MYCOLOGICAL NOTES

By C. G. LLOYD

No. 26

CINCINNATI, OHIO MAY, 1907

Concerning the Phalloids.

MUTINUS CANINUS (Plate 113).—This is the original form of Mutinus from Europe, but it occurs also in the Eastern States. It differs from the two American forms (considered in our previous paper) in having the gleba-bearing portion of the stem *short, contracted,* and formed of smaller cells than the remainder of the stipe. The gleba is a thick layer, definitely limited to this (upper) portion of the stem, so that it appears at first view as though the plant had a pileus as in the genus Phallus. Indeed, the old authors all included it in the genus Phallus until Fries took it out in 1849. The stipe of Mutinus caninus is slender, cylindrical, and nearly uniform in diameter. Its color as I have noted it in France is red, as shown in the recent picture of Monsieur Rolland. Fischer described it as white (with the upper portion red), and Hollos shows a plant with a white stipe. It probably varies in this regard. Mutinus caninus has been well illustrated in a number of old European works—Sowerby, Flora Danica (1259), and Curtis' London Flora. Also in the recent works of Hollos and Rolland.

GEOGRAPHICAL DISTRIBUTION—EUROPE.—It is the only species of Mutinus that occurs in Europe, and is widely spread. In France it is not uncommon.

UNITED STATES.—As far as known it is confined to the Eastern States, and Professor Burt reported it in his paper as common in Vermont. I have only received it from Professor James Fletcher, Ottawa, Canada. It is unknown, I think, from other countries or from the tropics, though the Phalloids of most foreign countries are very little known.

HISTORY.—Called by the old authors Phallus caninus, it was made the type of a new genus under the name Mutinus caninus by Fries. Sowerby called it Phallus inodorous, and claimed it different from other Phalloids in the absence of odor, a claim which I think has not been established. Mutinus Ravenelii and Mutinus brevis have been referred to the plant as synonyms, an error in my opinion.

CLATHRUS CANCELLATUS (Plates 92 and 112).—We considered this plant in our previous article, but at that time had seen no fresh specimens. We have received, through the kindness of Monsieur Auguste Bernin, Monaco, fresh specimens from which we are enabled to make a good photograph (Plate 112), the first photograph, we believe, that has ever been published. Clathrus cancellatus

is to a degree not truly represented in Bulliard's figure and in the usual drawing. The section of the arm is not sub-cylindrical as shown by Bulliard, but flattened on the outer surface, and on the inner side the cells are larger and irregularly developed and torn. This is a structure somewhat similar to that on which the genus Blumenavia is based, and tends to throw doubt on the validity of the latter genus. The volva of Clathrus is not one uniform, gelatinous membrane, as is the volva of a Phallus. It is composed of a number of sections, corresponding in shape and size to the meshes of the enclosed young plant. These sections are united by thin, white plates of tissue that proceed from the arms of the enclosed plant. We think this structure will be well understood by referring to our sections on the plate. The structure has been illustrated and explained by Professor Fischer in technical language, but we believe our readers can get a clearer idea of it from our photographs. The photograph, Fig. 160 (which was crowded off our Plate 112), is an inner view of a specimen (the front half cut away), and was made to show the large, torn cells that compose the *inner* structure of the arms.

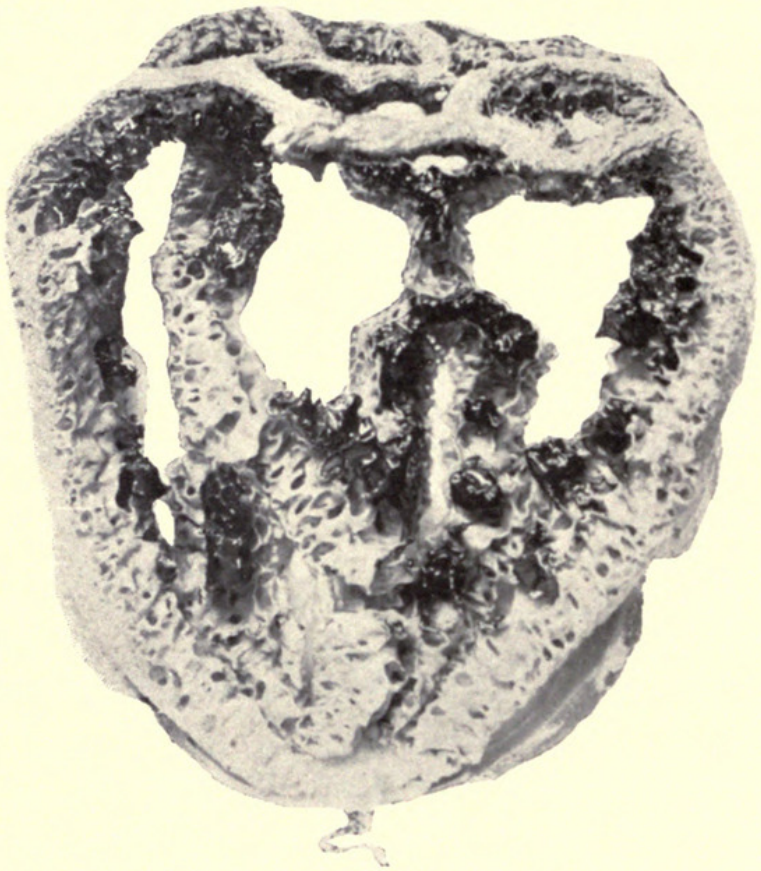

Fig. 160.

THE GENUS PHALLUS.—This genus is based on the well known and common Phallus impudicus of Europe. It is the type of the genus, and the genus has been taken as the type of the order from which it derives its name, as well as the common name "phalloid" applied to all these plants. It therefore seems to me useless, and certainly not in keeping with botanical usage, to try to abolish a name that has been so well established. It was Micheli in 1729 who proposed the genus and who has the rather doubtful honor of naming it, but he had a clear conception of it. When Linnaeus attempted to apply binomial names to the universe (not only to plants he knew, but to those he did not know), he made bad work of it, as he did with most fungi. He included Morchellas in the genus Phallus, plants that have no relation to Micheli's genus. The prestige that Linnaeus justly acquired through his knowl-

edge of *flowering plants,* was reflected in the acceptance of his names for fungi (of which he knew very little), and it was many years before the errors introduced by Linnaeus in the nomenclature of mycology were eradicated.[1]

Professor Fischer divides the genus Phallus into two genera, Ithyphallus and Dictyophora, and the basis of the division is the presence or absence of a conspicuous veil. If the genus Phallus were a large genus, it might be a convenient division,[2] though in truth I think the only difference is in the degree of development of the veil, as all species probably have at least rudimentary veils. Ithyphallus is a generic name, recently proposed for Phallus impudicus, as it had always previously been known. The name Ithyphallus is based on the absence of veil (not entirely correct) and attributed to Fries (not at all correct).[3] Dictyophora is applied to that section of Phallus which has conspicuous veils.[4] As previously stated, we think all of the genus Phallus have veils, though variously developed. Phallus impudicus has a veil, rudimentary though very evident if it is sought for; Phallus Ravenelii has a veil hidden under the cup usually, sometimes protruding; others (Phallus indusiatus and Phallus duplicatus) have long, conspicuous veils.

PHALLUS IMPUDICUS (Plate 114).—This is the most common phalloid in Europe, and was the species originally known. It is widely distributed in Europe, and I have collected it abundantly in France.[5] I think it usually develops during the night, at least all the "eggs" I brought in so developed, and I never saw a partially developed plant in the woods. The stipe is pure white, hollow, composed of large cells. Within the volva at the base it is tapering, and is inserted in a little cup seated within the volva, which is shown in our Plate 114, Fig. 4. There is a rudimentary veil, fragments of which are seen adhering to the stipe on Figs. 1 and 2, Plate 114. The volva is white, and contains a little shallow cup or secondary volva as shown in our figure. The pileus is deeply reticulate, rugulose, as shown in

1 It would be well if modern "priorists" who show a disposition to dig up these old errors and base their "new combinations" on them would bear in mind that priority is not always truth. Recently an American mycologist (I am sorry to say) proposed scores of "new combinations" and the only basis he had for his work was the fact that Linnaeus did not know enough mycology to tell a Tremella from a cedar apple.

2 The characters to form a genus are of course a matter of individual opinion and largely a matter of convenience. A small genus like Phallus should show very marked and positive differences if it is divided, while a large genus, such as Agaricus, for instance, can be advantageously broken up on much less differences.

3 The main discrepancy in attributing this name to Fries is the fact that he never used it as a name for any plant. He called the genus Phallus and this species he called "P. impudicus" and "P" stands for Phallus. It is true he divided the genus into four tribes, one of which he called Ithyphallus, but that is no warrant for raising all these tribes to generic rank and sinking the original generic name. In a large genus like Agaricus this may be advisable because the name has been applied to so many plants that it has lost all generic meaning, as these plants are now known. But that is not the case with Phallus. If modesty was the reason advanced for changing the name, we might sympathize with the object at least, but we can see no improvement in that respect in adopting the name Ithyphallus.

4 The first species known was Phallus indusiatus which is widely spread in tropical countries. It was so named and well-figured by Ventenat in 1798. Desvaux hunted up a lot of pictures that looked strange to him and proposed "new genera" for them. He saw Ventenat's picture though he knew nothing of the plant and gave it an entirely new name Dictyophora phalloidea. Nees von Esenbeck eight years later did very much the same thing, calling the genus Hymenophallus, but he had enough consideration for the source of his information to use the specific name indusiatus. Those who subsequently wrote systematically on phalloids, Fries and Schlechtendal, used the name Hymenophallus (at least as a tribe) and it had become fairly established when Fischer dug up Desvaux's name Dictyophora. Fischer changed the current of usage, and the name Dictyophora is generally now employed, and for that reason we would employ it if we felt there was any necessity for the genus.

5 I have never seen any other phalloid so frequently as I found Phallus impudicus at Barbizon, France. It grew in light, sandy soil, usually in the woods around logs. Rarely a day passed that I did not either see or smell specimens.

Fig. 7, but when the plant first expands the depressions are filled evenly with the greenish gleba and appear smooth (as Fig. 1). At first the gleba is firm and almost odorless. At it deliquesces it becomes most excessively fetid, and the plant has a very unsavory reputation on that account. It is known to every French peasant under the name "Satyre," or "impudique."

HISTORY.—The plant was named Phallus impudicus in Linnaeus's Species Plantarum (1753), and has generally borne that name. Some of the old writers have called it Phallus vulgaris, volvatus, and foetidus. In recent works it is frequently designated "Ithyphallus impudicus (Linn.) Fries," but as previously stated we see no occasion for a "new genus," and if advertisements are employed they should be employed correctly, viz.: "Ithyphallus impudicus (Linn.) Fischer." An Old Dutch botanist, Hadrian, drew a bizarre figure of a phallus in 1564. It was either a very droll figure of Phallus impudicus, or a figure of a very droll anomaly of Phallus impudicus. This figure was copied in many of the old herbals of Europe, and Ventenat based on it the name of Phallus Hadriani, and Nees reproduced the figure and called it Hymenophallus Hadriani. Although I think no one else ever found such a droll anomaly, it was carried in European books for two hundred years, and we find the species given as late as Gillet (1787). Professor Fischer has the credit, I believe, of exposing this old fable. In England a form of Phallus impudicus was found that was said to have the odor of violets, and was called Phallus iosmos. It has been dropped from the latest English works, and there is a suspicion that it had its origin in somebody's defective olfactory nerves.

DISTRIBUTION—Europe.—Phallus impudicus is widely spread and very common over the most of Europe.

America.—I do not feel sure that the type form occurs in the United States. All the specimens I have seen belong to the next form, Phallus imperialis. The early records (Schweinitz) were almost surely based on Phallus Ravenelii. Some of the recent records of Phallus impudicus (Dr. Herbst's Flora, for instance) are probably based on Phallus duplicatus, which had accidentally lost its veil.

Japan.—Professor Fischer received a specimen from Japan, which he had doubtfully referred here.

Australia.—At Kew there is one specimen so referred, which was sent by F. M. Bailey, Queensland. Mr. Bailey has a note with it, that he never saw but a single specimen. It is decidedly more *yellowish* than the European plant, and has a broader, bell-shaped pileus. It appears to me very doubtful, and Professor Fischer has expressed the same opinion.

East Indies.—In Hooker's herbarium there is a very small and very doubtful specimen so named.

Java.—Ithyphallus costatus, as illustrated by Penzig, seems to me a form of Phallus impudicus. The reticulations of the pileus appear deeper and more winged, which is all the difference I can note. In Professor Fischer's key the difference is stated to be the absence of a rudimentary veil, but Penzig has no direct notes on this point, and Professor Fischer is evidently quite in doubt as to its distinctness from Phallus impudicus.

PHALLUS IMPERIALIS.—The chief difference between this plant and the previous is that Phallus imperialis has a pink volva and a smaller stature. Monsieur Boudier tells me he also notes a difference in habitat and in odor of the plants about Paris. Phallus imperialis is certainly only a form of

Phallus impudicus, and if it were not a *geographical* form it would hardly be worth noting. From the specimens I have received it seems to be the *only form* that occurs in the United States, and it is a rare form in Europe.

HISTORY.—When Schulzer found this plant in Hungary he noted the secondary volva at the base of the stipe, and as this was not then noted in Phallus impudicus he based on it a new genus and called the plant Kirchbaumia imperialis. It is surprising how much easier it is to discover a "new species" than a new fact about an old species. Kalchbrenner well illustrated the plant under the name Phallus imperialis. Somebody sent Professor Peck some specimens with accidental fragments of the volva adhering to the pileus, the same as often occurs in all phalloids. He erected on them a new genus, Cryptophallus albiceps.

GEOGRAPHICAL DISTRIBUTION.—It is a much rarer plant in Europe than the type form, Phallus impudicus. Professor Massee tells me, while the latter is common in England, he has never seen the pink form but once. In the United States it seems to be rare east of the Mississippi. Washington, D. C., is the only station surely known to me, specimens collected by F. J. Braendle. West of the Mississippi it is more common, and E. B. Sterling found it in great abundance about Denver. I have it also from W. H. Long, Jr., Texas, and L. G. Yates, Southern California. All these plants are the *pink form*, called for convenience Phallus imperialis to distinguish it from the typical white form, Phallus impudicus of Europe.

PHALLUS RAVENELII (Plate 115).—A common species of the genus Phallus, at least around Cincinnati, is Phallus Ravenelii. It usually grows in the woods, sometimes on old logs, but usually on the ground around logs. The stipe is white, cylindrical, hollow, and composed of large cells. The pileus is even or faintly reticulate, and by this character alone it can be known from the other native species of Phallus with white stipe.[6] Under the pileus there is a short, membranous veil as shown in our Plate 115, Fig. 3. It was overlooked, I think, by Schweinitz, who evidently referred the plant to Phallus impudicus. We have specimens from F. J. Fitzpatrick, Iowa, where the veil is longer and *protrudes below the pileus*, but I think this rarely, if ever, occurs in the form east of the Mississippi.

DISTRIBUTION.—It is spread over the United States from the Mississippi Valley eastward, but is more frequent in southern localities. It is unknown from the Pacific Coast or from foreign countries.

HISTORY.—Such a frequent plant must have come to Schweinitz's notice, and he referred it, I think, to Phallus impudicus. Ravenel was the first to closely note the plant and the peculiar short veil by which it is characterized, and he sent specimens and very complete notes to Curtis, who transmitted them to Berkeley. The latter named it Phallus Ravenelii, but he was so busy that he could not take time to consider the details, and his "description" tells nothing of the leading characters of the species. Professor Peck met the plant and, being unable to identify it from Berkeley's description, wrote to Ravenel, who sent his original notes, from which Peck had no trouble in recognizing his specimens. He published a complete description of it and a characteristic figure, and since the appearance of *Peck's* paper the plant has become generally

---

[6] We have an alcoholic specimen of another Phallus from Florida which is much smaller and has an even pileus but our data is so little we do not venture to name it.

known as "Phallus Ravenelii, *Berkeley.*" If we believed in this system of advertising we would advocate the justice, in a case like this, of calling the plant "Phallus Ravenelii, Peck." Professor Fischer calls the plant Ithyphallus Ravenelii, and Professor Burt, Dictyophora Ravenelii, further proof to my mind of the inutility of both these generic names. Professor Patouillard is said to have named it Ithyphallus cucullatus.

PHALLUS RUBICUNDUS (Plate 116).—This is the *red* species of Phallus of our southern states. We are pleased, through the courtesy of W. H. Long, Jr., to give photographs of it, for it is a species very little known in recent works. That both Curtis and Ravenel were familiar with a Phallus *with a red stem* is evident from their notes and specimens, the latter now so old and discolored that little can be told about them. No veil is found *under the pileus* of this species as in the previous, but a fragment of the rudimentary veil shows in one of the photographs. The strong character of this plant is the *even* pileus and the *red stem*, and we suspect also that it has a *red pileus.* We have found no notes from any one who has observed the plant when fresh as to the color of the pileus, but the dried specimens that Mr. Long sent me (now several years old) has a decidedly *reddish cast.* Observations on this point are especially desired from those who have an opportunity to observe the fresh plant. Phallus rubicundus is known only to occur in our southern states, not as far north as Cincinnati. Ravenel and Curtis found it in North and South Carolina, and Mr. Long has recently collected it in Texas.

HISTORY.—Mention was first made of this species by Bosc[7] under the name Satyrus[8] rubicundus, from specimens that he collected in the Carolinas. Fries changed it to Phallus rubicundus, and Fischer to Ithyphallus rubicundus. It is to me a dubious question whether Phallus rubicundus is different from the plant Montagne called Phallus aurantiacus, which has a *red stem* and a *red pileus*, and which while originally from India, has been recorded from several *warm* countries. Mr. Long's specimens are mose obese, and I can not be sure that the pileus is red, as are specimens of Phallus aurantiacus I have from Hawaii. I have seen also a drawing of Phallus auranticus, made in Tonkin, from fresh specimens and submitted to me by Professor Patouillard. It is more *slender* and has a differently shaped pileus from the photograph of Mr. Long. I can not note much difference, however, as to form of the *type* specimens of Phallus aurantiacus and Mr. Long's photograph. It is certainly very close, and it is a suspicious fact that our *red Phallus* grows only in our southern states, and that the *red* species of other countries are only recorded from *warm* countries. Nor can I see any material difference in the description or figure of Phallus sanguineus, recently described as Ithyphallus sanguineus from Kamerun, Africa. As our "priorist" friends would state, however, whether they are the same or different, Phallus rubicundus is "prior."

---

[7] Bosc made a trip through our southern states about the first of the last century. He published an article in French in a German periodical in 1811 concerning several fungi which he collected. He gave plates that were well enough made so that all of his phalloids can be readily recognized, and all now bear his names, viz., the following three species: Phallus duplicatus, Laternea columnata and Phallus rubicundus.

[8] It appears to me that the generic name Satyrus used by Bosc was purely a lapsus pennae. He called his first species by the common name "Satyre duplicati" (Satyre being a common French name for Phallus impudicus) and the Latin name he writes "Phallus duplicatus, Bosc." The second he calls "Satyre rubicund" and writes as the Latin name (inadvertently I think) Satyrus rubicundus instead of Phallus rubicundus. He gives no diagnosis of the genus "Satyrus" nor makes further mention of it.

PHALLUS IRPICINUS (Plate 116).—This is an exotic species, thus far only known from Java. It has a white stipe and a white veil, as has the related tropical species, Phallus indusiatus. The Javanese species differs, however, from all species with veils in the relative evenness of the pileus. The pileus is not smooth, however, as might be inferred from the photograph, but the surface is spongy, rugulose, and the gleba permeates the depressions. Indeed, the plant has been compared by the author to the genus Itajahya. Phallus irpicinus was described by Professor Patouillard under the name Dictyophora irpicina, and has been refound in Java and further illustrated by Penzig. We are under special obligations to Professor Patouillard for a photograph of the type specimen that is reproduced on our plate. We have a suspicion, however, that it is the same plant that Berkeley mentions under the name Dictyophora merulina, and of which he vaguely states "the reticulations are gill-like and the ochraceous head rivulose." The data, however, is not sufficiently clear to justify taking the name. Dr. Ch. Bernard, of Buitenzorg, writes me that Phallus irpicinus is one of the *common* species of Java.

PHALLUS DUPLICATUS (Plates 117 and 118).—We now come to a species that is the most striking phalloid of North America. The largest species we have, furnished with a beautiful, white, long veil, and most adominably fetid. It is a plant which once found will never be forgotten. It is a frequent plant at Cincinnati and widely distributed in the United States, but its exact distribution we do not know. It occurs in Florida, and it probably extends south to the tropics, merging into Phallus indusiatus. The pileus of Phallus duplicatus is strongly reticulate, but when the plant first expands the depressions are filled with the gleba and it appears even. The reticulations of the pileus are well shown in our Fig. 3, Plate 118, which was an old specimen, the gleba washed away by abundant rains. The most striking feature of the plant is the long, white veil which hangs from under the pileus. Unfortunately we have no large photographs showing perfect veils. In our photograph, Plate 117, Fig. 1, and that from Mr. Pleas, the veil is torn. In the United States there is no trouble in recognizing this species, as it is the only one with such a veil.

HISTORY.—This was one of Bosc's discoveries, and he gave a fairly good figure of it in 1811 under the name Phallus duplicatus. The veil in his figure is contracted (not open meshes), and it was probably made from an alcoholic specimen as was our similar photograph, Plate 118, Fig. 2. Professor Fischer includes our United States plant with the tropical species Phallus indusiatus under the name Dictyophora phalloidea. I am very familiar with our American plant and also (in Samoa) with the tropical species, and they seem to me quite different, though I do not doubt that they merge into each other and are really forms of one species. After the plant had become well known in the United States, some one sent Kalchbrenner (Hungary), as late as 1884, a specimen, which he immediately discovered was a new species, Hymenophallus togatus, and he gave a good figure of it. As soon as Kalchbrenner's paper appeared, Professor Farlow pointed out that it was the old, well-known species of the United States. Cragin found in Kansas a specimen with an unusually

perfect veil. It, of course, became a new species, Phallus collaris. I think that most of the forms that occur in the United States are very similar, but Ravenel in his herbarium notes two forms, one with a veil but little longer than the pileus which he calls Phallus duplicatus, the other with the ordinary, long veil which he calls Phallus indusiatus (the name of the tropical species). Both have strongly reticulate pilei. I do not otherwise know the form with the *short* veil. Phallus daemonum, another name for a tropical species, has also been applied to our plant.

PHALLUS INDUSIATUS (Plate 119).—This is a very frequent Phallus that grows in many tropical countries, and which is very similar to the plant previously considered. They are undoubtedly forms of the same species, but the tropical form differs from the temperate form in the shape of the pileus, and more markedly in the nature of the veil. The pileus of Phallus indusiatus is more campanulate, broader, and not so strongly reticulate as Phallus duplicatus. The veil is more delicate, the threads more slender, and the meshes much larger. These differences are better appreciated by consulting our plates. As the plant grows in Samoa the veil is well shown in our Plate 119, Fig. 1. Alfred Möller figures a form (which we have reproduced, Plate 119, Fig. 2) which seems to us quite distinct in its *rigid* veil, but Professor Möller states that in Brazil the two forms merge into each other so frequently that it is not practicable to hold them as distinct. We are familiar with both Phallus duplicatus and Phallus indusiatus as they grow, and have found the characters of each constant in their respective countries. No description is needed for Phallus indusiatus other than our plate. The stipe is white, also the veil. In one form from Java (Phallus roseus) the veil is described as pink, and the same form occurs in French Guiana.

DISTRIBUTION.—A frequent plant in probably all tropical countries. No species is more abundantly represented in the museums of Europe. We have seen them from Australia, India, Andaman Island, Java, Ceylon, East Africa, Mauritius, Mexico, Brazil, British Guiana, French Guiana, South Africa, Surinam, New Caledonia, Cuba, Tonkin, Philippines, Borneo, Jamaica, and the list probably does not include one-half the countries where it occurs. There are some differences in these specimens, but we do not feel it practicable to distinguish under separate names until more is known about them. Some have spreading, bell-shaped veils, others the veil is more flaccid, cylindrical, and hanging. One from St. Vincent is much *smaller* than usual.

HISTORY.—This striking plant known to the French (not inappropriately) as "Phallus en chemise," being very common in the tropical countries, attracted the attention of many travelers during the last hundred years. Many specimens have been brought to Europe and placed in the hands of various mycologists, most of whom have discovered that it was a new species, and several that it was a new genus. Professor Fischer in his "Untersuchungen" (1890) records fourteen specific names applied to it (and this excludes those referring to the previous form).[9] Numerous changes have also been made by shuffling these

[9] We have hunted up all these old specimens at Paris and London (which are the basis of most of these names) and also all the old pictures. We fully agree with Professor Fischer that there is very little difference among them on which to base species. One, however, Phallus subacutus of Algeria, seems to us quite distinct. Also we believe that when the original Phallus daemonum is well known (if it is correctly figured as it appears) it will be held worthy of a separate name as a distinct form at least.

names about under other "generic" names, Hymenophallus and Dictyphora, and the list of "synonyms" is truly formidable, and not worth repeating here. About a dozen figures of it have been published, many of them very good, but some evidently reconstructed from the descriptions of travelers, and quite amusing.[10]

A similar plant was first illustrated by Rumphius in the Herbarium Amboinense in 1750 under the name Phallus daemonum.[11] This figure is referred to this species by Fischer, but to me does not appear to accord with the usual plant so widely spread in the tropics. Next it was called Phallus indusiatus by Ventenat (1798) from specimens sent by Père Vaillant from Dutch Guiana. Ventenat's figure is typical of the species, as I understand it; hence, I use this name. The next reference was by Desvaux, who saw Ventenat's picture, which looked strange to him, and he made it a "new genus" and gave it an entirely new name, Dictyophora phalloidea. He never saw a specimen in his life, and if he was justified in basing a genus on a picture, he surely was not in changing the specific name. Subsequent to Desvaux, there had been so much juggling and naming that it is not worth while to go into details.

PHALLOGASTER SACCATUS (Plate 120).—It is a disputed question whether Phallogaster saccatus is a phalloid or not. That is, it is disputed by some who do not know the fresh plant. I do not believe that any one who finds the plant will ever look for it anywhere excepting among the phalloids. It has the same greenish, fetid gleba that is associated with phalloids, the same spores and basidia, it deliquesces in the same way, and it seems to me that its relationships are entirely with the phalloids. It has no volva in the sense of ordinary phalloids, but it appears to me that the peridium might be considered as analogous to the volva, the central tissue as analogous to the receptacle, and thus the only difference from other phalloids would be that the receptacle deliquesces.[12]

Phallogaster saccatus is a rare plant in the United States.[13] When young it is pear shaped or club shaped, white with a smooth peridium, and I thought when I first saw it that it was a young Xylaria. As soon as I cut it open, however, its nature was evident, for I noted at once the phalloid-like gleba. The center is white and somewhat translucent tissue. In ripening this central tissue entirely deliquesces and disappears, the gleba deliquesces and adheres to the inside of the peridium as a fetid, mulcilaginous mass, and the peridium breaks irregularly as shown in our figure (Plate 120, Fig. 6), exposing the adherent gleba. We are much pleased to present in our plates photo-

---

10 Thus Gaudichaud published a droll figure with the veil on the outside of the pileus; Klotsch a curious affair with a large, bell-shaped veil attached to the middle of the stem.

11 It is a question if Rumphius' figure is not a different species as considered by Berkeley. The pileus appears punctate rather than reticulate and the veil is much more finely meshed than the usual form. I should not be surprised if Rumphius' plant would yet be found to be quite distinct. I have a letter from my friend, Professor McGinty, who states that after an exhaustive study of Fischer's synonyms (with a date dictionary) he concludes that according to the "latest rules" the species should be called (and he proposes the name) "Dictyophora daemonum (Rumphius) McGinty."

12 The plant has been placed with Hymenogasters, but a much simpler classification to my mind is based on the old definition which considers Hymenogasters as underground Gastromycetes, mostly with permanent gleba cells.

13 I hunted the woods around Cincinnati, where it was originally discovered, for many years before I found it, and I have never collected it but twice, once on the ground by the side of an old log at Cincinnati, the other time on a log at Eglon, W. Va.

graphs that will show the plant and its methods of dehiscence much better we think than the figures that have previously appeared.

CLATHRUS TREUBII (Fig. 161).—Through the kindness of Dr. Ch. Bernard, Chief of the Biological Division of the Department of Agriculture of Java, we are enabled to present a photograph of this rare species of Java. It was described only last year (1906), and is evidently rare in Java, as it is not included in Penzig's excellent paper on the phalloids of this island. Clathrus Treubii was described as Clathrella Treubii, and while we feel that the genus Clathrella is not a good genus, this species would be a Clathrus on the disposition of the arms at the base, the distinction on which Clathrella was based. Clathrella Treubii is a red plant, very similar in general appearance to Clathrus cancellatus and very different in the structure of the arms. In Clathrus cancellatus the arms have a simple, cellular structure, and the inner cells are large and irregular. In Clathrus Treubii the arms are *tubular* and are wrinkled evenly on the inner surface. I think there is no other species of Clathrus known with these peculiar wrinkles as shown in Dr. Bernard's excellent photograph. At Kew I have seen a drawing of a Laternea (or a Pseudocolus) that was made in Java by Zollinger many years ago, the arms of which are wrinkled on the inner side as in this Clathrus. It was never published, and is not included in any of the recent works on the Java phalloids.

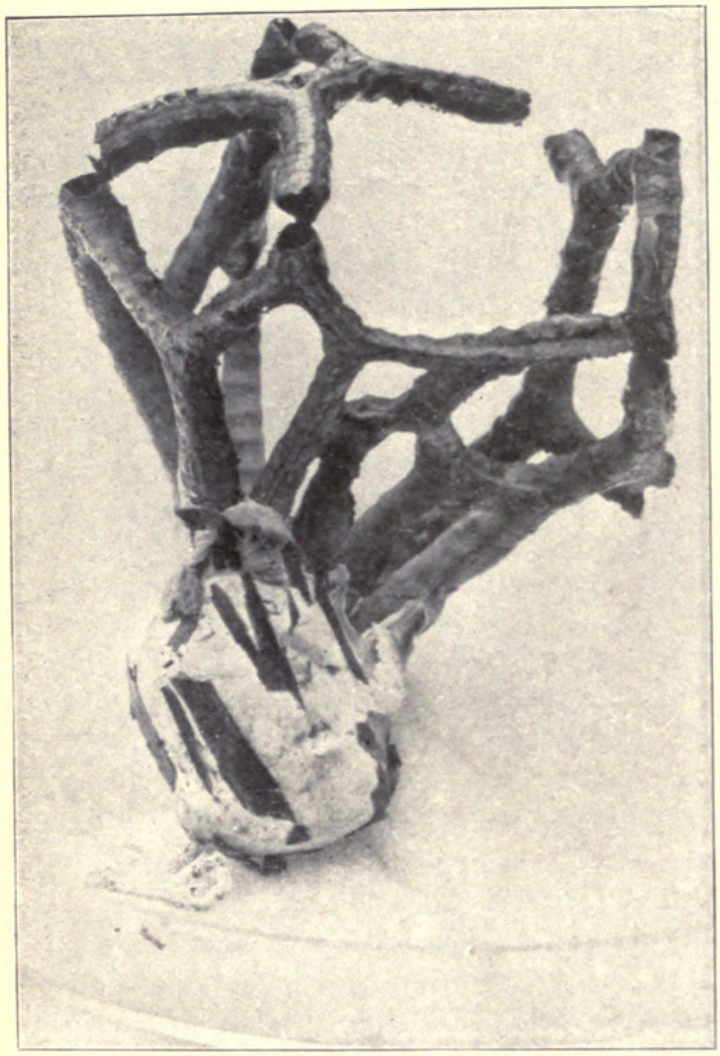

Fig. 161.

THE PHALLOIDS OF JAVA.—Dr. Ch. Bernard also favors us with a statement in detail of the phalloids that occur at Buitenzorg, Java. The phalloids of Java are mostly well known, owing to excellent work done by Monsieur Penzig a few years ago. Mutinus bambusinus, Phallus irpicinus, Phallus indusiatus, and Simblum gracile [14]

[14] Dr. Bernard lists this under the name of the Mauritis species Simblum periphragmoides, but from the specimens I have seen the Java form is so much more slender than the Mauritus specimen that at least until more is known of the Mauritus plant, I think it should be kept distinct as Berkeley considered it.

are common throughout the season, though more abundant, of course, during the rainy season. Aseroe arachnoidea, Jansia elegans, Jansia rugosa, Phallus multicolor, and Clathrus Treubii are rarer species, and will probably be found only during the rainy season. In addition to these nine, Professor Ernst has described to Dr. Bernard a *very large phalloid* which he observed at Gedeh near Tjibodas. From Professor Ernst's description Dr. Bernard thinks it is probably the rare Aseroe Junghuhnii which was figured from Java by Schlechtendal some forty years ago and has never been recorded (with certainty) since. The kind of information that Dr. Bernard gives is a definite, practical addition to the knowledge of the phalloids, and we ask others *in foreign countries* who have a definite knowledge of their local phalloids to write us and favor us with similar information. The relative frequency or rarity of species is valuable information, and should be recorded. In most foreign countries (excepting Java and Brazil, owing to the fine work of Penzig and Möller) we question if the published works are such that a local student can arrive at an exact determination of the phalloids he finds. In all such instances we shall be glad to lend our aid and advice on receipt of photographs, dried specimens, and color notes.

DEAD MAN'S FINGERS.—Mr. C. E. Pleas, Chipley, Fla., has sent me under the above name a fine photograph of Laternea columnata, which we reproduce herewith (Fig. 162). An account of the plant is given, Mycological Notes, page 298 and Plate 92. It is a frequent plant in Florida and the southern United States in general. Mr. Pleas also sends a fine photograph of Phallus duplicatus (under the name Phallus impudicus). Phallus duplicatus has a large veil, while Phallus impudicus has no evident veil. The splendid photographs that Mr. Pleas makes lead us to hope that he may find and photograph some of the rare and little known phalloids that occur in Florida.

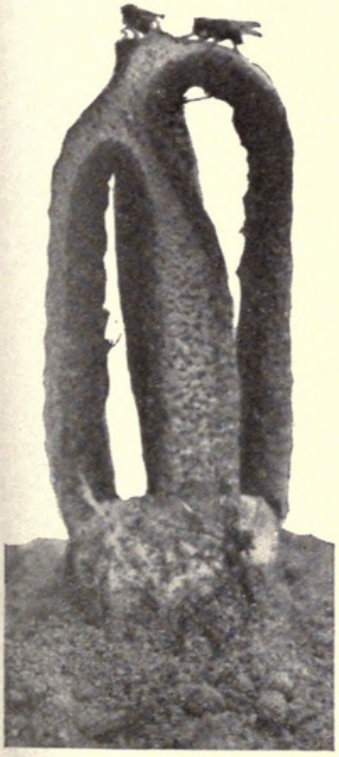

Fig. 162.

Speaking of Laternea columnata, we are reminded that it has just been discovered to be a "new species"—"Clathrus trilobatus," by N. A. Cobb, Hawaii. If Mr. Cobb were familiar with the forms that Laternea columnata takes, we might have been spared this synonym. Laternea columnata is a frequent plant in warmer portions of the American continent, both North and South America and the West Indies. Its record in Hawaii adds to our knowledge of its distribution, though it naturally could be expected to occur there.

MUTINUS XYLOGENUS (Fig. 163).—This has the unique distinction of being the very *smallest* phalloid known. Some idea of its diminutiveness can be obtained from our photograph, which is *enlarged six diameters.* It was collected by Leprieur, French Guiana, on rotten wood almost sixty years ago. Three single specimens, from one of which our photograph has been made, and a couple of little "eggs" are all the material that exists, and it is now preserved in the museum of Paris. Montagne, who describes it, states very clearly that it has a "free, conical, even, impervious receptacle" (pileus), and his figure plainly shows a pileus. If that is true, the plant belongs to the genus Phallus. Leprieur sent Montagne what seems to be a good drawing of the fresh plant. It appears to be a diminutive Phallus with a definite pileus, which Leprieur indicates as rugulose. Montagne placed it in the section "Mutinus," but from his remarks it is evident that he thought Mutinus has a pileus. Some years ago at Paris, Professor Fischer sectioned an egg and found the gleba borne directly on the upper portion of the stem, which makes it a Mutinus, as the genus is now defined. It differs from all others in having a capitate, globose mass of gleba. It is a great deal to hope, but we can not but express the hope, that some one in South America, Central America, or the West Indies, where this little plant probably occurs, will refind specimens and send us a few in a little vial of alcohol. It can certainly be known from our figure, not forgetting that the plant is only *one-sixth* as large.

Fig. 163.

ITAJAHYA GALERICULATA (Plate 121).—We are glad to be able to present a photograph made from a fresh specimen, by Rev. Père A. Schupp, Pelotas, Brazil. It is one of the Brazilian phalloids that was illustrated in such a superb manner by Alfred Möller, and it is only known to grow in Brazil. Its uncouth name is taken from the river Itajahy of Brazil. The genus has a pileus as the genus Phallus, but a different structure. In Phallus the pileus is of a firm, uniform tissue, and bears the gleba on its *outer surface.* In Itajahya the pileus is of loose, lamellate structure, and the gleba covering these plates *permeates* the inner structure of the pileus. The photograph that Rev. Schupp sends has a general resemblance to a Phallus, and the small specimen is capped (probably accidentally) with a fragment of the volva. The structure of the pileus is better shown in the sectional photograph that was published by Alfred Möller, and we repro-

duce it also on our plate. Our thanks are especially extended to Rev. A. Schupp for the privilege of publishing his photograph.

BLUMENAVIA RHACODES (Plate 121).—We are under special obligations to Father J. Rick, Brazil, for a fine photograph that enables us to present a plate of this plant. It is a rare species, only known from Brazil. It was published by Alfred Möller in the superb manner in which he does all his work, so that it is something more than an unintelligible word "description." Blumenavia rhacodes, as will be noted from our plate, is very close to the genus Laternea. Indeed, the main difference is the wrinkled arms which are torn and lacerated on the inner side, and the plant might even be included in Laternea without doing much violence to classification. We have seen at Kew a drawing of a Laternea (or a Pseudocolus) from Java, which has arms strongly wrinkled on the inner side, and which shows evident transition toward the genus Blumenavia. Rev. Rick's photograph is much more slender than the photograph published by Alfred Möller, hence we reproduce Mr. Möller's original illustration, in order to give a better idea of the forms the plant takes.

The Development of Queletia.

The early stages of this rare plant have heretofore been entirely unknown. Last summer the plant was discovered by Monsieur Victor Dupain, Deux Sevres, France, growing on a pile of old tan bark in his garden. He very kindly mailed us some specimens, at various stages of growth, which have enabled us to observe the manner of growth of the stem. The genus Queletia has no volva. A section of a young specimen (Plate 122, Fig. 4) shows to the eye a homogeneous, white mass without any distinction as to stem or gleba, the same as a section of a young Lycoperdon. As the plant develops, the stem differentiates from the gleba portion at first *within* the peridium, and as the stem grows it breaks the peridium near the base, which remains as a collar at the summit of the stem. This will be readily understood by observing the two sections on Plate 122. Fig. 4 shows a very young plant without any distinction of stem and gleba. The next stage received by us is Fig. 6, in which the gleba had deliquesced and the spores ripened, while the stem had grown to about an inch and had just broken the peridium. What length of time is represented between these two stages we do not know, but probably not more than a day or two. It would be interesting to know if the gleba ripens *before* the stem begins to develop. None of the "eggs" that Monsieur Dupain sent us demonstrated this point. While we believe the young stages of Tylostoma have not been observed, they are most probably analogous to those of Queletia. It is quite contrary to what we think is the case in the genus Battarrea, where the peridium is borne on *top* of the stem, and both when young are contained in a common volva. The genera Queletia and Tylostoma have no true volva.

Additional Notes on the Lycoperdons of Europe.

Most of the work that we have done with Lycoperdons has been with dried specimens received from our correspondents. Last season at Barbizon, France, we made the personal acquaintance of some species growing that we had heretofore only known dried. Fresh Lycoperdons present characters that can not be learned from the dried specimens. We have always been under the impression that most Lycoperdons are white when young. At Barbizon we observed two species, Lycoperdon atropurpureum and Lycoperdon nigrescens, which have cortices that are *brown* even when very young.

LYCOPERDON GEMMATUM (Plate 46).—Our main reason for again noticing this common species is to present a photograph (Fig. 164) which we think represents the plant unusually well. Also

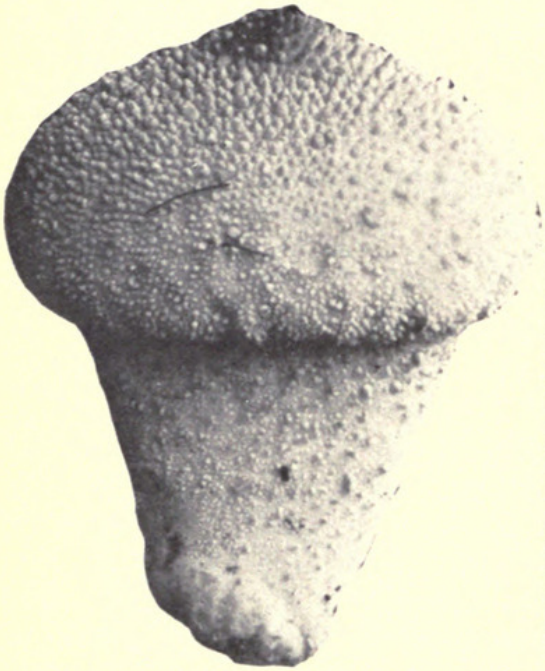

Fig. 164.

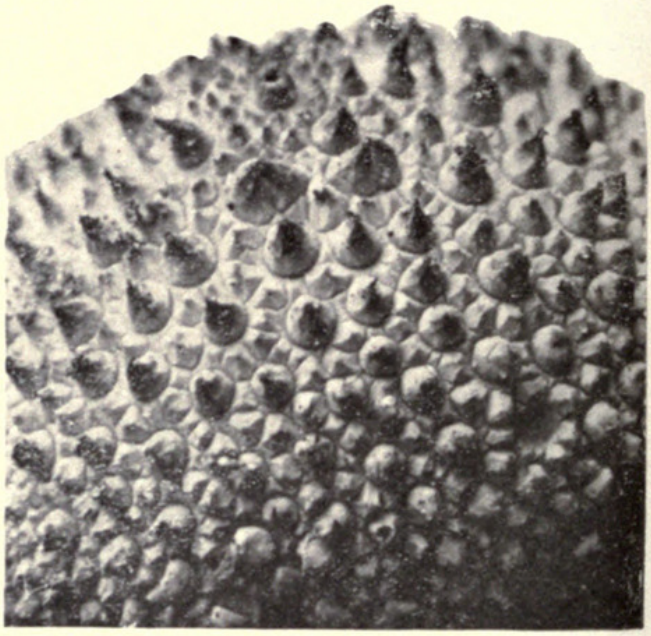

Fig. 165.

a figure of the young cortex (enlarged four times) to show the peculiar nature of the consolidated warts which we hold is the essential character of Lycoperdon gemmatum. The warts of this species are very variable as to size, etc. (cfr. Myc. Notes, page 228), but the species can always be recognized, especially when young, by the *soldered* warts such as no other species has.

LYCOPERDON NIGRESCENS (Plates 47, 60 and 123).—We found this plant at Barbizon, France, but had previously collected it in Sweden. In both countries it seemed to us peculiar in its *habitat*. It does not grow in grassy fields or in rich, shady woods, but in open, dry, mossy places. The cortex of Lycoperdon nigrescens is *brown*,

hence the name nigrescens which Persoon gave it is not so bad. The spines are connivent and fall away, leaving scars in the same manner as in Lycoperdon gemmatum, but these two species are not as close as we thought when we wrote our article on the Lycoperdons of Europe. Young plants are quite different, but it is not easy to distinguish the old specimens after the cortex has fallen. Although we have already given two plates of this species, we present another (No. 123), to better show the cortex characters.

LYCOPERDON ATROPURPUREUM (Plates 42, 57 and 123).—The plants we noted growing at Barbizon, and which when ripe we should have referred to Lycoperdon atropurpureum, have strongly developed spines, always *brown* when young. When mature these spines shrivel up and waste away, so that the mature plant (Plate 123, Fig. 5) would hardly be recognized as the same plant. We suspect that if the truth were known, more than one species has been confused (by us and others) under this name. If we could watch these various plants develop, quite good distinctions might be found in the color or other cortex characters which can not be ascertained from the dried specimens as they reach us. All have large, rough spores, and are very much the same when ripe. We present another plate (No. 123) in order to show the cortex characters of Lycoperdon atropurpureum at different periods.

A Scaly Form of Geaster Triplex.

Among some Geasters recently received from the Botanical Garden, Peradeniya, Ceylon, were some small specimens of Geaster triplex with a scaly exoperidium (Fig. 166). We have seen many specimens of Geaster triplex, for it is a frequent plant in many countries, but we never previously saw specimens with a scaly exoperidium. If this form is constant in Ceylon it is entitled to a name (Geaster squamosus) as a form, and it is fully as distinct as Geaster vittatus based on longitudinal fissures in the exoperidium of the same species. While the character of a scaly exoperidium is absolutely new in the Geaster family, to call it a "new species" would appear to me to be untrue. Any one who is familiar with Geaster triplex would consider it as a mere form.

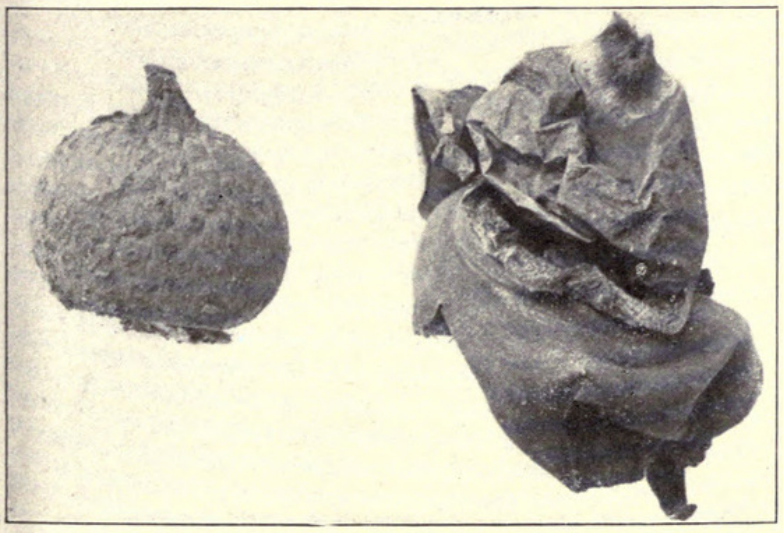

Fig. 166.

PIDGIN LATIN.

The recent botanical congress at Vienna, I am told, adopted a "rule" that in future all descriptions of new species which will be "recognized" must be in Latin.

We doubt if there are many mycologists, excepting perhaps those of the Catholic clergy, who have a thorough, familiar knowledge of Latin. It is close enough to the English so that most of us can take a Latin "diagnosis" and guess pretty well. But I think most mycologists can tell all they know about fungi and tell it much better in their own language than they can in Latin. We recognize the utility of writing a book like Saccardo, which is a compilation from all languages, in Latin, because then it becomes useful to all. But the editors of such publications must be qualified, as Saccardo is, to put other languages into Latin. Most any one with a boyhood memory of hic-haec-hoc can take an English-Latin lexicon and make out a form that will pass, but it seems to us unreasonable to ask one who has the use of good, vigorous English to emasculate his thoughts in bad Latin. If the next Botanical Congress wants to make a "law" that might do a little good, let them make a law that all "new species" must be satisfactorily illustrated. Good pictures are a universal language and tell the story, and tell it better than words of any language. In these days of excellent photographs and cheap photo-engraving processes, it is not too much to ask that those who seek "glory" of the "new species" variety, should at least be willing to go to the expense of illustrating their plant. If done as the result of a "law," it might be considered as a just penalty for the inflicting of "new species" on a suffering public.

Notelets.

THE GENUS NIDULA.—Two facts are strongly illustrated by this genus. First, the wide distribution of fungi; and second, how little is known as to the occurrence of "foreign" species. *Only four years ago* attention was first drawn to this genus by Miss White of New York. We have now several collections from Canada and northwest America, two from *Japan,* one from *Australia,* and have just received it from T. Petch, *Ceylon.* Truly it can be said as to "foreign fungi" what is known is only "a little bit off the top."

NIDULA MICROCARPA IN JAPAN.—This species, which seems to replace Crucibulum vulgare in our northwest section (Washington), has reached me recently from K. Miyabe, Japan. Crucibulum vulgare has a general resemblance to Nidula microcarpa. Crucibulum has been recorded in Japan by Mr. Tanaka. We have never seen it from Japan, but of course it may occur there, and it may be that Nidula has been confused with it.

CALVATIA.—Mr. Rea "can not agree with C. G. Lloyd's definition of the genus Calvatia, which he separates from Lycoperdon on the ground that the *peridium breaks up in its upper portion and has pedicellate spores.*" If that is my definition of the genus Calvatia I can not blame Mr. Rea, for I do not agree with that myself, and I do not believe I ever so stated.

A DOUBTFUL BENEFACTOR.—"You are a great benefactor to mycologists in clearing up name muddles and trying to stop the senseless practice of putting a mycologist's name at the end of each specific name. It is *vanity* that is the curse of the mycological literature of the present day. With all good wishes."—Extract from a letter from E. W. S. We question the "benefactor" part, for while we hold it would be a great benefit to stop many of the evils that result from the present system, we have no idea (and have never had) that anything can be accomplished excepting in our own publication. You can not stop bull fighting by appealing to the matadores.

Issued by C. G. LLOYD.

PLATE 112.

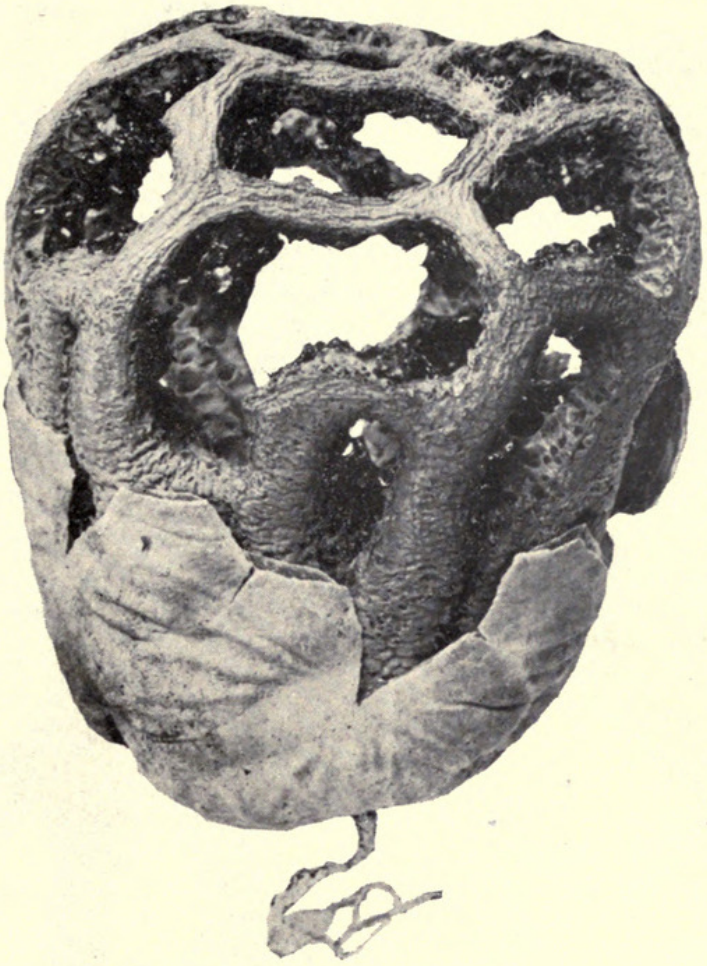

Fig. 1.

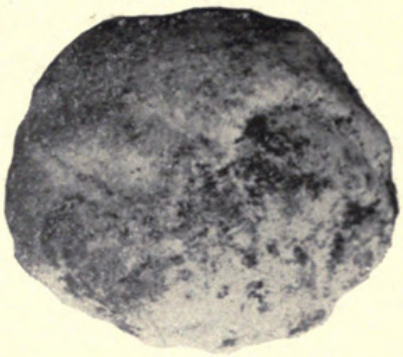

Fig. 2.

Fig. 3.

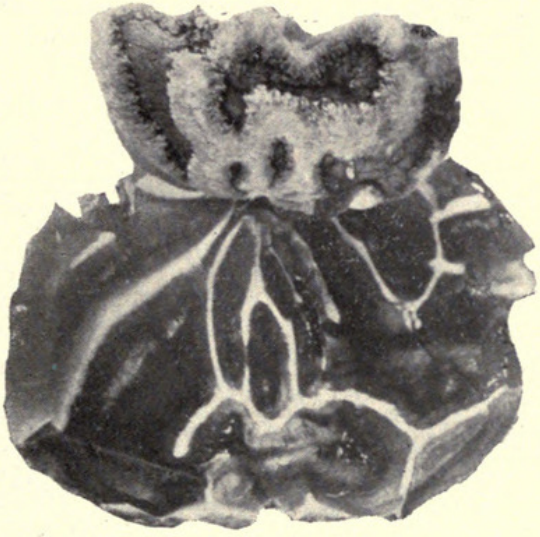

Fig. 5.

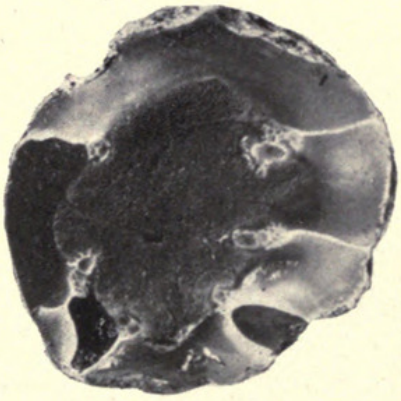

Fig. 4

Fig. 1, photograph of a fresh specimen from Auguste Bernin, Monaco. Fig. 2, an egg. Figs. 3 and 4, sections of an egg. Fig. 5, section of an egg with the volva pulled away.

CLATHRUS CANCELLATUS.

Fig. 6.

Fig. 7.

Fig. 8.

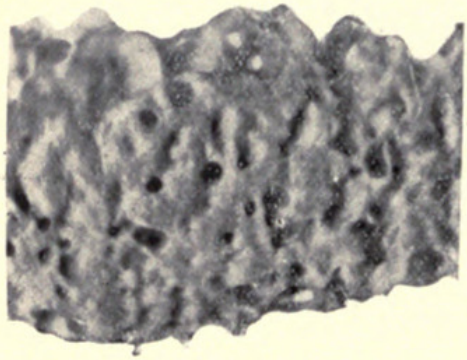

Fig. 9.

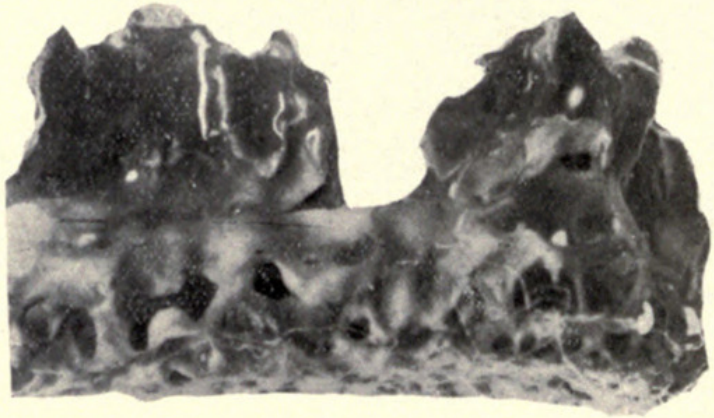

Fig. 10.

Fig. 6, a plant with the volva pulled away. Fig. 7, outer view of the arms. Fig. 8, inner view of the arms. Fig. 9, outer view of arm enlarged 4 times. Fig. 10, side view enlarged 4 times.

CLATHRUS CANCELLATUS.

Issued by C. G. LLOYD.

PLATE 113.

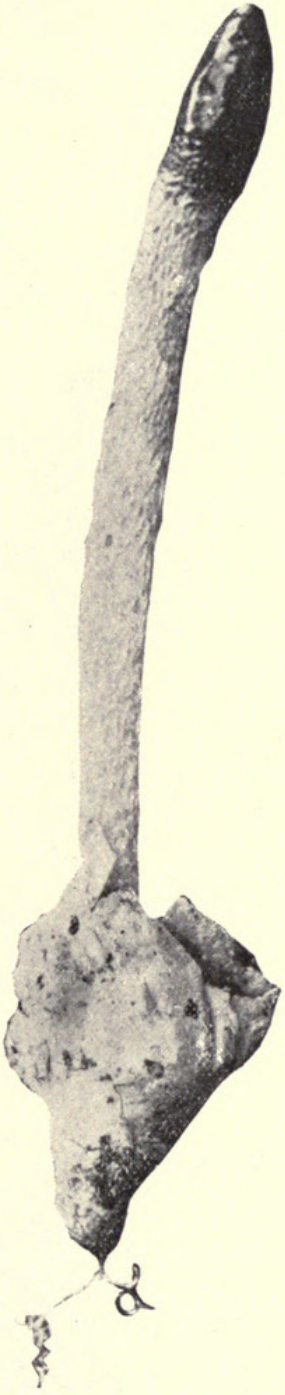

Fig. 1.

Fig. 2.

Fig. 3.

Photograph by W. Krieger, Saxony, Germany.

MUTINUS CANINUS.

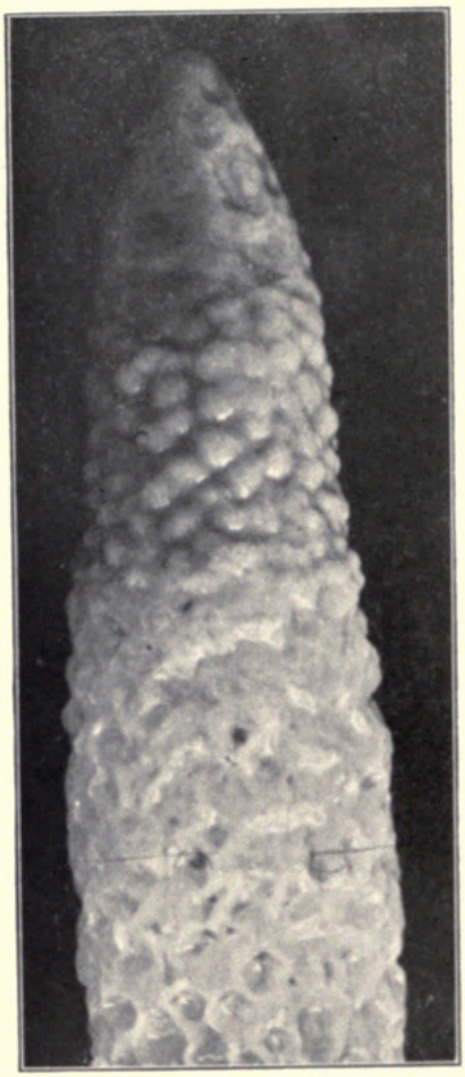

Fig. 4.

Fig. 4, the top of an alcoholic specimen (in museum at Paris) enlarged 4 times.

MUTINUS CANINUS.

PLATE 114.

Fig. 1.

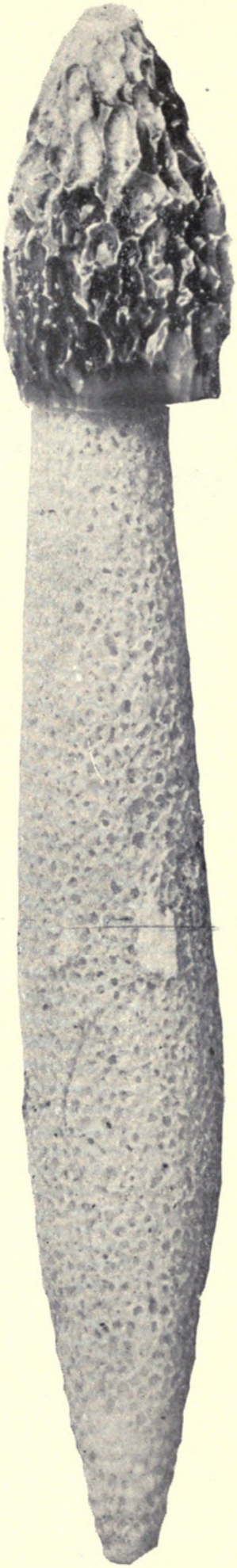

Fig. 2.

Fig. 1, fresh specimen photographed in France. Fig. 2, same devoid of volva.

PHALLUS IMPUDICUS.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 3, an egg. Fig. 4, section of the volva to show the inner cup. Fig. 5, section of egg. Fig. 6, the inner face of the pileus. Fig. 7, the outer face (the gleba washed away).

PHALLUS IMPUDICUS.

Issued by C. G. LLOYD.

PLATE 115.

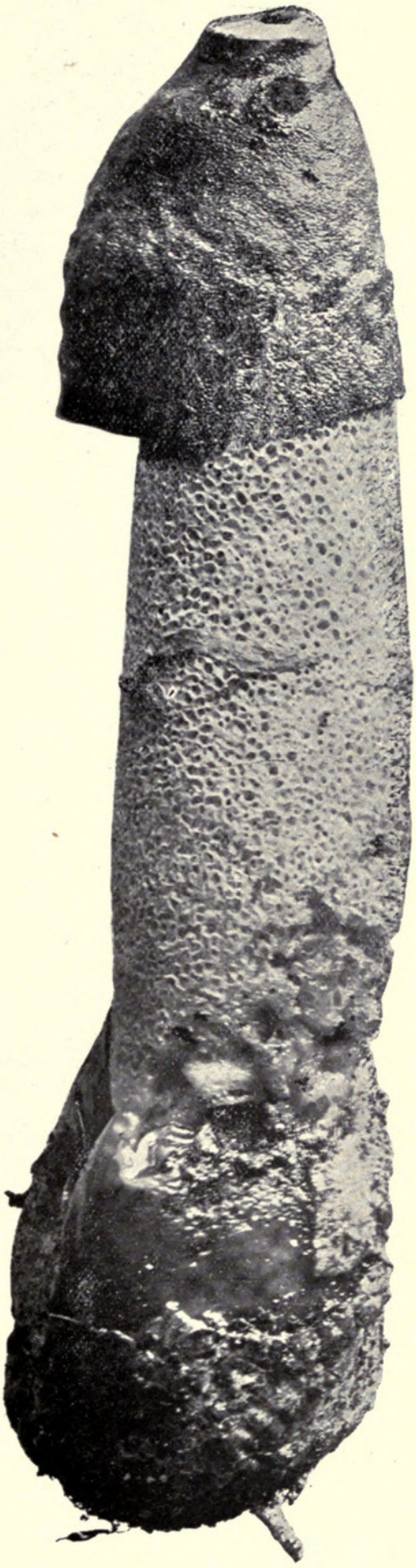

Fig. 1.

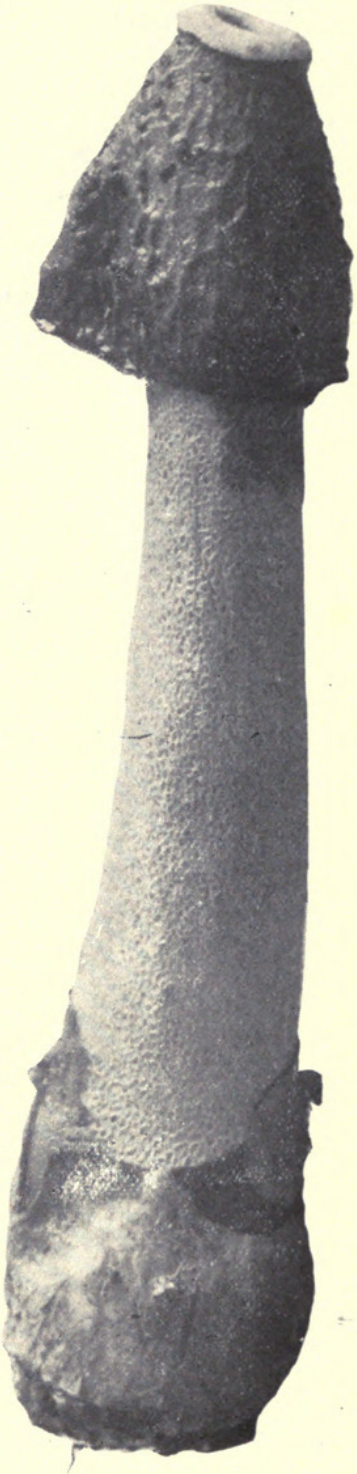

Fig. 2.

Fresh specimens photographed at Cincinnati.

PHALLUS RAVENELII.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 3, a pileus with part removed to show the veil. Fig. 4, under surface of the pileus. Fig. 5, section of an egg.

PHALLUS RAVENELII.

Issued by C. G. LLOYD.

PLATE 116.

Fig. 1.

Fig. 2.

Fig. 3.

Photograph by W. H. Long, Jr., Texas.

PHALLUS RUBICUNDUS.

Fig. 4.

Photograph of the type specimen, given me by Professor Patouillard.

PHALLUS IRPICINUS.

Fig. 1.

Fresh specimen photographed at Cincinnati.

PHALLUS DUPLICATUS.

Fig. 2.

Photographed by C. E. Pleas, Florida.

PHALLUS DUPLICATUS.

Issued by C. G. LLOYD.

PLATE 118.

Fig. 1.

Photograph by Professor H. C. Beardslee, Cleveland, O. The photo is reduced and is a little less than one half the natural size.

PHALLUS DUPLICATUS.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 2, photograph from a specimen in alcohol, the veil contracted and shriveled. Fig. 3, pileus with the gleba washed away. Fig. 4, a piece of the veil.

PHALLUS DUPLICATUS.

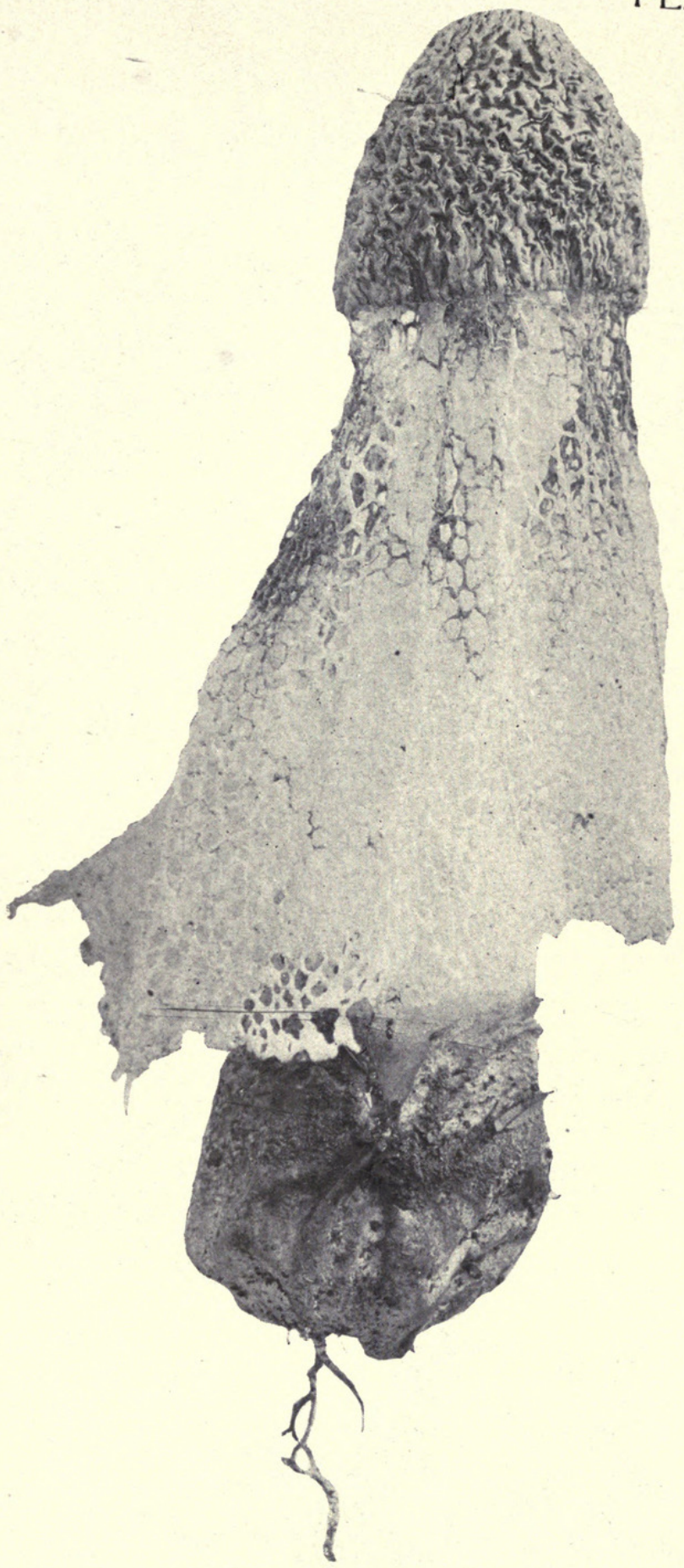

Fig. 1.

Fresh specimen photographed in Samoa.

PHALLUS INDUSIATUS.

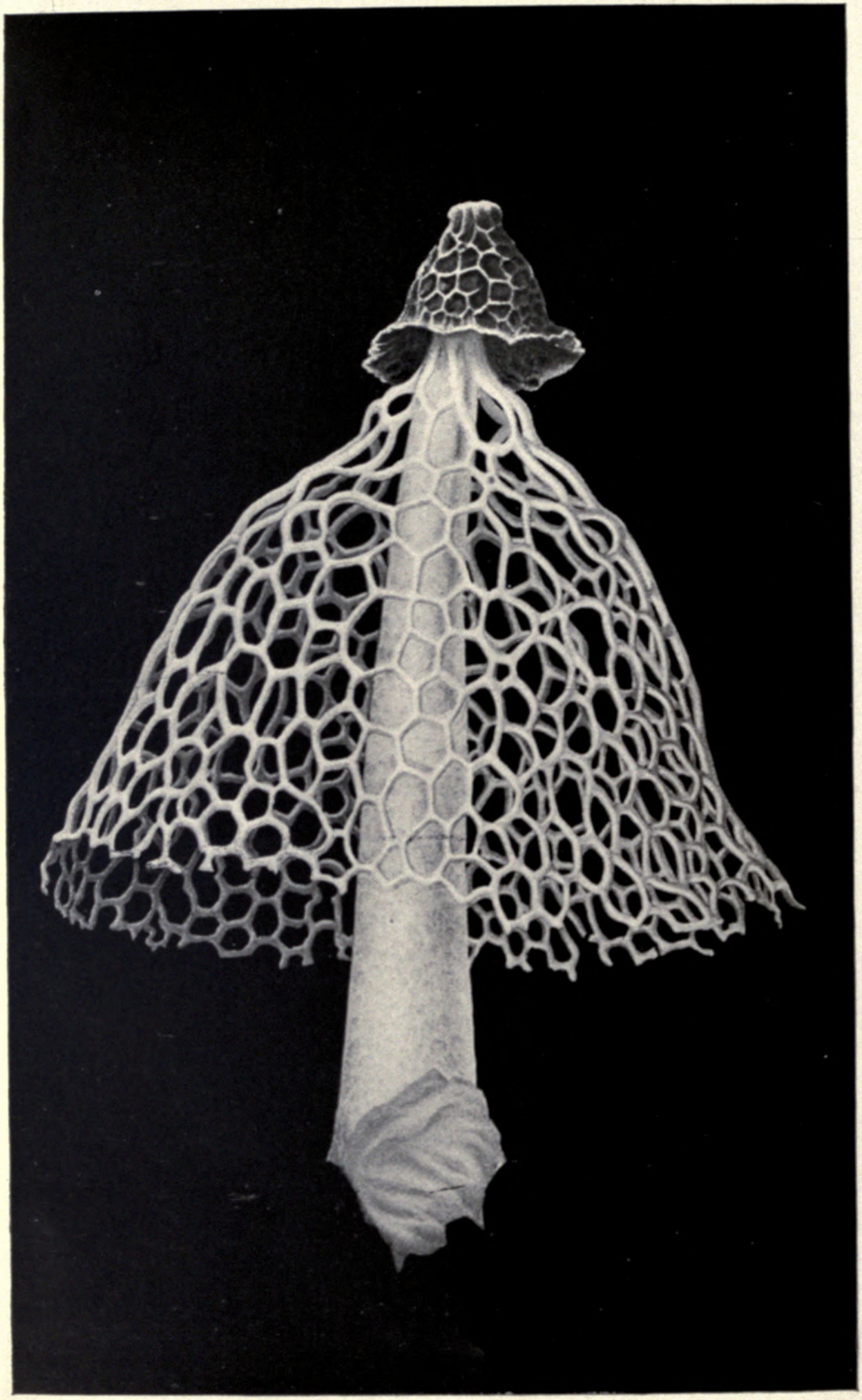

Fig. 2.

Copied from the Brasilische Pilzblumen by Alfred Möller.

Issued by C. G. LLOYD.

PLATE 120.

Fig. 1.

A cluster of young plants, photographed at Cincinnati.

PHALLOGASTER SACCATUS.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 2, an unopened specimen. Fig. 3, same, section. Fig. 4, transverse section. Fig. 5, a specimen just beginning to break. Fig. 6, a specimen after dehiscence. All photographed fresh at Cincinnati.

PHALLOGASTER SACCATUS.

Issued by C. G. LLOYD.

PLATE 121.

Fig. 1.

Fig. 2.

Fig. 3.

Figs. 1 and 2, photographs by Rev. Père A. Schupp, Brazil. Fig. 3, section of plant, from "Brasilische Pilzblumen" by Alfred Möller.

ITAJAHYA GALERICULATA.

Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

Fig. 4, from "Brasilische Pilzblumen" by Alfred Möller. Figs. 5 and 7, photographs of dried specimens from Father J. Rick, Brazil. Fig. 6, photograph of a fresh plant by Father Rick.

BLUMENAVIA RHACODES.

Issued by C. G. LLOYD.

PLATE 122.

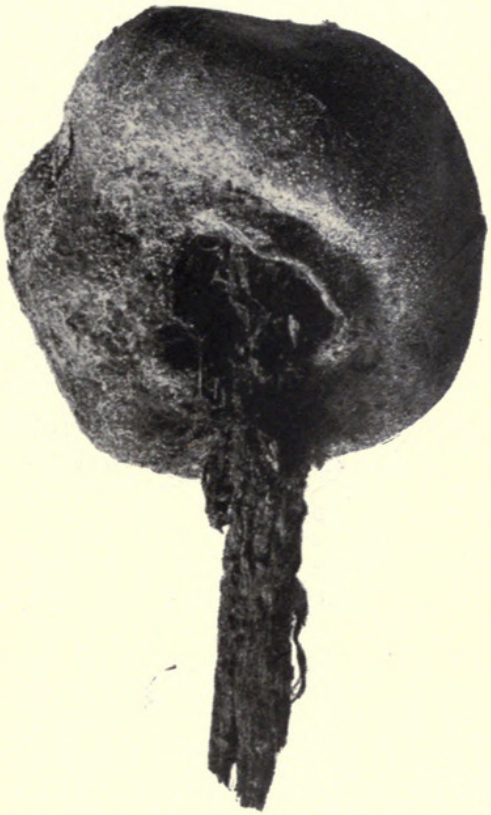

Fig. 1.

Fig. 2.

Fig. 1, specimen from Dr. Wm. Herbst, Trexlertown, Pa. Fig. 2, specimen in museum at Paris, collected by A. Le Breton, France.

QUELETIA MIRABILIS.

Fig. 3.

Fig. 4.

Fig. 5

Fig. 6.

Fig. 3, a young specimen. Fig. 4, section of same. Fig. 5, a young specimen after the stem has begun to grow and the gleba has ripened. Fig. 6, section of same. All from Victor Dupain, France.

QUELETIA MIRABILIS.

PLATE 123.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4

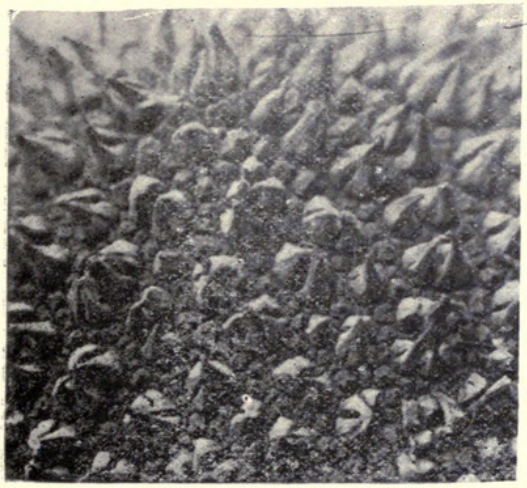

Fig. 5.

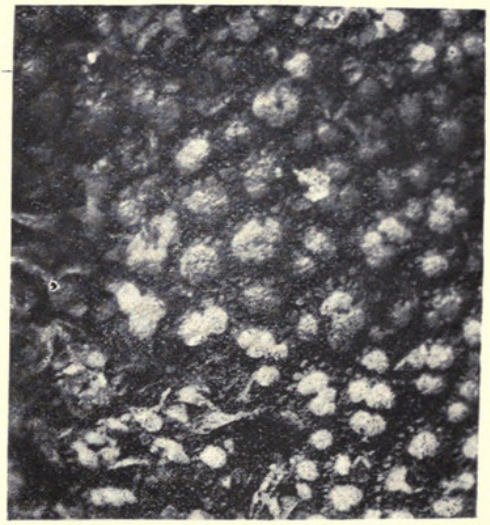

Fig. 6.

Figs. 1, 2, 3, 4, fresh specimens photographed in Sweden. Fig. 5, cortex enlarged 4 times. Fig. 6, same after the spines have fallen.

LYCOPERDON NIGRESCENS.

Fig. 7.

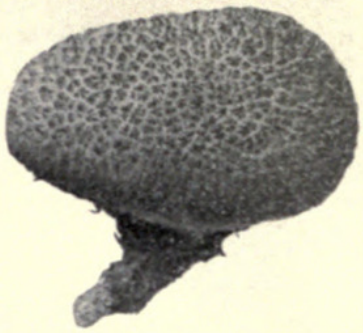

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

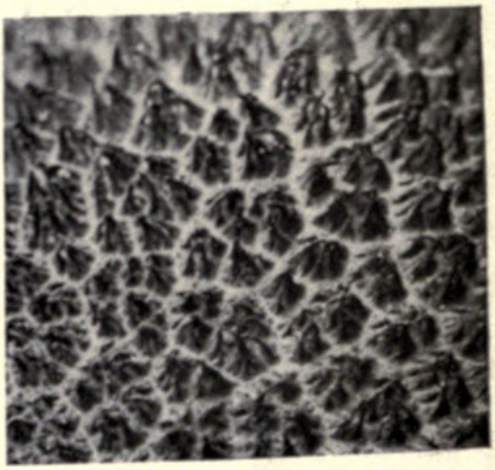

Fig. 12.

Figs. 7 and 8, fresh plants with cortex. Figs. 9 and 10, same as the cortex begins to shrivel. Fig. 11, same after the fall of the cortex. Fig. 12, cortex enlarged 4 times. All photographed at Barbizon, France.

LYCOPERDON ATROPURPUREUM.