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Illustrations of the fleshy fungi of Iowa, IX. Further Gasteromycetes

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Illustrations of the FLESHY FUNGI of Iowa, IX. Further Gasteromycetes

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In addition to the puff balls and stinkhorns reported on previously[1],[2] many other interesting fungi are found among the Gasteromycetes, a few of which it seemed proper to include in this series. They are certain earth-stars, the common birds'-nest fungi, a stalked puff ball and a curious form which throws its spore ball like a catapult.

The earth-stars, all in the genus Geastrum, are peculiar in that the outer wall of the basidiocarp, consisting of three well-defined layers, splits into lobes which bend away from the inner wall, giving the mature structure the characteristic star-shaped appearance. They are not uncommon but their color and the fact that they remain close to the ground allow them often to be overlooked.

The birds'-nest fungi, as the name implies, have a number of spore balls (peridioles) enclosed in cup-shaped receptacles (basidiocarps) which are covered by a rupturing membrane (epiphragm). The sporidioles are attached to the interior of the cup by a mycelial thread, the funiculus, which by hygroscopic movements causes them to be discharged from the cup and thus aids their dissemination. Two species in separate genera, *Crucibulum levis* (DC) Kambly and *Cyathus striatus* Pers. are presented.

Tulostoma campestre Morg. is the commonest representative of this rather infrequent genus to occur in Iowa.

Sphaerobolus stellatus Pers. grows on wood and horse dung throughout the state. The fact that the wall of the receptacle is able to change suddenly from a concave surface on which lies the spore ball to a convex surface, throws the ball to considerable distances. A range of some twenty feet has been reported.

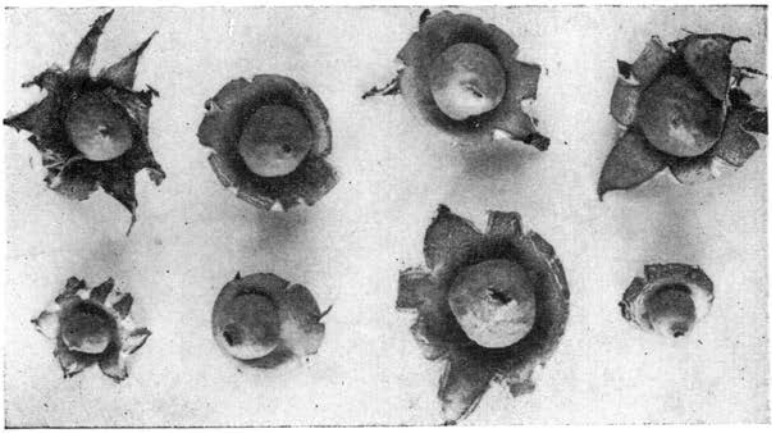

Figure 1. *Geastrum saccatum.*

The descriptions accompanying the illustrations have been taken with little modification from Longnecker[3] and Kambly and Lee[4] who have treated the Iowa species taxonomically.

Geastrum saccatum Fries. Figure 1.

Exoperidium 6-9 times divided, the tips turning under when completely open, base saccate, unexpanded specimens acute, diameter 2-5 cm. open; endoperidium subglobose, sessile, brownish, sometimes with tinge of red, diameter 1-1.5 cm.; mouth usually lighter colored than surrounding tissue and of different texture, somewhat conical; columella slender and reaching the center of the spore sac, sometimes scarcely discernible; capillitium hyaline, brown in mass, about as thick as spores; spores globose, minutely warted, about 4 microns in diameter.

In rich woods, August-October.

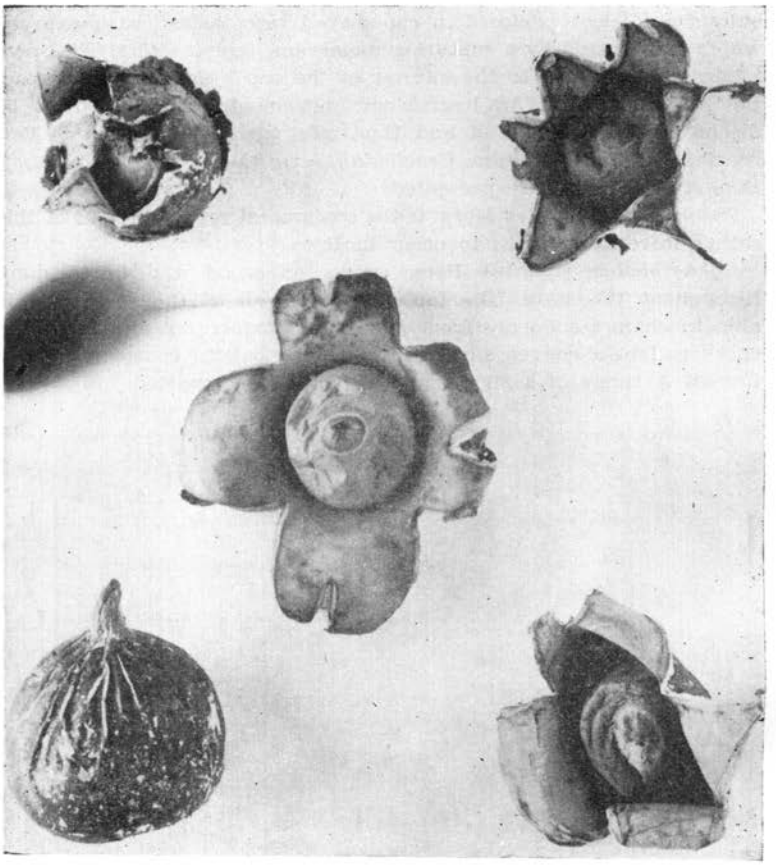

Figure 2. *Geastrum triplex.*

Geastrum triplex Jungh. Figure 2.

Exoperidium split into 5-7 segments, lower half of inner fleshy layer sometimes forming a cup about the endoperidium, upper half usually remaining adnate to the tips of the segments; segments, when fresh, light brown, size when open 4-5.5 cm.; unexpanded specimens globose or acute, size 1.5-3.5 cm.; endoperidium depressed-globose, sessile, light brown, diameter 1.8-2.5 cm.; mouth different in texture from the surrounding endoperidium, not grooved, sometimes seated in a slight depression, columella clavate to obconic; capillitium dark brown to soot-black, varying from 2-7.5 microns in diameter, averaging about 4 microns; spore globose, warted, 4-6 microns.

About old stumps and logs.

Geastrum coronatum Pers. Figure 3.

Exoperidium split about half-way to the base into about 7-8 lobes, the mycelial layer separating from the exoperidium in the middle and a little way out on the segments, but remaining attached at and

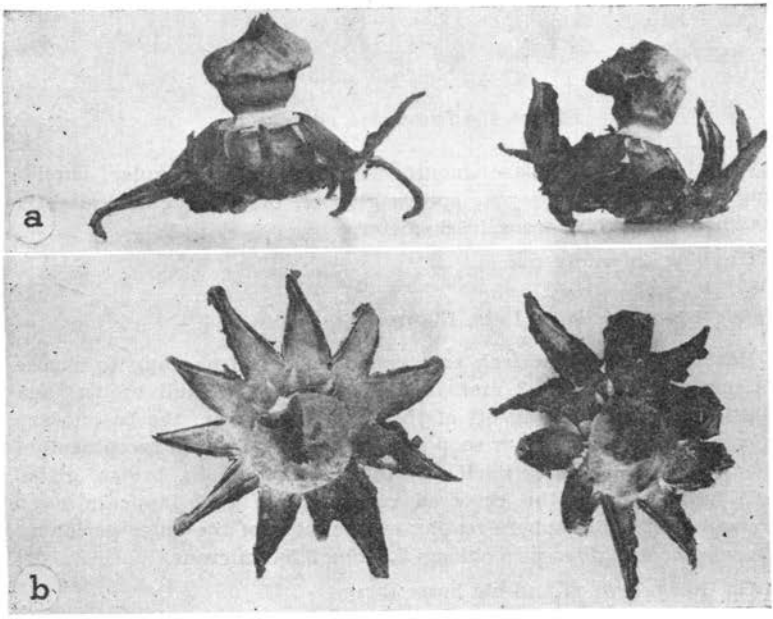

Figure 3. *Geastrum coronatum* a. Side view.
b. Top view.

near the tips, nearly fornicate, color light brown when fresh, becoming darker and cracked upon drying, diameter 4-5 cm.; unexpanded specimens subglobose, sometimes with a slight papilla at the tip, diameter unexpanded 2.3-3.5 cm., with a cord-like attachment; endoperidium depressed-globose, sessile when fresh, but becoming pedi-

cellate upon drying, grayish brown, size 1.8-2.5 cm.; mouth different in texture and lighter color than the endoperidium, but not grooved; columella globose; capillitium brown, 4-4.5 microns; spores globose, warted, 4-5 microns.

Found around base of trees.

Tulostoma campestre Morg. Figure 4.

Basidiocarp subglobose, 1-2 cm. in diameter; outer peridium wearing away except for the sandy basal portion; inner peridium pale brown; stipe 2-6 cm. long, 3-5 cm. thick, dark brown, scaly, with a

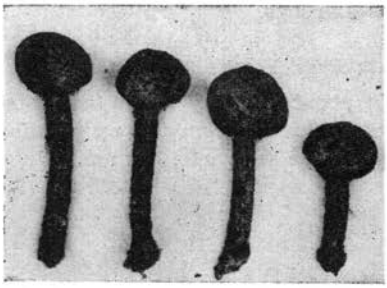

Figure 4. *Tulostoma campestre.*

mycelial bulb at the base; mouth central, usually irregular; capillitium swollen at the septa; spores globose, often irregular, slightly roughened, 4.5-7 microns in diameter.

Growing in sandy places.

Sphaerobolus stellatus Pers. Figure 5.

Basidiocarp subspherical, emerging from wood or dung to expose its upper surface, 1.5-2 mm. in diameter, at first dull brown then whitish with the flaking off of the superficial layer; the basidiocarp opening in stellate manner soon after exposure; the thin receptaculum then suddenly reverses itself and throws the smooth, brown, glebal ball into the air; the reversed receptaculum then appears as a transulucent white sphere resting on the lobes of the outer peridium; spores smooth, globose to oblong, 7.5-10 x 3.5-5 microns.

On decayed wood and old horse dung.

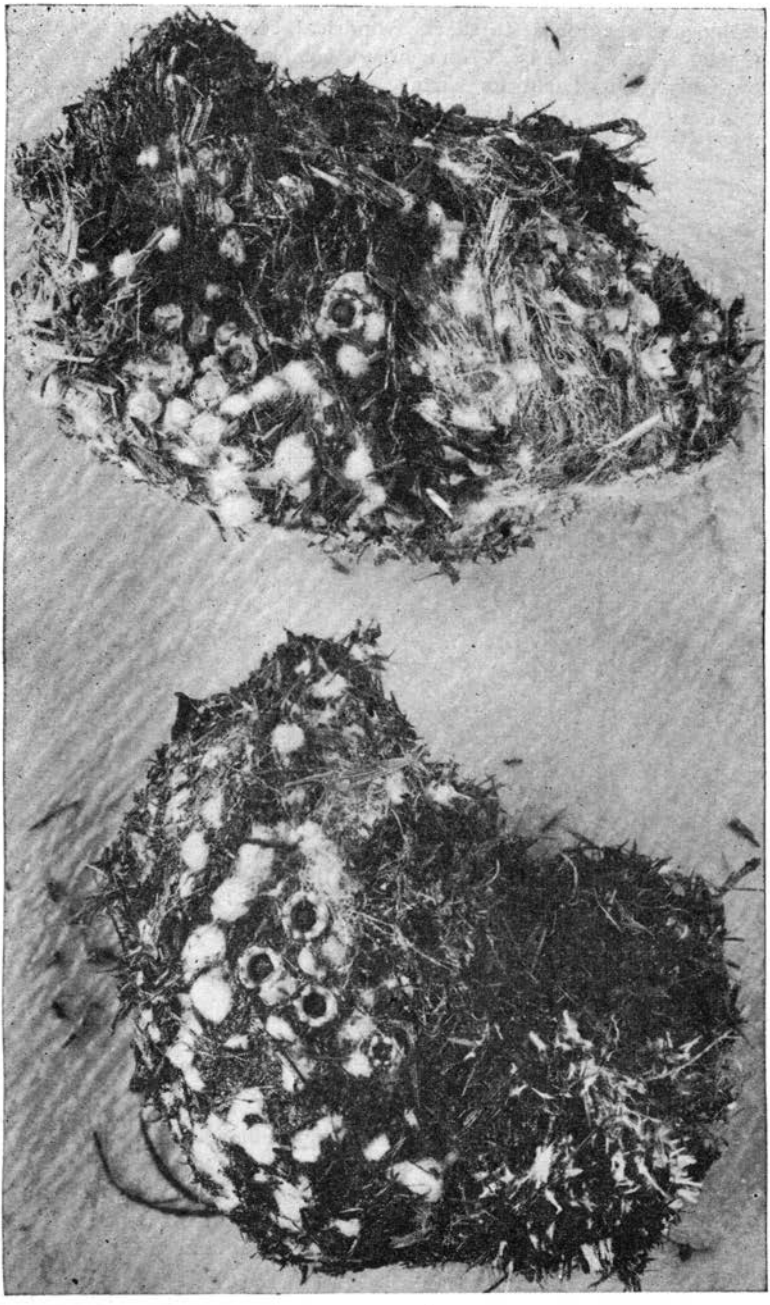

Figure 5. *Sphaerobolus stellatus.*

Crucibulum levis (DC) Kambly. Figure 6.

Basidiocarp subglobose to short, cylindrical, sessile, varying greatly in size, 3-8 mm. tall by 3-7mm. broad, not closely crowded, tawny yellow when young; exterior surface velvety, at maturity becoming

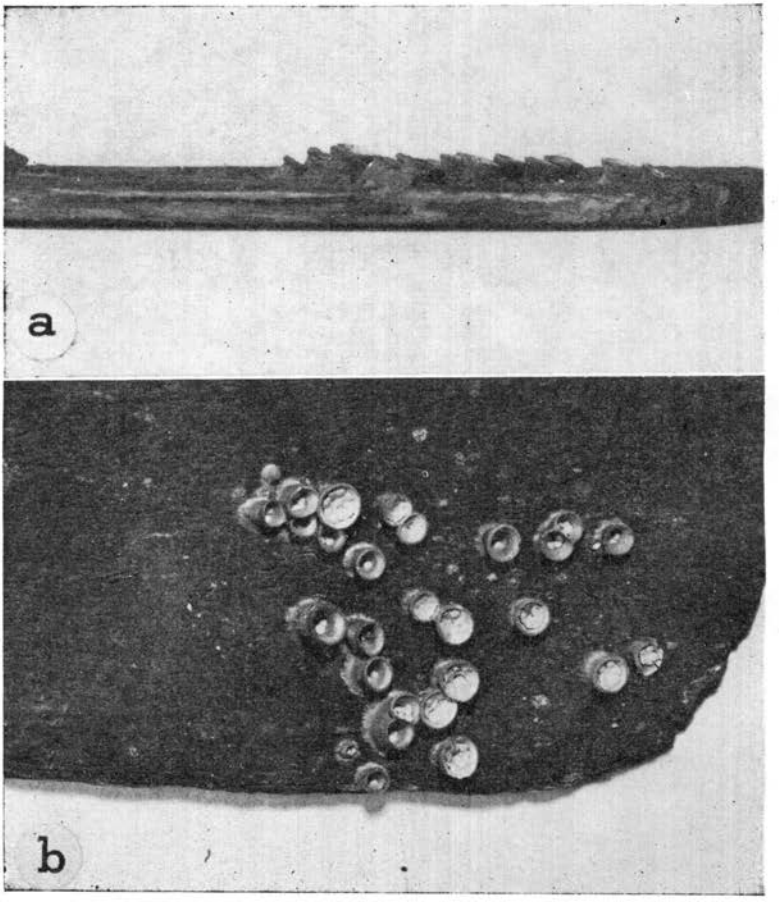

Figure 6. *Crucibulum levis.* a. Side view.
b. Top view.

lighter in color and almost smooth, interior surface gray, smooth shining, the coarsely hairy epiphragm rupturing at maturity to expose the circular, flattened, pallid peridioles, attached to the cup by a cord-like funiculus; the peridioles 1.5-2mm. broad, filled with smooth hyaline, ellipsoid spores, varying greatly in size, 4-10 x 3.5-6 microns.

Growing commonly on wood, twigs, corn stems and cobs, and old horse dung.

Cyathus striatus Pers. Figure 7.

Basidiocarp long, bell-shaped, 7-15 mm. tall and 5-8 mm. broad; outer surface dark brown, distinctly rough-hairy; inner surface pale to nearly black, glabrous, longitudinally striate; mouth opening at

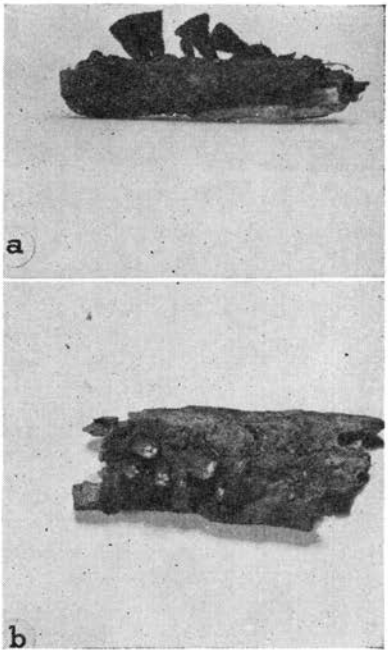

Figure 7. *Cyathus striatus.*
a. Side view.
b. Top view.

maturity by rupture of the epiphragm; peridioles in the lower portion of the basidiocarp, attached by an elastic funiculus; peridioles gray to brown, circular to angular; spores broadly cylindrical, smooth, hyaline, 14-20 x 8-12 microns.

Commonly found on dead wood.

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1. Gilman, Joseph C.
1945. Illustrations of the fleshy fungi of Iowa VII. Some common puff balls.
Iowa Acad. Sci. Proc. 52: 113-119.

2. Gilman, Joseph C.
1946. Illustrations of the fleshy fungi of Iowa VIII. The stinkhorns.
Iowa Acad. Sci. Proc. 53: (In Press).

3. Longnecker, W. M.
1927. The geasters of Iowa.
Univ. Iowa Studies Nat. Hist. 12: 29-43.

4. Kambly, P. E. and R. E. Lee.
1936. The Gasteromycetes of Iowa.
Univ. Iowa Studies Nat. Hist. 17: 120-185.