to brownish-black; stem rather short and stout reaching a diameter of 2-5 cm. and a length of 8-10 cm., rather deeply grooved, the color white or whitish; asci clavate or subcylindric; spores in a single row, narrow-ellipsoid and often apiculate, 12-14 x 25-28 microns, usually containing one large oil-drop and often two smaller ones, at first smooth, becoming sculptured; spore-sculpturing assuming the form of minute warts or occasionally reticulations; paraphyses thickened above and colored.

On the ground. May. Suspected.

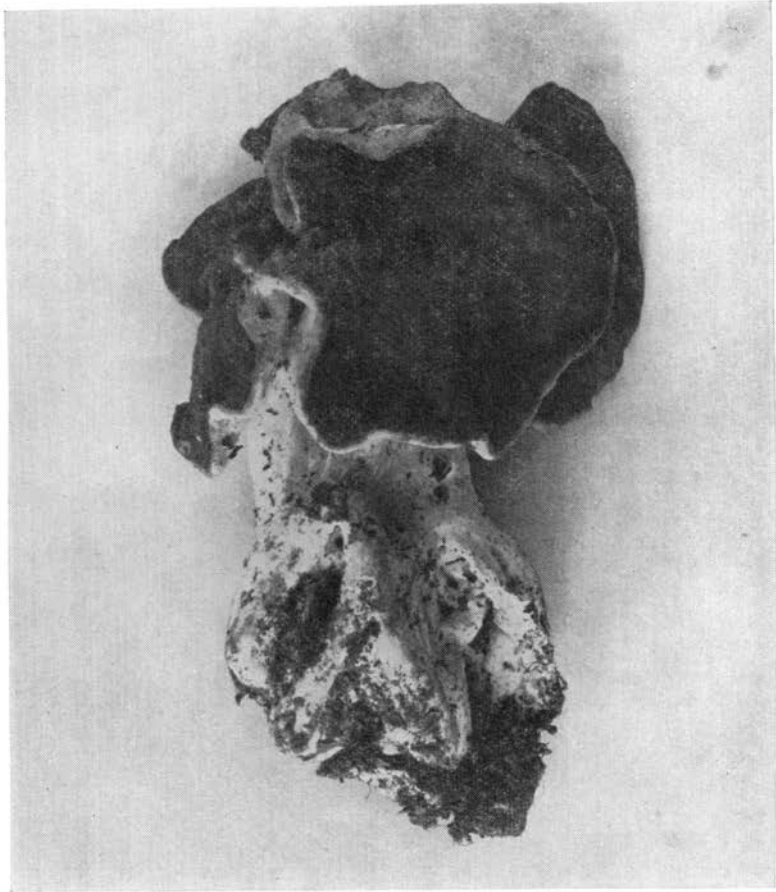


Figure 12. *Helvella underwoodii* Seaver

Cap broad, much contorted, irregularly lobed and folded, in places faintly marked into areas by indistinct anastomosing ridges, 5-12 cm. in its widest diameter; hymenium rich chocolate-brown, whitish below; stem 2-5 cm. thick, 8-13 cm. long, rarely slightly fluted, hollow, white; asci cylindric; spores ellipsoid, 14 x 28-30 microns, usually containing two rather large oil drops, becoming faintly sculptured by small warts or faint reticulations; paraphyses slender, enlarged at the apex.

In rich woods on leaf mould. May. Suspected.

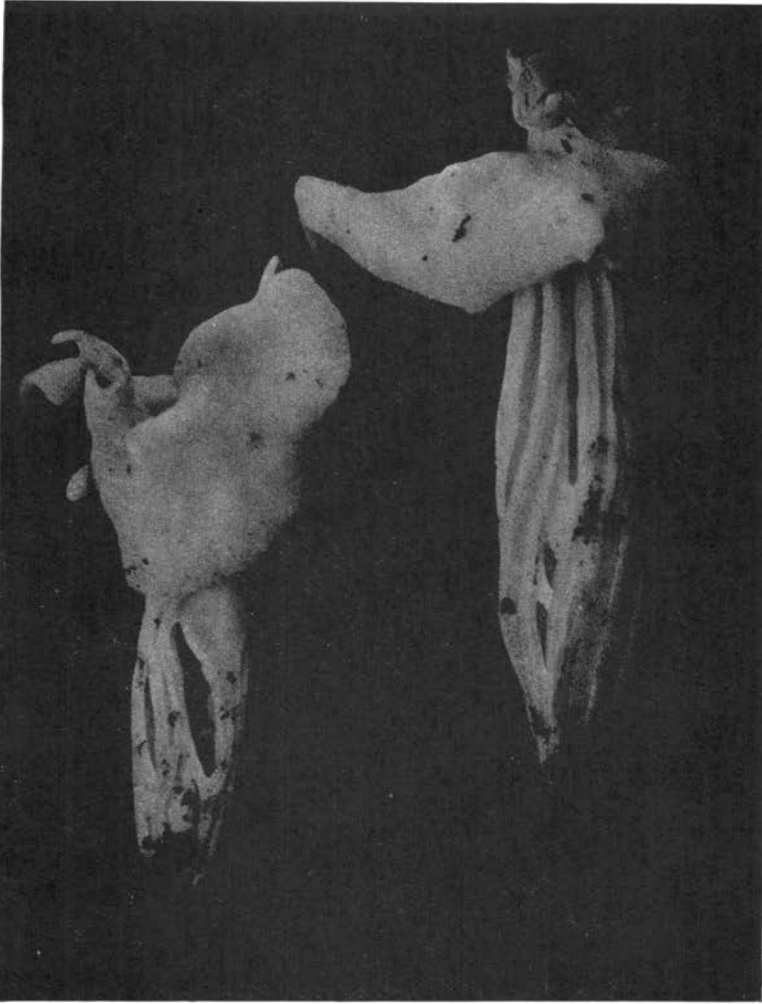


Figure 13. *Helvella crispa* (Scop.) Fr.

Cup mitrate or more often saddle-shaped, reflexed and usually irregularly lobed, reaching a diameter of 4-5 cm.; hymenium white, becoming cream or yellowish with age and especially when dried, even or more or less convoluted; stem up to 6-7 cm. long, and 2-3 cm. in diam., deeply fluted, entirely white when fresh, becoming cream or yellowish with age, still darker when dry; asci cylindric or subcylindric, up to 300 microns in length, 15-18 microns in diam.; spores 1-seriate, ellipsoid, containing one large oil-drop, 12-20 microns; paraphyses enlarged above.

On soil in wooded places. Throughout the summer.

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