

MYCOLOGICAL NOTES.

BY C. G. LLOYD.

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CONCERNING THE PHALLOIDS.

During a recent visit we made to Kew we spent a number of weeks in a study of the literature of the phalloids, and of the specimens to be found at Kew and the British Museum, and we have also studied those at Paris. We expect in future to devote considerable space in Mycological Notes to the phalloids. At the present time it is largely a picture study, and excepting from Europe and portions of the United States, the subject is scantily known. Professor Ed. Fischer, of Berne, Switzerland, has made a specialty of the phalloids for a number of years, and with the aid of his work we feel that we accomplished more at Kew¹ in six weeks' study than we could have done in six months had we found the literature in as chaotic a condition as we found the puff ball literature.² Most of the phalloids of foreign countries that are known have been described from dried specimens and the pictures that represent them reconstructed, and we think there are some pictures that do not well represent the plants. Many Australian and Ceylonese specimens were described by Berkeley in his early days, at that period of his life when he was doing good and careful work, and most of his phalloid work was well done. Very fine work has been done in recent years on the phalloids of Java by Penzig and on the phalloids of Brazil by Ed. Moeller.

The main difficulty in studying foreign phalloids is the scanty and imperfect material on which much of the past work has been based. It was largely done with dried specimens, some of them now from sixty to eighty years old. Phalloids are largely characterized by their shape, and dried phalloids are for that reason infinitely better to work with than dried agarics, all of which have very much the same or similar shapes. But color is also an important character of phalloids, and dried specimens soon lose their color.

¹ In my opinion, there is no other institution in the world where one can study the literature and material of any botanical subject so conveniently as at Kew. Practically everything in the way of literature of phalloids I found there, and the chief advantage is the convenience with which the books may be consulted.

² Prof. Fischer has done good work on phalloids, and the only criticism we would offer is that he fills his papers too full of personal authorities for names. In many respects, it reminds us of the society notes in the Sunday newspapers.

WHAT IS A PHALLOID?—We presume there are very few of our readers who do not recognize a phalloid when they see one growing. They have one *strong* character in common, they are excessively fetid. Always fleshy plants, often bright colored, they assume most strange and bizarre shapes, and are objects that quickly attract the eye (and usually repulse the nose). Phalloids when young are enclosed in a gelatinous volva³ or egg (fig. 131) from which they usually develop very quickly, often in a few hours. The spores of the ripe phalloid are produced in a greenish, mucilaginous mass, which generally has an excessively fetid odor. This odor, as repulsive as it may be to us, serves a useful

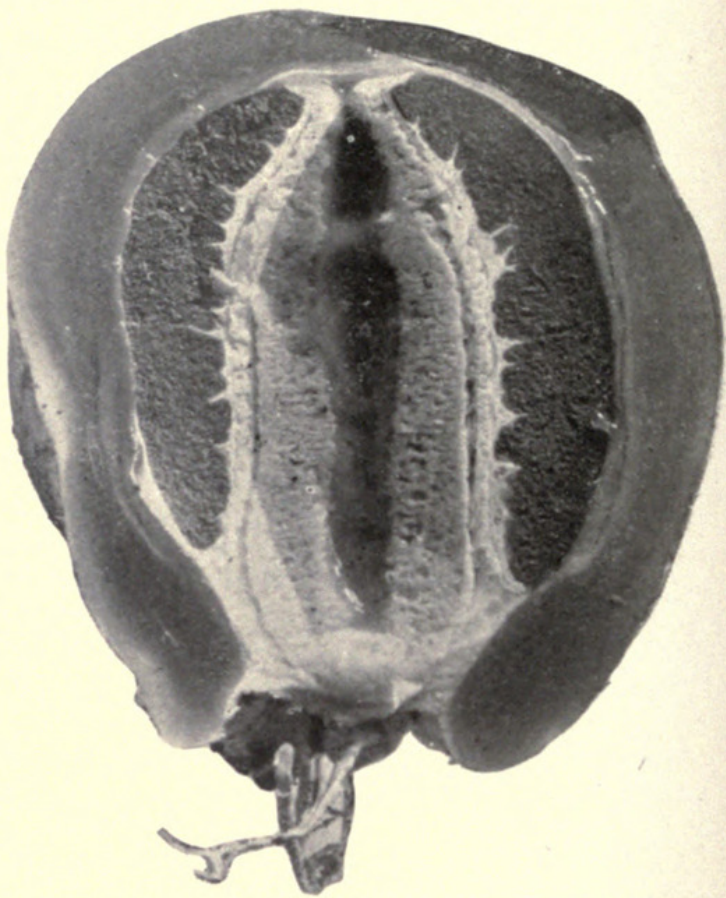


Fig. 131.

purpose for the plant as it attracts flies that are a means of dispersion of the spores. We shall not enter here into a review of the classification of the phalloids. That we hope will come later. We shall adopt the names in general use, following Professor Fischer very closely except in a few instances where he has proposed innovations that we feel are not as good classification as the older methods.⁴ Our first few articles on the subject we shall devote to a consideration and illustration of specimens that have reached us from our correspondents or are familiar to us from our own collections.

CLATHRUS GRACILIS (Plate 91).—We have received from H. S. James, Hamilton, Victoria, Australia, and from J. T. Paul, Grantville, Australia, alcoholic specimens of *Clathrus gracilis*. This seems to be a frequent species in Australia and is well represented by dried specimens at Kew. While we believe that our photograph (Plate 91) made from alcoholic specimens will give a crude idea of the plant, a photograph made from a fresh plant is much desired and we hope some of our Australian correspondents will have a photograph made for us

³ We do not exclude from the phalloids the genus *Phallogaster*, which has the main characters of a phalloid, but is devoid of a volva.

⁴ Thus the genus "*Clathrella*" does not appear to us as being well founded. *Laternea* is for us a very distinct genus from *Clathrus*. There never were good grounds to sink the old name *Phallus* and substitute a new name *Ithyphallus*.

from a fresh specimen. Berkeley described this species as *Ileodictyon gracile*,⁵ and gave a good figure of it in 1845. The genus *Clathrus*, in which we include the plant, was proposed by Micheli for the only species that grows in Europe or the United States (*C. cancellatus*). We would refer to the genus *Clathrus* all phalloids that have an unstalked receptacle, consisting of a net or latticed structure, and subglobose in shape. The color of *Clathrus gracilis* is pale or white. The branches of the mesh are flattened, even, very narrow and slender, varying from 2 to 3 mm. broad. They form a coarse net work with large meshes sub-equal in diameters.⁶ The gleba in the young plant completely fills the interior of the mesh (see Plate 91, fig. 5). As the plant expands the gleba deliquesces and remains spread evenly over the inner side.

SYNONYMS.—As previously stated the plant may be called *Ileodictyon gracile* if we consider this section of *Clathrus* a distinct genus. Prof. Fischer unites *Clathrus gracilis* to *Clathrus cibarius*, and it must be admitted they are very similar. However, in *Clathrus cibarius* the arms of the net are four or five times as broad as those of *Clathrus gracilis*. While intermediate specimens may occur, we have never seen them and all the specimens at London and Paris are very distinct. Besides there is a geographical difference. *Clathrus cibarius* is the New Zealand species, *Clathrus gracilis* the Australian. Of the many specimens we have seen not a single *Clathrus gracilis* from New Zealand and but one *Clathrus cibarius* from Australia. The strongest point, however, that would indicate to us that the two species are distinct is the structure of the net work. In *Clathrus cibarius* it consists of a single, large tube (see Plate 91, fig. 8). In *Clathrus gracilis* it shows from two to four united tubes (see Plate 91, fig. 6).

CLATHRUS CIBARIUS (Plate 91).—*Clathrus cibarius* of New Zealand is a very similar plant to the preceding, but much larger with broad arms to the net work. The width of the flattened arms is a centimeter or more. The plant was described by Tulasne in 1844 from specimens in alcohol, collected by Raoul in New Zealand, and now preserved at the Museum of Paris. It was said to have been eaten by the natives, hence the name, *cibarius*. The plant is known in Europe only from alcoholic specimens (which have the arms much wrinkled) and from pressed specimens (Plate 91, fig. 7) where the arms are flattened. The natural shape of a section of the arm is unknown, I think. A photograph of a fresh specimen is very much desired. As we do not have such photographs we give (Plate 91) a reproduction from a dried specimen, which at the best will give but a crude idea of the plant. *Clathrus cibarius* is the type of the genus *Ileodictyon* (see

⁵ The genus *Ileodictyon*, proposed by Tulasne, differs from *Clathrus* proper in having larger meshes to the net work, and (the original species) in having the branches of the net formed of a single hollow tube. In the species under consideration, *Clathrus gracilis*, this tube has partitions, being composed in fact of two to four tubes. There are several species described from dried specimens where the structure of the branches is unknown, and we feel it simplifies matters to consider *Ileodictyon* as a section of *Clathrus*. In some of Prof. Fischer's works, he takes this view of it; in others, holds the genus *Ileodictyon* distinct. We believe that the genus *Ileodictyon* is a good genus and that it differs from *Clathrus* in having *tubular* arms, while *Clathrus* proper has arms composed of large cells not tubular. We can not apply this distinction, however, to much of the material on which our knowledge is now based.

⁶ Some species of *Clathrus* (*C. pusillus*) have the lower branches sub-columnal, forming longated meshes.

note page 295) and is a very similar plant to *Clathrus gracilis* of Australia. It is not confined to New Zealand. Specimens are in the museum at Paris from Chile and at the British Museum from Chiloë (an island off the coast of Chile) which in all respects agree with the New Zealand plant. It is also reported from South Africa.

FORM FROM BRAZIL.—At the British Museum there is a specimen collected by G. A. Ramage, Pernambuco, Brazil, which is certainly a distinct form if not specifically distinct. It has the general appearance of *Clathrus cibarius*, but the arms of the upper meshes are narrower than those of the lower and the latter are somewhat columnar so that the lower meshes are elongated.

CLATHRUS CANCELLATUS (Plate 92).—We can not hope in an uncolored plate to do justice to *Clathrus cancellatus*. It is a most gorgeously bright, red plant and must be reproduced in color to give a good idea of it. Fortunately colored plates are not rare. Cooke, Barla, Bulliard, Mrs. Hussey, and others perhaps that we do not now recall, have all given excellent plates of it. The plant can not fail to be recognized from our plate even though uncolored as it is as striking in shape as in color. We feel that no description is necessary, but will mention that it has the reputation of being among the most fetid of phalloids. Its odor is so strong that Mrs. Hussey states it was with difficulty that she managed to complete the drawing of it. The odor of phalloids has been compared to rotten fruit, carrion, etc., but we think Sowerby has it nearly right when he states that the "smell is peculiar to itself."

DISTRIBUTION.—This plant is frequent in the "Midi" and "Bretagne" of France, in Italy and southern Europe in general.¹² Also in the islands of the Mediterranean and northern countries of Africa. It does not occur in France as far north as Paris, but is found on the Isle of Wight and a few stations in southern England.¹³ We have seen a specimen from Switzerland.¹⁴

In the United States it is a very rare plant. Fine specimens, collected in Florida, are in the museum at Harvard, and it is recorded from Georgia.¹⁵

The species has been recorded from Ceylon and New Zealand, but both we think are based on erroneous determination.¹⁶

SYNONYMS.—This plant was well illustrated by Micheli nearly two hundred years ago, and the name *Clathrus cancellatus* was based on his figure. It has been fortunate in escaping almost all synonyms and there has never been the slightest excuse for name juggling. Bulliard called it *Clathrus volvaceus*, and Barla is said to have named it *Clathrus nicænsis*.¹⁷

¹² From Dr. Hollós' book we learn that it is absent from Hungary, which is surprising, as it appears that the gastromycetes flora of Hungary is of a southern type.

¹³ Professor Massee tells me that the plant has reached him from English correspondents on three occasions: from Bournemouth, southern England; from Haslemere, near London; and once was collected on the banks of the Thames, near Windsor. He also informs me that it is usually found in fir woods (which I did not know).

¹⁴ I am told that in some of the deep valleys on the southern side of Switzerland, the climate is quite warm, and the vegetation is of a southern type.

¹⁵ We should be glad of other authentic records in the United States. It is stated by Cragin that it grows in Kansas; but we have not much confidence in his determinations. The New York record is doubtful, we think.

¹⁶ We fully agree with Prof. Fischer that the specimens from Ceylon are *Clathrus crispatus*, a very distinct species, and from New Zealand, *Clathrus cibarius*.

¹⁷ We are unable to confirm this. In Barla's "Champignons de Nice," a beautiful plate is given, under the name *Clathrus cancellatus*.



Fig. 132.

CLATHRUS DELICATUS (Fig. 132). — The most delicate and unique little Clathrus ever discovered is *Clathrus delicatus* of Ceylon. But one collection is known (now at Kew) which was made in 1868 at Peradeniya, growing "on rotten cocoanut husks." The gleba adheres in little globules to the angles of the meshes. Some idea of the diminutiveness of this unique, little species can be gained from our figure (132) which is an enlargement (*four diameters*) of the type specimens at Kew. Berkeley described but did not figure it.



Fig. 133.

SIMBLUM SPHÆROCEPHALUM (Fig. 133). — The genus *Simblum* can be described in a few words as being a *Clathrus* on a stem. At present there are four species known: *Simblum periphragmoides*, the original species from Mauritius, which was published and well illustrated by Hooker; *Simblum gracile*, which appears to be common in Ceylon and the East Indies and is very similar to the preceding but much more slender; *Simblum sphærocephalum*, very common in South America and very rare in North America; and *Simblum Texense*, which Mr. Long finds abundant in Texas, but which has not yet been published.⁷ It is very close to *Simblum sphærocephalum* but is yellow instead of red. *Simblum sphærocephalum* is well illustrated in the photograph we present herewith (Fig. 133) which was made by Rev. J. Rick, Brazil. The specimen is evidently abnormal, having two stems and a single head. It is an excellent photograph and gives a good idea of the clathrate structure of the receptacle. It is a very common plant in South America, as is evident in all literature.⁸ It usually has a red stem, as the names that have been applied to it, "*rufescens*" and "*coccinea*," indicate. Rev. Rick states that it sometimes has a white stem in his locality. In North America it is exceedingly rare. We have given in *Mycological Notes*, page 220, all the stations known to us.⁹

⁷ "*Dictybole Texense*, new genus, Atkinson," I am informed is based on this species.

⁸ Rev. J. Rick, Brazil, writes me: "It is *very common* here, and has a variety of forms and colors—as white and flesh color. I have collected both colors from the same mycelium."

⁹ Viz: Long Island, N. Y., Gerard; Nebraska, J. M. Bates; Kansas, E. E. Bartholomew; Washington, D. C., W. H. Scudder; Talbot County, Maryland, Charles McIlvaine. No other localities have been reported in answer to our request on page 220. We beg to ask again if any one knows of additional localities that he will write us and favor us with the data.

HISTORY.—As has been established by Professor Fischer, the plant was first called by St. Hilaire, *Foetidaria coccinea*.¹⁰ He gave no figure of it and as the genus *Simblum* had been well illustrated no one had any idea what was referred to under the "new genus" *Foetidaria*,¹¹ until Fischer decided from other evidence what the plant probably was. Schlechtendal named it *Simblum sphærocephalum* and gave a very fair illustration, although I do not think any phalloid has such a volva as he shows. When Gerard found the plant on Long Island he gave a good illustration of it and called it *Simblum rufescens*. Cragin found it in Kansas, and as everything he found was new, it was *Simblum rufescens* var. *Kansensis*. I have seen a figure of the type specimen of "*Simblum pilidiatum*, Ernst," and it is certainly the same plant.

LATERNEA COLUMNATA (Plate 92).—The genus *Laternea* differs from *Clathrus* in having the arms (usually three to five) disposed in a columnar manner, united at the top but *not* forming a network.¹⁸ *Laternea columnata* is a very common plant in our Southern States, particularly in Florida. How far north it extends I do not know, but I think the record of *Clathrus cancellatus* from New York was based on this species (Cfr. Myc. Notes, p. 150), and Rafinesque's reference "Pennsylvania" surely was. I should be glad of any authentic records of its occurrence in stations in any degree northern. It is found also in the West Indies and South America. West Indian plants that I have seen are more slender than the American plant, but those from South America¹⁹ seem the same in every particular. It is doubtful if the plant occurs in New Zealand.²⁰

We do not give any description of *Laternea columnata* as our plate is the best description we can give. The plant is red and exceedingly fetid. In Florida it is known to the natives as "Dead Men's Fingers."

Since this page has been in type we have received from C. E. Pleas, Florida, a fine photograph of *Laternea columnata*, better than those we present on our plate (92). We regret that it was received too late to be inserted here, but we will not fail to reproduce it in our next article on the phalloids. Good photographs of phalloids are what are particularly needed to make the subject plain.

HISTORY.—Bosc gave a good figure of this plant in 1811 from specimens collected in the southern United States and called the plant *Clathrus columnatus*. Turpin proposed the genus *Laternea* in 1822 for a three-columned plant (*Laternea*

¹⁰ Prof. Fischer very sensibly refrained from juggling it, the plant being well established under Schlechtendal's name. My friend Prof. McGinty, has no such scruples, and proposes for it the new combination "*Simblum coccineum*, St. Hilaire, McGinty." There does not seem to have been any specimen sent to Europe by St. Hilaire, nor even a crude figure, and all that can be known of it is by working backward, a favorite method with modern name jugglers.

¹¹ When "rules" are made for the naming of cryptogamic plants, I hope proper consideration will be given to that large element of "new species" makers who do not know when their plants belong to old and well-known genera.

¹⁸ There are a number of species of *Clathrus* that have the lower arms disposed in a somewhat columnar manner, but developing into a network above.

¹⁹ Rev. J. Rick, Brazil, writes me that "many forms" of the species occur with him.

²⁰ At Kew there is a specimen, collected by T. Kirk, at Lynton Downs, New Zealand, which, to me, has the appearance of being an obese form of *Laternea columnata*, but it is so broken and in such condition that I am not at all sure.

triscapa) that he figured (Fig. 134) from specimens from a little island, Tortuga near San Domingo. Nees von Esenbeck transferred the American plant to the genus *Laterna*. For a long time it was supposed that the number of columns (three) was the specific character of Turpin's species and three-columned specimens of *Laterna columnata* have been so referred. It is now known that the number of columns varies in *Laterna columnata*: usually four, they are sometimes three and sometimes five. Turpin's figure is only about one third the size of the American species, with very slender columns, and if any specific difference exists it is in the general size of the plants, not in the number of the columns. Turpin's plant has never been refound unless Berkeley's little *Laterna pusilla* from Cuba is a small form of it, but *Laterna pusilla* is as much relatively smaller than *Laterna triscapa* as that is smaller than *Laterna columnata*. *Laterna columnata* collected in Brazil was at one time called by Prof. Fischer *Clathrus brasiliensis*, and at another time *Clathrus cancellatus* var. *brasiliensis*, and at one time he called the American plant *Clathrus cancellatus*, var. *columnatus*. He has since receded from all these opinions, and it is quite evident the species is no form of *Clathrus cancellatus*. It is almost certain that *Laterna columnata* is what Rafinesque called the genus *Colonnaria* (Cfr. Myc. Notes, p. 129) and although the name is much prior to *Laterna* the name juggler has not yet appeared, who no doubt will present himself in good time and propose a "new combination."

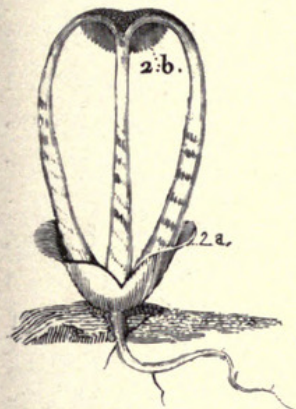


Fig. 134.

thrus cancellatus var. *brasiliensis*, and at one time he called the American plant *Clathrus cancellatus*, var. *columnatus*. He has since receded from all these opinions, and it is quite evident the species is no form of *Clathrus cancellatus*. It is almost certain that *Laterna columnata* is what Rafinesque called the genus *Colonnaria* (Cfr. Myc. Notes, p. 129) and although the name is much prior to *Laterna* the name juggler has not yet appeared, who no doubt will present himself in good time and propose a "new combination."

MUTINUS ELEGANS (Plate 93).—The genus *Mutinus* has a single stem or stalk (receptacle it is called) bearing the gleba directly on the upper portion of the stem. It will be recognized at once from our figure. Around Cincinnati it is perhaps the most common phalloid we have. What its geographical distribution is I do not know, but it occurs as far west as Missouri (Dr. Glatfelter) and as far east as Pennsylvania (Dr. Herbst). I judge from Prof. Burt's writings that in the extreme east it is mostly replaced by other species. The color of *Mutinus elegans* is flesh color or deeper red. The form, thicker below and tapering above, is characteristic of the plant as it grows at Cincinnati, and to my mind is its specific character. Whether the "club-shaped" plant which we now call *Mutinus Ravenelii* is only a form of *Mutinus elegans*, or whether it is a distinct species we are undecided, but we feel quite sure *Mutinus Ravenelii* is not *Mutinus caninus* of Europe, as has been stated.

HISTORY.—Sullivan sent from Columbus, Ohio, a figure of this plant and a specimen to Montagne, who labeled it in his herbarium "*Caromyxa elegans*," but did not publish it until after Berkeley had published "*Corynites Ravenelii*," when it was published (Sylloge 1856, p. 281) as *Corynites elegans*. The specimen is still in good condition in Montagne's herbarium. Berkeley published the plant in 1873 as *Corynites Curtisii* (changed by Fischer to *Mutinus Curtisii*) and the type at Kew is characteristically this species. Morgan gave a good figure of it and published it in 1889 as *Mutinus bovinus*, and as he was the first to give a description and figure from which the plant could be recognized, we would accept his name if it were as good as his figure.

MUTINUS RAVENELII (Fig. 135).—There occurs in the United States a species very similar to the preceding but which is smaller and *club shaped*, being broader above and tapering below. This

plant was named by Berkeley, *Corynites Ravenelii*. It seems to be a com-

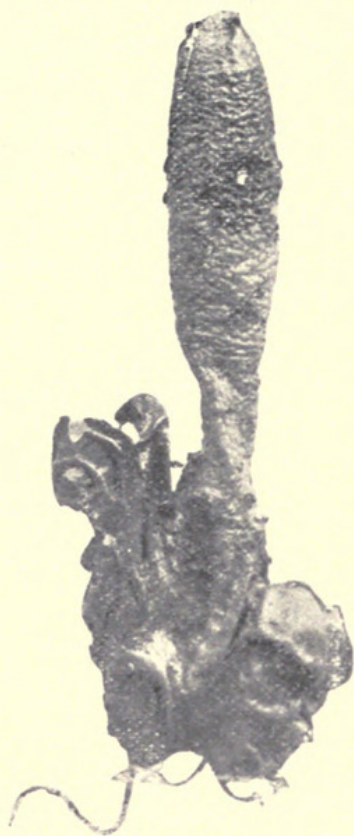


Fig. 135.

mon form in the eastern states but is rare in the west and I have never seen it at Cincinnati but once. It has the same structure as the previous species *Mutinus elegans*, but differs in form only. Whether it is a form of *Mutinus elegans* or a distinct species I have no opinion at present. I should be glad if the readers of *Mycological Notes* would observe this season the forms of *Mutinus* and advise me if they find both forms in their section, or only one of them, or any other information that will aid in clearing up this question. Prof. Burt, in his recent excellent paper on the phalloids, has referred *Mutinus Ravenelii* as a synonym for *Mutinus caninus* of Europe. In this we feel quite certain he is mistaken. *Mutinus caninus* will be considered and illustrated in our next issue. It has a structure quite different from the specimens of *Mutinus Ravenelii*. The gleba bearing portion of the plant is very short, abruptly contracted, formed of small cells, quite different from the large cells of the stem of the plant. The gleba is *definitely limited* to this portion of

the plant and is a thick layer, so at first sight the plant appears to have a cap or pileus. When Berkeley described *Corynites Ravenelii* he specially pointed out that the receptacle is uniform in its cellular structure and the gleba is not definitely limited, and on this difference from the structure of *Mutinus caninus* he based the genus *Corynites*. Prof. Burt, in his paper, correctly gives the structural characters of *Mutinus caninus* and he is a very careful observer and records the species frequent with him. We have received a specimen of *Mutinus caninus* from James Fletcher, Canada, hence we have in the United States, I think, three species or forms of *Mutinus*, viz: *Mutinus elegans*, *Mutinus Ravenelii*, and *Mutinus caninus*. I should be glad to receive any specimens or information that will throw light on the subject. It is quite evident from Ravenel's herbarium at the British Museum that he did not consider the shape (as we have in this paper) as the character of *Mutinus Ravenelii*. His type specimen "No. 888" (concerning which he writes a long letter insisting that it is the "true type") is club shaped, but his sketch that accompanies it is the shape of the plant that in this paper we have called *Mutinus elegans*.

CONCLUSIONS.—We expect to continue in the succeeding numbers of *Mycological Notes* a consideration of the phalloid subject until the leading species are considered and illustrated. We shall be very glad to receive from our friends and correspondents any notes, specimens (dry or alcoholic), photographs, or information that may aid in the work. We append a list of the dried specimens that have

thus far reached us. We have a number of additional alcoholic specimens in our museum at Cincinnati, but the list is not available here in Paris.

SPECIMENS IN OUR COLLECTION.

- ASERÆ HOOKERI, *New Zealand*, Miss Jessie Dunn.
CLATHRUS CIBARIUS, *New Zealand*, Miss Jessie Dunn.
CLATHRUS CRISPUS, *Jamaica*, Miss Barrett.
CLATHRUS CANCELLATUS, *Portugal*, Rev. Torrend; *Italy*, M. Bezzi; *France*, L. Rolland; *Spain*, T. de Aranzadi.
CLATHRUS GRACILIS, *Australia*, J. T. Paul, F. Reader.
KALCHBRENNERA CORALLOCEPHALA, *South Africa*, J. M. Wood.
LATERNEA COLUMNATA, *Florida*, C. E. Pleas.
LATERNEA PUSILLA, *Jamaica*, W. Jekyll.
MUTINUS CANINUS, *Canada*, Jas. Fletcher; *Ireland*, Greenwood Pim; *Germany*, C. Engelke, Otto Japp.
MUTINUS ELEGANS, *Cincinnati*, C. G. Lloyd.
MUTINUS RAVENELII (?), *New Jersey*, E. B. Sterling.
PHALLOGASTER SACCATUS, *Ohio*, C. G. Lloyd, and also at *Eglen, W. Va.*
PHALLUS AURANTIACUS, *Hawaii*, D. D. Baldwin.
PHALLUS DUPLICATUS, *Iowa*, L. R. Waldron; *Ohio*, C. G. Lloyd.
PHALLUS INDUSIATUS, *Jamaica*, H. E. Cox, Miss Barret; *Samoa*, C. G. Lloyd.
PHALLUS IMPERIALIS, *Italy*, M. Bezzi; *Colorado*, E. B. Sterling; *Texas*, W. H. Long, Jr.; *California*, L. G. Yates; *Washington, D. C.*, F. J. Braendle. (NOTE.—Phallus imperialis is only a form of Phallus impudicus with pink volva, but it appears to be the only form that occurs in the United States. In England it is a very rare form and Prof. Massee tells me that while Phallus impudicus is a very frequent plant in England, he has seen the form imperialis but once. Monsieur Boudier tells me he notes a distinction in habitat and in odor of the two plants at Paris.)
PHALLUS RAVENELII, *Pennsylvania*, Wm. Herbst; *Iowa*, F. J. Fitzpatrick.
PHALLUS RUBICUNDUS, *Texas*, W. H. Long, Jr.
SIMBLUM SPHÆROCEPHALUM, *Nebraska*, Rev. J. M. Bates.
SIMBLUM TEXENSE, *Texas*, W. H. Long, Jr.

THE COMMON BIRD'S-NEST FUNGI.

We have just finished work on a monograph of the Nidulariaceae. As it embraces all known species, both rare and common, including many species found only in the tropics, we feel that it will be of less interest to our general readers than an account of our common species which every one meets. There are *but four* common species of bird's-nest fungi, either in Europe or the United States, and as far as I know and believe only five rare ones. Of the one hundred and seventy-six specimens we have received from correspondents one hundred and sixty-five belong to these *four* common species. We do not include in the above summary Sphaerobolus stellatus, which although it has the same general structure as the family, has but a single peridiole, and is not in the popular mind associated with bird's-nest fungi. Every child knows the little cups that they liken to little birds' nests filled with little eggs. In botanical language the cups or nests are known as the peridium and the little eggs as peridioles.¹

¹This is the term that I shall employ for them, though it is not strictly correct, the word sporangioles being more frequently used.

Each peridiole (in all our common species) is attached to the peridium by a slender cord (called funiculus) which when wet is elastic and capable of long extension. The peridioles of all these four common species are black, but three of them have what is known as a tunica, a thin, white membrane surrounding the peridioles. *Crucibulum vulgare* alone has a tunica thick enough to hide the color of the peridioles, and hence is the only species with white "eggs." Our four common species differ widely from each other, so that there is no trouble in naming them from their general appearance and habits. The peridioles are filled with microscopic spores, and the most marked difference to the mycologist is the relative size of these spores, but that is not a question that we shall consider here, as the object of this article is to give a general description by which our common species can be readily known without the use of the microscope.

CRUCIBULUM VULGARE (Fig. 136).—We present a figure of this plant growing on a piece of old mat. Its usual habitat is sticks, chips, etc. Sometimes, very rarely, it grows on cakes of manure, but



Fig. 136.

it never I think grows on the bare ground. The cups are subcylindrical in shape, not so tapering as the other species, and the color when young yellowish, and it is the only species of this color. When old the cups bleach out and lose their yellow color. The mouths of the young specimens are covered with a thin, *yellowish* membrane (called the epiphragm), and most of the specimens in our figure still have the epiphragm. The peridioles (or "eggs") are white,² and this is the only bird's-nest fungi that has white eggs. There should, therefore, be no trouble in recognizing *Crucibulum vulgare* by its yellowish color and white eggs.

² For the purposes of this article, in reality it is the tunica (a membrane that surrounds the peridioles) that is white.

CYATHUS STRIATUS (Fig. 137).—This species is usually found on sticks, sometimes in the ground, but then attached to buried sticks. While *Crucibulum vulgare* has more of a “domestic” nature,

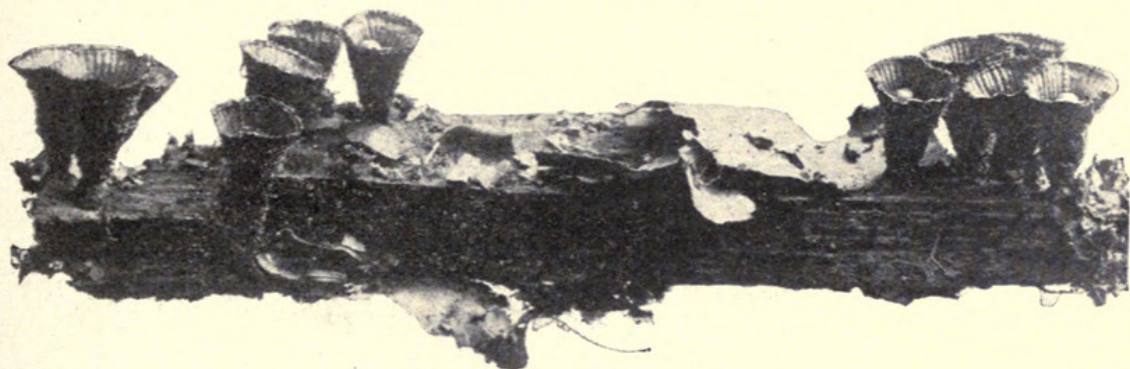


Fig. 137.

being found often around houses, on chips in the wood yard, on board walks, etc. *Cyathus striatus* has more of a wild nature, and is generally found in the woods on brush heaps, etc. It can always be known by the striations or lines on the inside of the cups as shown in our figure. *Cyathus striatus* is the only species in the United States or Europe that has these marks.³ The color of the cups is dark brown or black, and the European form is darker than the American.⁴ The peridioles of *Cyathus striatus* only fill the lower part of the cup below the striations. They have a thin, whitish, surrounding tunica, but the eggs would be called black. I think there can be no trouble in recognizing *Cyathus striatus* from its striations.

CYATHUS VERNICOSUS (Fig. 138).—This is the only species that is likely to be found growing in the unmanured ground. Sometimes it is attached to buried sticks, but it rarely if ever grows

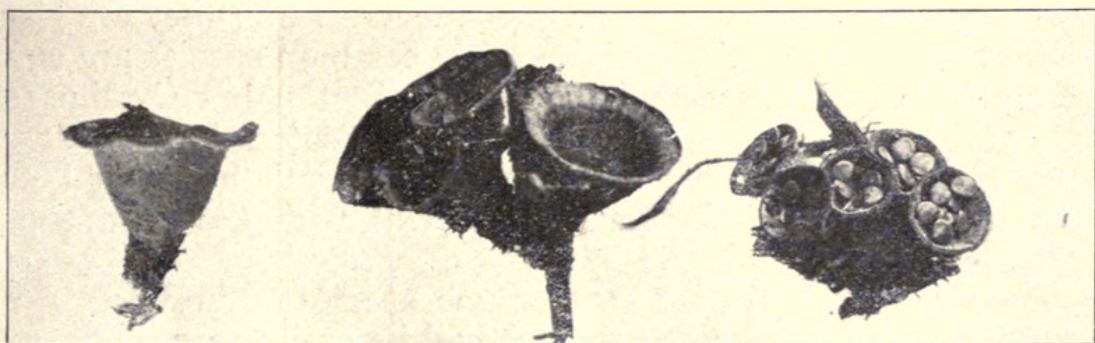


Fig. 138.

on wood as the other species usually do. Like *Cyathus striatus*, it is rather of a wild nature, being usually found on bare ground in fields, borders of woods and similar places. It is readily known by the

³ In warm countries there are several species of this character.

⁴ The American plant is a distinct form (called var. *Schweinitzii*) and differs from the European not only in lighter color but in the structure of the tunica.

cups which are thicker, firmer, more flaring, smooth inside and smoother outside than other species. The "eggs" or peridioles are black (though covered with a very thin, white membrane) and they are much larger than any other species known (usually 3 mm. in diameter).

CYATHUS STERCOREUS (Fig. 139).—This is the manure-loving species, and is usually found on cakes of manure or in manured ground, such as gardens, lawns, fields, etc. The cups are even in-

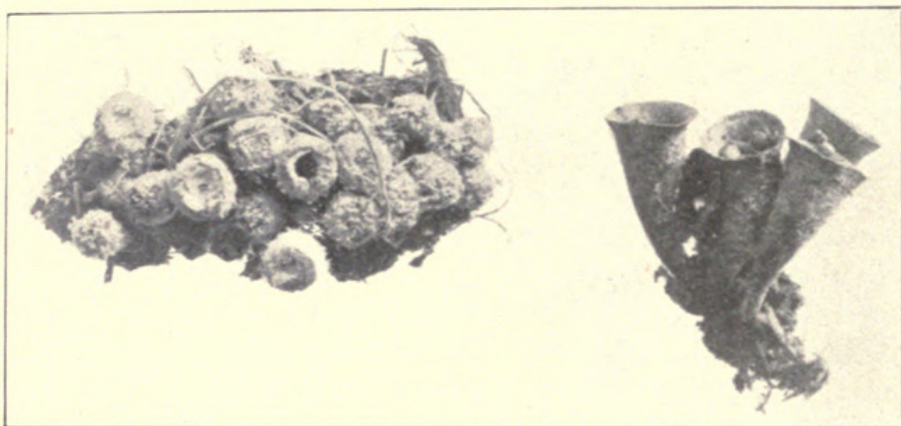


Fig. 139.

side, and with shaggy hairs outside. When old they become smoother, and are sometimes mistaken for *Cyathus vernicosus*.⁵ However, when once learned, the plants can be readily distinguished by the cups. *Cyathus stercoreus* varies considerably, however, as to shape and size of cups, according to habitat. If growing on cakes of manure, they are shorter, more cylindrical; if in loose, manured ground, especially in grass, they are more slender and inclined to a stalk at the base. The latter form is called *Cyathus Lesueurii*. The peridioles or "eggs" of *Cyathus stercoreus* have no tunica whatever,⁶ hence they are blacker than other species. All three of the other common species are equally abundant, both in Europe and the United States, but *Cyathus stercoreus*, while very common in the United States, is *very rare in Europe*. I have seen in a garden near Cincinnati the ground under currant bushes covered for yards in extent with the little cups as thick as they could stand.

We have presented the four common species of Bird's-nest fungi in such a manner that we feel they should be easily recognized. And these four are all the species that most of our readers will ever find.

⁵ A picture of the species is published in Miss Marshall's book and labeled *Cyathus vernicosus*. There is no good reason why any one who examines the spores should confuse the two plants as *Cyathus stercoreus* has *very large*, subglobose spores, 30 to 50 mic. while *vernicosus* has small, elliptical spores, rarely 15 mic. long.

⁶ This contradiction of what Tulasne states as to the same plant is only a contradiction as to terms. What Tulasne called the tunica in this species is for us the outer coat of the peridiole itself and is of a different nature from what we designate as a tunica.

FREAK PUFF BALLS.

When L  veill   described his "Hippoperdon Pila" (Cfr. Myc. Notes, p. 178) he was very positive he had a perfect plant. We think we have demonstrated that he was entirely mistaken and that what he had was the *sterile base* of *Calvatia lilacina*. If L  veill   had



Fig. 140.

Fig. 141.

had the specimen that is before us now, which we have just received from Miss Jessie Dunn, New Zealand, he could well have claimed that he had a "perfect plant," that is, an entire plant, for the specimen (Figs. 140 and 141) is certainly perfect and complete. It consists entirely of tissue such as one ordinarily finds in sterile bases, and there are a *very few* globose, echinulate spores to be found in the tissue.

In my opinion it is only a "freak." The real relation of the "sterile base" to the "fertile portion" of a puff ball is, I think, not known.

Professor Patouillard tells me that one finds in the young sterile bases a *hymenial layer* and *basidia*. Why they remain mostly sterile and do not produce spores is a question for the cytologist to solve. Whatever the cause may be it is curious that Miss Dunn should find an example that is, at the same time, a perfect puff ball and a perfect sterile base.

While on the subject of "sterile bases," it is really amusing as we look back at it—the theories that some of the old mycologists had to explain "sterile bases." Bosc, who figured one,¹ was very much puzzled to explain its dehiscence. He states, 'I have never seen it open naturally to spread its seeds. It is the insect which perforates it, the feet of the quadrupeds which crush it, the winds which bruise it against the trees, that supply the defect.' If the explanation was not true, it was at least ingenious.

THE GASTROMYCETES OF MISS MARSHALL'S BOOK.

Miss Marshall wrote her "Mushroom Book" as a kind of commentary on some photographs by J. A. and Miss H. C. Anderson. The plates are excellent and much better than the text. The book, however, is a good introductory work on American mycology, and I think stands next to Atkinson's, but both are primers. A good text book

¹ He called it *Lycoperdon cyathiformis*, and some would on that account call *Calvatia lilacina*, *Calvatia cyathiformis*. When we get the much talked about "rules," when one can put a nickel in the slot and draw out a valid name, we hope it will be made definitely clear what value these old "cul de jatte" have in nomenclature.

of American agarics is much needed. The only man in America, I think, who has the practical field knowledge to write a book of much service, is Professor Peck, but he is so busy that he does not find time.

The following plates of Miss Marshall's book are very fine and are correctly named: *Lycoperdon piriforme*, *Calvatia craniiformis*, *Bovistella Ohiensis*, *Geaster minimus*, *Geaster hygrometricus*. The following plates are better than the names: *Calostoma Ravenelii* (= *Mitremyces*), *Calostoma lutescens* (= *Mitremyces*), *Scleroderma vulgare* (= *Scleroderma aurantium*), *Calvatia cyathiformis* (= *Calvatia lilacina*). The figure of the latter is more globose than is characteristic of the species as it generally occurs. *Calostoma cinnabarinum* (= *Mitremyces*) does not appear to me as good as those of the other two species, both of which are very fine and the best figures I know of them. *Lycoperdon subincarnatum* is good, but larger specimens than usual. The two following are misdetermined and misnamed: *Cyathus vernicosus* is a characteristic figure of *Cyathus stercoreus*. *Mutinus caninus* is *Mutinus Ravenelii*, quite different from *Mutinus caninus* of Europe.

AN UNKNOWN SOUTH AMERICAN LYCOPERDON.

It seems superfluous to us to put the above head in the singular number. All puff balls of South America are practically unknown in Europe, for while many species have been named and described, there is no way to even guess with any degree of certainty what they really are. Not a great many specimens have reached us from South America, but such as have are practically all old and well-known plants of the remainder of the world, and there is nothing to indicate that the species of South America are not in the main the same as those of other parts of the world. The following species, however, impresses me as being very different from all others as far as I know. When I first saw it I thought it was a subglobose form of *Lycoperdon fuscum*.† The same cortex, color, appearance, and with a *decidedly purple cast of the gleba*. All *Lycoperdons* that I have seen that have distinctly *purple gleba* have *large, rough spores mixed with fallen pedicels*. (Cfr. *Myc. Notes*, p. 221.) We were greatly surprised in consequence to find that under the microscope these plants have *small, smooth spores and no trace of pedicels*.

LYCOPERDON SEPTIMUM (Fig. 142).—Peridium subglobose, with a strong root, *dark* in color. Cortex minute, stellate, dark, nodular spines (Fig. 143 enlarged). Sterile base none. Gleba umber-purple. Capillitium deeply colored. Spores globose, *smooth*, 4-5 mic.,

† We shall continue to use the name *Lycoperdon fuscum* in the sense that we have published it, *Myc. Notes*, p. 210, notwithstanding that a chance discovery since of an authentic specimen from the original user of the name has shown that his was quite a different plant.

unmixed with pedicels. We have named this plant "seventh" in reminder of the fact that it belongs to the seventh section of a recent

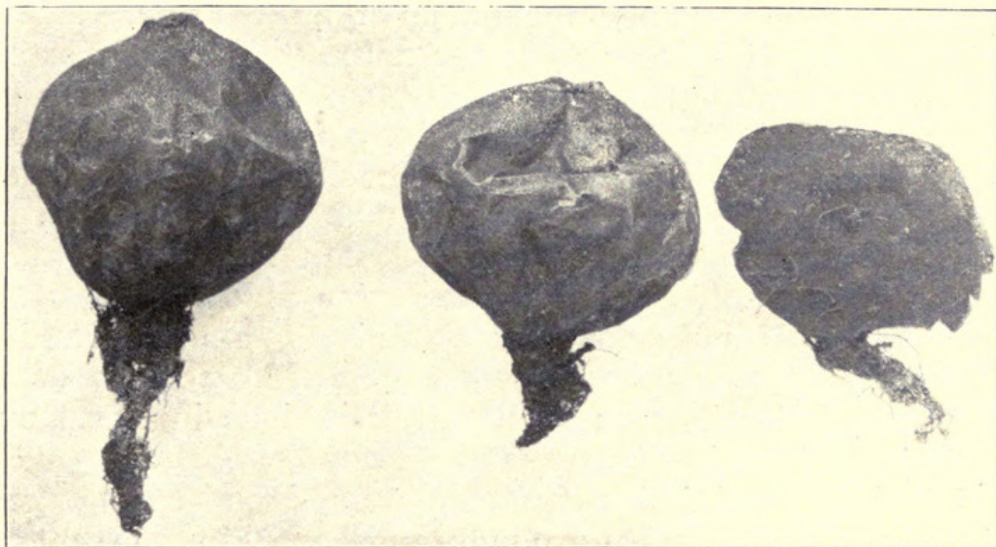


Fig. 142.

paper on the genus *Lycoperdon*, and is the only species we have seen (and we have seen all so included) that does belong there. Save as to absence of sterile base, the plants in the grosser characters are the same as *Lycoperdon fuscum*.

Specimens collected at Quito, Ecuador, by Rev. L. Mille, S. J.

In evidence that the plants of South America are mainly the same as those of the remainder of the world, Rev. Mille sends also *Calvatia lilacina*, *Lycoperdon cruciatum*, *Lycoperdon polymorphum* and *Lycoperdon Wrightii* (!!), and Theodore Stuckert (Argentina) sends *Geaster mammosus*, *Myriostoma coliformis*, *Lycoperdon cruciatum* and *Cyathus stercoreus*. All the above are well-known species of Europe and America.

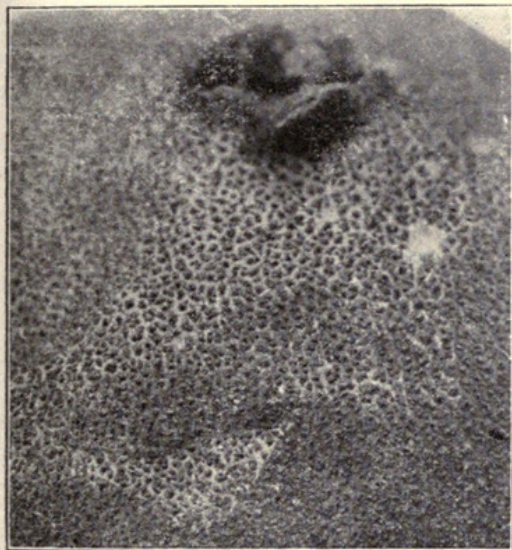


Fig. 143.

PRIORITY CHANGES.

We read in the last volume of Saccardo that it is proposed to change "*Strobilomyces pallescens*, Cooke and Masee" to "*Strobilomyces excavatus* (Kalch.) Hennings" because Kalchbrenner called an Australian species of *Strobilomyces* "*Secotium excavatum*." We do not question the truth of it, in fact we can confirm it as far as the generic question is involved, for we have seen the "type" specimen. But when Kalchbrenner called a *Strobilomyces* a *Secotium* he blundered

as badly as if he had called an Edam cheese a big red apple. We fail to see that such work as that has any claim on science, and would be just as willing to change the name of a *Strobilomyces* on that account as we would be to change the name of *Bovista pila* because the Piute Indians call it *Dza-wahp-abe-sah*. Saccardo, it can be said much to his credit, does not usually pay much attention to such changes. He dismisses the entire work of Mr. Murrill with a footnote, "He has taken anew and wrongly many old, indefinite, heterogeneous names, entirely unemployed." But it seems that with Saccardo name-juggling, like kissing, goes very much by favor. If it is done at New York (example, *Cyathia*, *Granularia* and many others), or at Kew (example, *Calostoma*) or at Cambridge (example, *Rhopalogaster*) it is all wrong. But if it is done in Germany (example, *Disciseda*) or in Switzerland (example, *Astraeus stellatus*) it is all right. To my mind it is all equally *bad*, and I am opposed to it on principle, not on personal grounds, and I would not accept a name proposed by my best friend on earth if it smacked of name-juggling.

NOTELETS.

TYLOSTOMA EXASPERATUM.—We have given its habitat in our recent pamphlet as "branches and rotten wood" (sometimes in the ground). We concluded that it grew in the ground from examination of specimens from Rev. J. Rick, Brazil. He writes us that when it grows in the ground it is always attached to buried sticks. *Tylostoma exasperatum* is the only species (well known) that is truly epixylous.

THE GENUS PHELLORINA.—This genus belongs to the *Tylostomaceae* family, but was omitted from our recent pamphlet through oversight. We *know* but two species, however, and both were considered and illustrated in our Australian pamphlet. The genus *Phellorina* occurs in the United States, in Texas and Southern California, but no specimens have been seen by me on which I could pass an opinion. *Phellorina Californica* was based on the merest remnant of an old wintered peridium, from which nothing definite could be told. Spegazzini has recently described a "new species" of "*Xylopodium*" from South America. He would do mycology a better turn if he would explain how "*Xylopodium*" differs from *Phellorina*. I am sure nobody else knows any difference.

BOVISTELLA DOMINICENSIS.—On page 283, *Mycological Notes*, we stated that we did not think the species had been published. We have since found the publication, Grev. 17-60. It has apparently escaped Saccardo's sweep net.

CORRECTION.—On page 19 of the recent "*Tylostomeae*" the word "waxy" should be "wavy."

LYCOPERDON MISSOURIENSE.—When Trelease published this "new species," which is well known now as *Calvatia craniiformis*, Cooke published (Grev. 17-58) that it was a synonym for *Calvatia lilacina* (*Lycoperdon lilacinum*). This caused considerable amusement in the United States, where it was known that Trelease's species has olive spores and *Calvatia lilacina* has purple spores. Yet according to the specimen that Trelease sent to England, Cooke was right, for this specimen is surely *Calvatia lilacina*. It only shows how easy it is to be right and wrong at the same time.



Fig. 1.

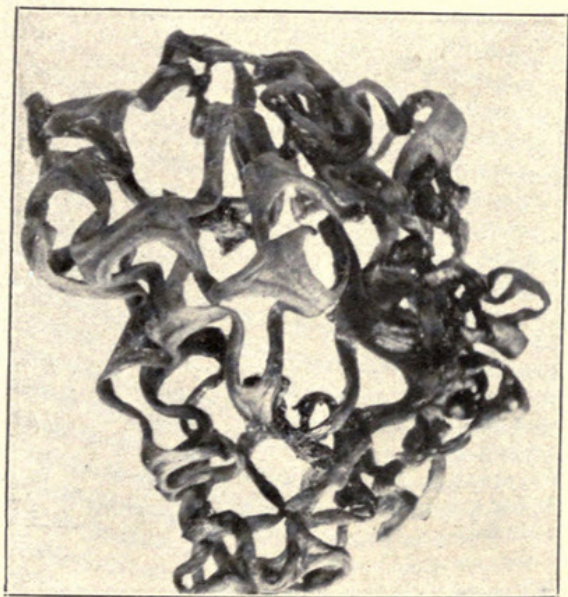


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

Figs. 1 and 2, alcoholic specimens devoid of volva. Fig. 3, same (small) with volva. Fig. 4, unexpanded specimen (deprived of volva). Fig. 5, section of same. Fig. 6, section of the receptacle enlarged (ten times). All from H. S. James and J. T. Paul, Australia.

CLATHRUS GRACILIS.

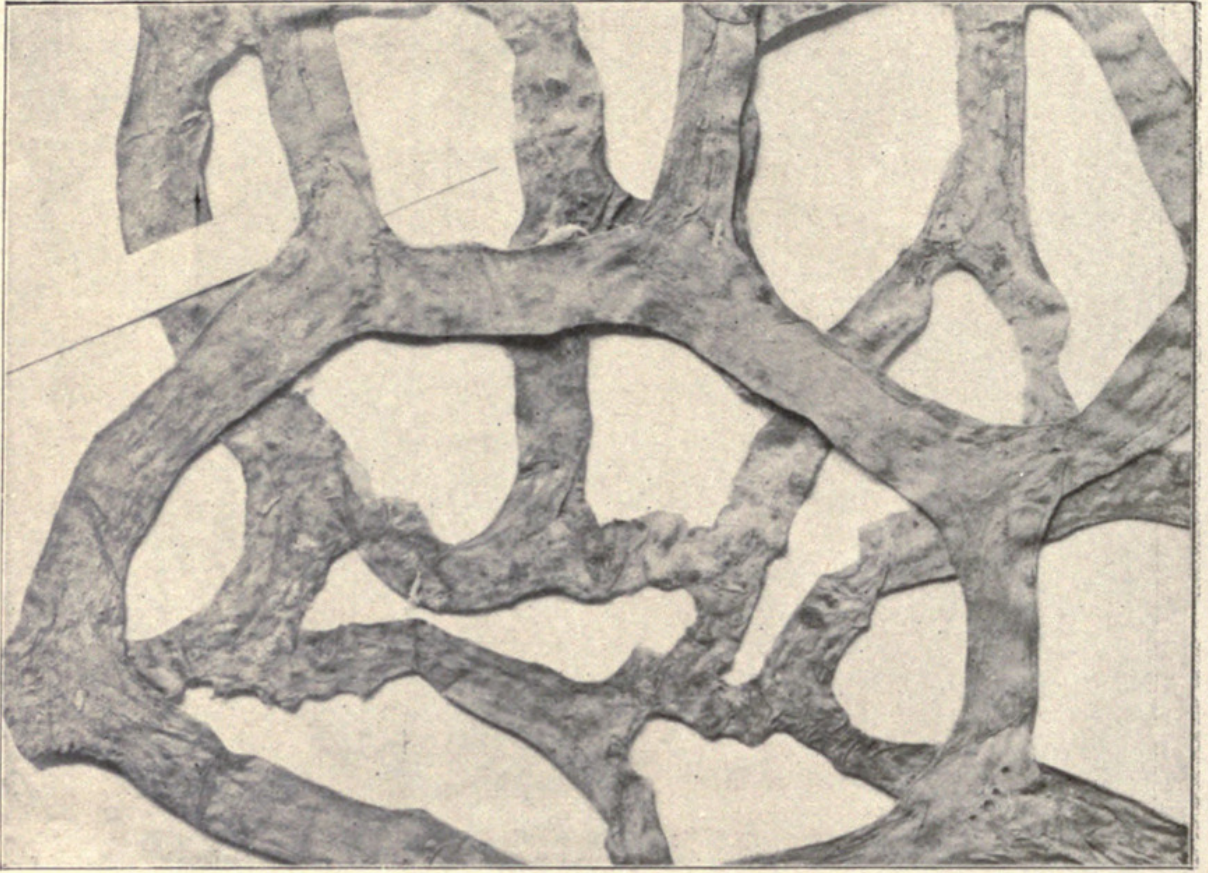


Fig. 7.

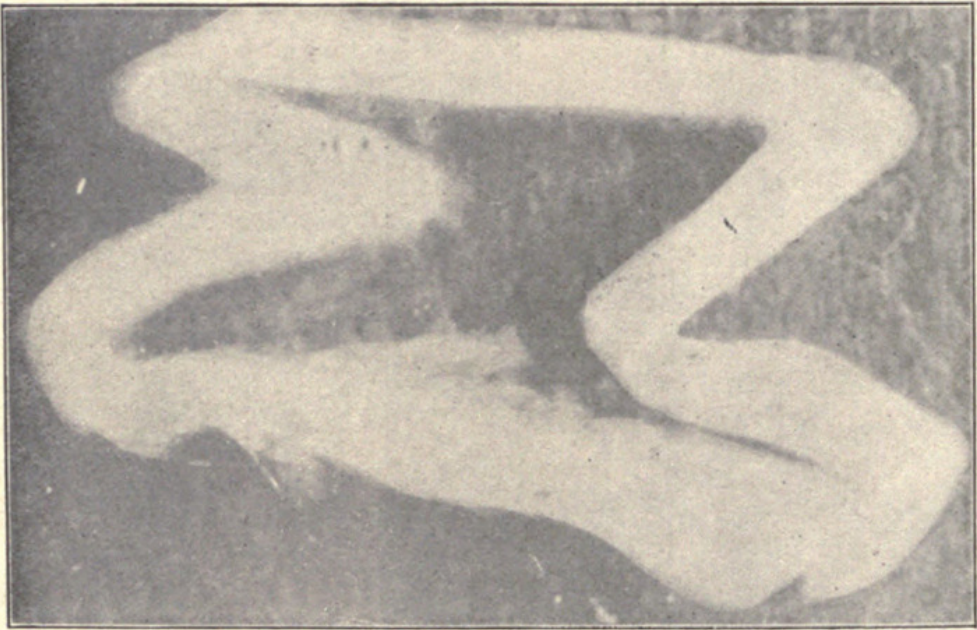


Fig. 8

Fig. 7, dried, pressed specimen at Kew. Fig. 8, section of the receptacle enlarged (ten times) from alcoholic (type) material at Paris.

CLATHRUS CIBARIUS.



Fig. 1.

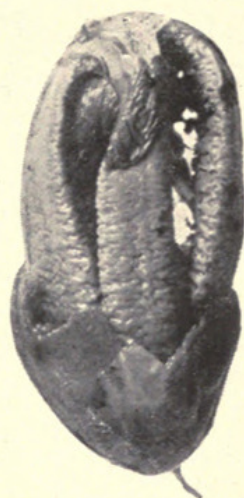


Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.

Fig. 1, plant natural size. Fig. 2, a small specimen. Fig. 3, a young specimen enclosing the gleba. Fig. 4, an egg. Fig. 5, cross section of an egg. Fig. 6, vertical section of an egg. All from specimens from C. E. Pleas, Florida.

LATERNEA COLUMNATA.



Fig. 7.

Copied from Engler and Prantl. Figure by Professor Ed. Fischer.

CLATHRUS CANCELLATUS.



Fig. 1.



Fig. 2.

Figs. 1 and 2, specimens from Cincinnati (the top broken off the latter).

MUTINUS ELEGANS.



Fig. 3.

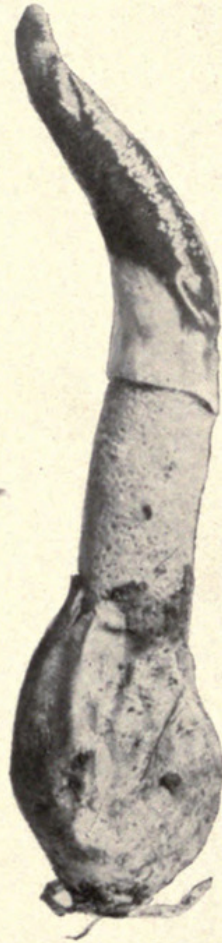


Fig. 4.



Fig. 5.



Fig. 6.

Fig. 3, plant from Eglon, W. Va. Fig. 4, photograph from H. C. Beardslee, Asheville, N. C. The specimen shows a remnant of the rudimentary veil adhering to the stipe. Fig. 5, an egg. Fig. 6, section of an egg.

MUTINUS ELEGANS.



Lloyd, C. G. 1906. "Mycological Notes, No. 24." *Mycological writings of C. G. Lloyd* 2, 293–308.

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