

MYCOLOGICAL NOTES.

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PAUL HENNINGS.

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NOTES OF TRAVEL. BERLIN.

Since my previous visit to Berlin there has been quite a change in the botanical surroundings. The collection is now installed in the new botanical museum, which is the largest and finest in the world. While I like the plan at Kew better, there is no denying the fact that from an architectural point of view the Germans have a much better and more expensive building. It is divided into a number of separate rooms and each member of the force has his own private room in which to work. I do not know how many rooms there are, but some idea may be obtained from the fact that the room in which I worked was Number 207. While the present working force at Berlin is unquestionably the largest of any institution, they have evidently provided for all possible future growth.

From a mycological point of view the museum at Berlin is not as important as others in Europe, for it is relatively a recent collection, principally the work of the late Dr. Hennings. Of historical collections they have the plants of Klotzsch and Winters¹, and also many of Link's specimens. Also I found there some of the collections of Beyrich from Brazil on which Fries based a number of early species, and the Brazilian phalloids of Alfred Moeller, in alcohol.

At the present writing there has been no successor appointed to the position held by Dr. Hennings, who died last October, nor do I know where they will find in Germany a good man to take his place. While the Germans have forged to the front in Phænogamic botany, and to-day lead the world in this department, systematic mycology in Germany, as it is in the most of Europe, except France, is in a very languishing condition.

PAUL HENNINGS.

The photograph that we present on our first page, of the late Dr. Paul Hennings, was taken during the later years of his life and well presents him as I knew him.

He was born in 1841, and died October 14, 1908. It was only in comparatively recent years that Dr. Hennings became prominent in the mycological world, for he took up the subject late in life (when he was forty-six years old) and published his introductory paper after he was fifty years of age. Previously he had been interested in botany in general, and museum work in particular, and was engaged in arranging the museum at Kiel when he made the acquaintance of Professor Eichler, and this acquaintance led to his studies in mycology. Shortly after Eichler came to Berlin (in 1878) as Director of the Botanical Gardens and Museums, he appointed Dr. Hennings as assistant in the gardens and museum. I judge that Dr. Hennings became a mycologist through force of circumstances. At about that time the Germans were beginning to take the lead in botanical mat-

¹ In Winters' herbarium are found many of Kalchbrenner's namings (or mostly misnamings, to be accurate).

ters, and collections of plants began to arrive from all the German colonies of the world. Naturally a great many fungi were sent in and there was no one to work them up. Dr. Hennings, with very little preliminary study in this line, undertook the work. He had no instructor and a very scanty herbarium of named specimens, but with that persistent application that is characteristic of the German student, he devoted himself to the work until he finally got a good grasp of it.

It was a fortunate thing that Dr. Hennings was wise in the earlier days of his fungus work in sending the specimens in the herbarium to Bresadola and having them gone over critically and the names corrected. The original collection was largely that of Winters, and Winters' collection was largely named by Kalchbrenner, and Kalchbrenner's determinations were almost all wrong. Had Dr. Hennings attempted to learn mycology on the basis of Kalchbrenner's determinations he would have made disastrous work of it. I do not believe they appreciate, even at Berlin, how much they are indebted to Bresadola for the correctness of most of Dr. Hennings' determinations.

Dr. Hennings took the collection of fungi at Berlin when it consisted of only a relatively few specimens of Winters, Link and Klotzsch, and he increased it many fold until now I think it is perhaps the third or fourth largest collection in Europe. He arranged and labeled the many specimens that reached Berlin from foreign countries, and in addition he was an industrious collector of the fungi around Berlin. In no other museum of Europe have I found as good and as recent collections of the local fungi as that made by Dr. Hennings. And he deserves great credit for it, for the collection was made under very discouraging circumstances. I should as soon think of hunting for mushrooms on Broadway as fungi in the woods around Berlin. The Germans are much too thrifty a people to suit me as a mycologist. They keep their woods too clean, and the poor fungi have a hard time trying to find a little dead wood lying about on which to grow.

Dr. Hennings' work was largely the publication of "new species," for it is in this manner that museums are built up. A large number of "good things" came into his hands, for they were largely from unexplored regions (Africa, New Guinea, etc.) and the mycology of such portions of the world is as yet practically untouched. In proportion to its size I think the museum at Berlin has as many novelties as any museum in which I have worked.

But it was not in the herbarium proper that Dr. Hennings did his best work. He was by nature and training a *museum man*, and in the "show department" of the botanical museum at Berlin is the largest and finest exhibition of fungi for popular instruction that I have ever seen, and Dr. Hennings made and arranged it.

Personally Dr. Hennings was a most charming man, and students visiting his collection were always welcomed and given every attention and facility for work. He was very kind to me on my first visit to Berlin, and I missed him greatly during my recent stay.

OUR LAW MAKERS.

As long as there are botanical institutions with "axes to grind," and as long as there are men who like to pose as authorities and make "laws" or "rules," as they call them, for others, so long will we have our Botanical "law makers." However, they have about the same power to enforce these laws as have stage policemen, and the whole subject is very much on the order of opera bouffe.

The botanical "law maker" is a very familiar, but at present a somewhat discredited type in America. We have in America (unfortunately) two factions or rival cliques of botanists that love each other as do the French and Germans. One faction has been very busy for the past eight or ten years making their "laws" and scolding everybody who did not approve of them. They have been exceedingly and perniciously active. After they had carried matters with a high hand in America for a number of years, they thought they would work the same plan on a more extended scale. So they went in full force to Vienna. But the Germans had their own "axes to grind," and when they had finished our American law makers were the worst defeated crowd that ever got beaten at their own game. They did have strength enough left to whip up a few stragglers at Philadelphia and "secede," but I think they are heartily sick of the law-making business. It is to be hoped, and to a degree expected, that now American botany will have a little much needed rest on that subject from this quarter.

But the other faction is now trying the same plan and methods and has appointed an agent as their chief steerer and wire puller. He probably is of the opinion that he is directing things, but botanical laws are always cut and dried affairs and the men with axes rarely show their hands. Some one is necessarily singled out to turn the grindstone, but it is to be observed that the other two American members decline to be used for that purpose.

Our trouble in America is purely an American quarrel, and, like the Kilkenny cats, we should be left to fight it out among ourselves, without involving the Europeans.

But that is not the plan. In order to make it appear that there is an international demand for "laws" for nomenclature of cryptograms, a few prominent men in European mycology, such as Bresadola, Patouillard, and Massee, have been appointed as a committee to formulate these "laws." These men are mycologists. They are interested in their own work and are too much engaged to waste their time making "laws" either to regulate nomenclature or to regulate the wind, one of which is just as practicable as the other. The use of their names, in one instance at least, and I suspect in all, was unauthorized, and not one of the three, I am told, will have anything to

do with it. While I am not authoritatively informed as to any of the others, I doubt if there is any mycologist of standing in Europe or America either who really thinks that anything but a row is ever accomplished by "laws" in Botany. The last circular (No. 5) that was issued by the agitation committee whose object is to make "laws," complained of a general apathy on the subject. The entire circular is a pitiful appeal for somebody to take an interest in it. Botanists in general are weary of the never ending and useless "law-making," and at the present writing the prospects are that the next "International Law Congress" will be an international fizzle. As a Frenchman would say, "Tant mieux."

A SUGGESTION.—Why would it not be a good idea to put the "name of the namer" after geographical names as well as botanical names. Some ambiguity might be avoided by it. Thus, Saccardo would not have referred *Fomes superpositus* to "New England, Amer. bor." if there had been added to the Australian New England the name of some pioneer Australian explorer. Nor the South African *Broomeia congregata* to "Albany, Amer. Bor." if the South African Albany had attached to it the name of some celebrated lion hunter.

STEREUM VERSICOLOR.—We all know the plant called, in American mycology, *Stereum versicolor*. It was so called by Berkeley and also by Ellis. Professor Burt told me he had not found the type which was collected by Swartz in Jamaica and published in 1788. He calls the plant *Stereum fasciatum*, Schweinitz. The type of *Stereum versicolor* is at the British Museum, but is not our American plant. It has a smooth, striated pileus, not tomentose as our plant. I think we shall have to call our plant *Stereum fasciatum*. It probably has a European name, however, as it grows in Northern Europe.

PROFESSOR HARD'S BOOK.

I presume the mycologists of the United States are now mostly familiar with Professor M. E. Hard's book, "Mushrooms, edible and otherwise." It was probably issued last year, but as I (in Europe) am not in touch with matters mycological in America, I only learned a few weeks ago that the book was out, and sent for a copy. I can not say that I was surprised when I received it to find that we at last have a good, popular work on common fungi, as I had seen the manuscript and knew it was going to be a good book if the printers did their part. I think they have done very well.

The important feature of Professor Hard's book is that it is practical. The beginner, the student, can take the book and go into the fields and woods and identify a large part of the fungi he finds. It will be a constant source of inspiration to the woods lover to have a book in which he can look up the pictures and get some idea of the curious growths he meets on every hand. Twelve or fifteen years ago when I began work on the subject there was nothing of the kind in America. All that we had were Peck's Reports, of very little serv-

ice as they were largely devoted to "new species," and Morgan's papers, of which the Agaric portion at least was made up by adapting Fries' descriptions to Berkeley's determinations of dried specimens. It was then a matter of the greatest difficulty to get names for our commonest plants. With the help of Hard's book any one ought to work out the usual fungi that he meets. I believe that the book will do more to popularize mycology in America than any work that was ever issued. It would hardly be fair to contrast Hard's book with those that have gone before, as he has had the advantage of the work done by others, and has gotten many things right that he would have gotten wrong a few years ago. Professor Hard was also wise to delay publishing his work until he had met and learned the most of the common plants. Atkinson's book, a few years ago, which was the first step in the right direction, was an immature production. The author had not learned a great deal of his subject when he went into print and the result was a fragmentary account, good as far as it went, but it did not go very far. Hard's book will supply much of this deficiency.

As to the question of the accuracy of the names employed, while there is much yet to be learned of the history of American plants, Hard's book well represents the present knowledge. It will be many years before the ultimate truth as to many American plants is worked out. We are particularly glad to note that Professor Hard has not resorted to any cheap process of name juggling, but has used the names in common use.

This book is a practical demonstration of the value of photography in mycology, a fact, however, that was clearly demonstrated by Atkinson's book. It is an evidence of the practical side of the American character that we have adopted an easy and practical way of illustrating our fungi, while the old world lags behind. There is not in Europe to-day a single, popular book on mycology as well and as clearly illustrated as Hard's book. As our American plants are nearly all the same as those of Europe, to any one in Europe studying fungi this book will be found of more service than any one popular book they now have.

The Gastromycetes of Hard's book are up to date, accurately and correctly named.¹ It is the first connected and well illustrated account that we have of our American puff balls. All the common species are well represented, and in future there will be no reason why any one

¹The few errors that occur are mostly in the advertisements. Thus "Roth" for Rostkovius; *Lycoperdon acuminatum* "Bosc;" *Lycoperdon pusillum* "Fr." As Professor Hard inserts advertisements in accordance with the fetish custom in order to make the book look "scientific," and has copied them from other books without knowing anything about their meaning, he naturally gets more or less of them incorrect. As the custom is both senseless and useless when it is employed in this way (and it is the usual way that it is employed) it does not matter much whether they are right or wrong. As long as he goes through the form of writing some personal name after his plant names to make a show of learning, it is immaterial whether he writes after *Lycoperdon cruciatum* "Roth" or "Ross" or "Rostafinska" or "Roussel" or "Rostkovius." They all have the same meaning for Mr. Hard and the most of his readers. Some of the mistakes he makes in attempting to follow this fetish custom are highly amusing. Thus, "Moy" I presume was some Chinese writer. Montagne who spent his life seeking glory along the usual "new species" route, might be chagrined to find himself referred to as "Mr. Montgomery." Such is fame!

should have any trouble in determining these plants in America. One serious mistake only occurs in this section. The photograph used to illustrate *Nidularia pisiformis* has also (the lower plant) a photograph of *Nidula candida*, which should have been cut off as it has no resemblance to *Nidularia pisiformis*. We might go through the work and pick out other mistakes, but there is so much that is good in the work it would be in poor taste to harp on the little that is bad.

We congratulate professor Hard on his book, and American mycology in having such a work. Every man interested in fungi should have a copy, whether he lives in America or Europe.

HOW SPHAEROBOLUS THROWS ITS PERIDIOLE.

At the time I wrote my account of *Sphaerobolus stellatus* I had never closely observed the fresh plant. There has always been a tradition that the plant ejects its peridiole with force. There is no

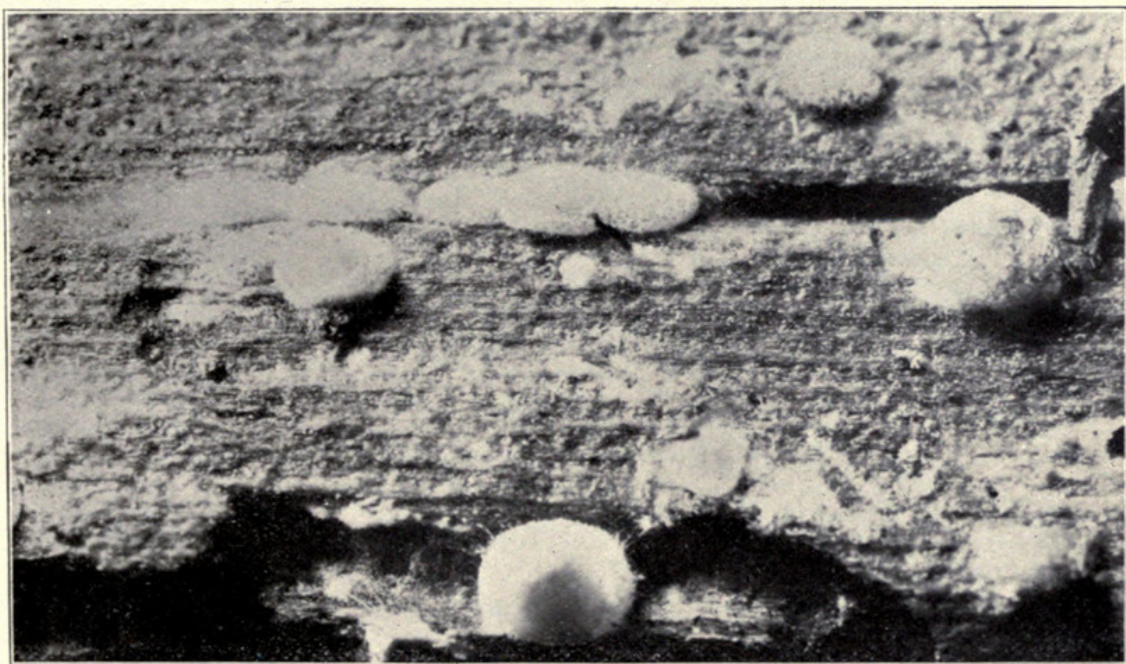


Fig 245 (X 6).

Sphaerobolus stellatus at an early stage.

trouble in tracing this tradition back two hundred years to Micheli, who pictures a plant ejecting its peridiole like a cannon ball from a mortar. As it is evident that some of our modern pictures have been made up from Micheli, I suspected that the idea was derived from this source. I am glad to be able to say, however, that the essentials are true.

Sphaerobolus stellatus (which, in my opinion, is the only species

that exists with us) is not a common plant. I found it rarely the past season in Sweden on pine boards. It grows caespitose, the white mycelium spreading over the rotten wood. The young plant is partly imbedded and is at first white, and covered with this mycelial layer. A section at this stage shows the young peridiole in the center (white, 750 mic.), surrounded by two distinct, yellowish peridia, the inner white (60 mic.), the outer yellow (120 mic.). Both of these peridia are composed of large, globose cells (parenchymatous tissue)² and are imbedded in the white, gelatinous, mycelial layer (composed of filamentous tissue). As the plant develops, it emerges from the mycelial (gelatinous layer), as shown in Fig. 245, where several young plants are shown, the lower one fully emerged. At this stage the outer perid-

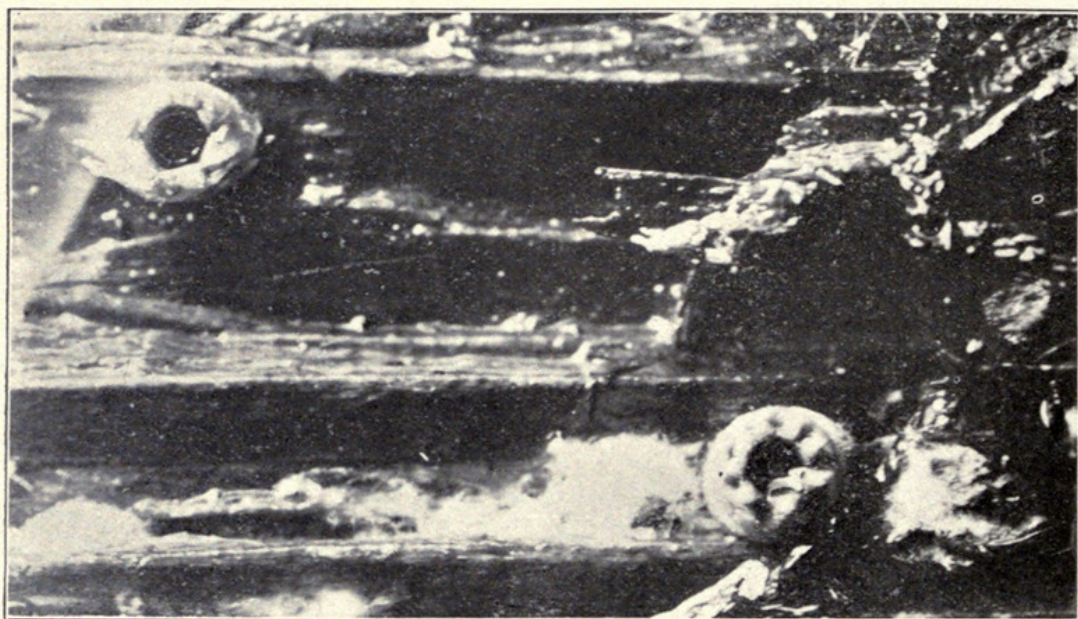


Fig. 246 (X 6).

Sphaerobolus stellatus before the ejection of the peridiole.

ium chiefly shows, and as this peridium is yellow, the plant is usually described as yellow.

The next stage of development (Fig. 246) both peridia open at the top, exposing the reddish brown peridiole. This opening takes place gradually. If a section is now made, the peridia are found to be cup-shaped, the inner white, nesting in the outer yellow. These two peridia are united at the top and break irregularly, as shown in our Fig. 246. There are no regular, stellate lobes, as usually shown in illustrations which are copied from old pictures. At length the inner peridium suddenly turns out and ejects the peridiole with some force. It is said to be accompanied by a slight noise. I can not vouch for that. But the peridiole is thrown from one to five inches, depend-

²I could not note that there was any material difference in the cellular structure of these peridia as shown in the usual illustration.

ing on the vigor of the plant. This sudden inversion of the inner peridium is evidently a mechanical process. I do not exactly understand it, but think it is due to the thinning of the upper walls of the inner peridium and a contraction at the opening. After the ejection of the peridiole the inner peridium, which is thin and white, soon dries up and disappears, hence is not seen on dried specimens.

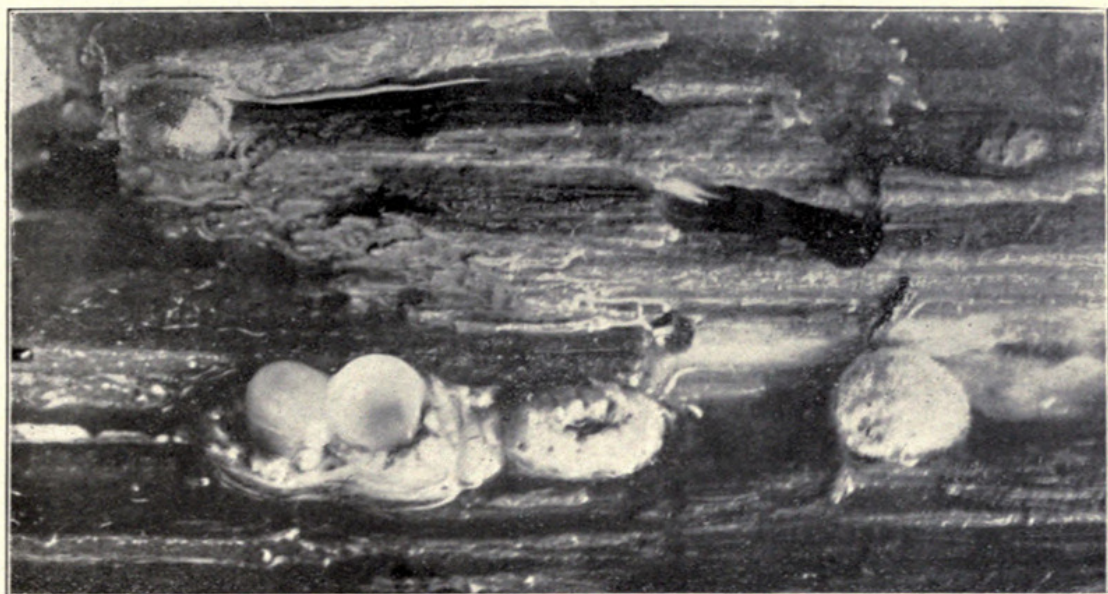


Fig. 247 (X 6).

Sphaerobolus stellatus showing two plants that have just ejected the peridioles.

We think our photographs of the plant at the various stages will make the subject plain. They are all magnified six diameters, as the plant is not much larger than a mustard seed. In our last figure (247) two plants are shown that have just thrown out the peridioles.

DURAND'S PAPER ON GEOGLOSSACEAE.

What impresses me as being a most thorough paper on the Geoglossums and allied plants of North America appeared in a German periodical recently. We have all known that Professor Durand has been at work on the Discomycetes for a number of years, and this is the first important result of the work. We trust he will publish the remainder of the field in the same exhaustive manner. Professor Durand has studied the American specimens of all the principal museums, both American and European, as well as having done much field work. We now have a knowledge of what species occur with us, where they occur, and their relative frequency or rarity, something that we did not have before. We are only sorry that it is not in a more accessible form, for there are many collectors in America

who observe these curious plants and have no way of studying them. Professor Durand finds the following species in the United States: *Mitrula* 6, *Spathularia* 2, *Leotia* 3, *Vibrissea* 2, *Apostemidium* 2, *Cudonia* 3, *Geoglossum* 24. The latter genus he divides into five small genera. The old genera are divided nowadays by a process of division like the multiplication of bacteria. It has the advantage from a "systematic" point of view that there is no limit to it, nor to the new combinations that can be made in this manner. Several have tinkered with the genus *Geoglossum*: Saccardo, Masee, Boudier, Durand, and others. The only thing common to their work is the uniform diversity of the results.

As to specific names, Professor Durand is an earnest follower after "priority." The German edict has gone forth that species have to conform to priority, but genera do not. The result is a reversal of many familiar, specific names, and the installation of others of much less merit. Sometimes this automatic process produces most grotesque results. For instance, we are commanded to call the common *yellow* *Geoglossum*, which is always *yellow*, *Geoglossum rufum*. "Rufum" is a word from one of the dead languages, meaning red. Professor Durand names the *Geoglossum* "rufum," and then tells us "it is easily known by the *yellow* color of every part." He would probably have more regard for the fitness of things if he were naming a yellow dog.¹

There is one feature of Professor Durand's paper that is an eloquent testimony to his thorough, complete knowledge of the subject. After working over hundreds of specimens of *Geoglossums* he finds only *nine* new species. It is usually a safe rule to judge of the knowledge of a man who works in an old field by an inverse proportion to the relative number of "new species" he finds. The fewer old ones he knows, the more new ones he always finds.

Professor Durand's work is a credit to American mycology and will always be the authority on these plants. We wish there were other groups worked up in the same manner. One such paper as Durand issues is worth more than the lifetime work of the average hit-and-miss "new species" exploiter.

FIGURE X 6.

We find that a most convenient way to illustrate small objects or details, such as pores, etc., is to photograph them (enlarged) direct. We have a lens that makes a magnification of about six diameters. We have taken many photographs with this enlargement, and many figures of this nature will appear in future issues. We shall mark these figures X6, and think the matter will be understood without further explanation.

¹In Paris "Black" is a common name for a dog, and it does not make much difference what his color is. I suppose some Frenchman who knew a little English had a black dog some time that he called "Black." It seems to be a good name for a dog, at least it is largely used in Paris. The French may name their dogs in this way if they wish, but I do not believe it is the correct principle to apply to the naming of plants.

REDISCOVERY OF BOVISTELLA PALUDOSA.

Sixty odd years ago L  veill   collected in the Sphagnum moss at Malesherbes, France, a puff ball (*Bovistella paludosa*, cfr. Myc. Notes, p. 280). One specimen is in the museum at Paris, and another of this same collection at Kew. These two specimens are all there are in the museums, and it has never reached me from any of my correspondents. It is surely a very rare plant, or at least a rarely collected plant.



Fig. 248.

Bovistella paludosa.

During the past season Mr. Thomas Gibbs collected this rare species "on the moss on the Cleveland Hills, Yorkshire," England. A specimen was sent in by Carleton Rea. It proved to be the same as L  veill  's plant. I was glad to be able to cut it open, for neither of the type specimens is cut, and we did not know the nature of its sterile base. It has a *compact* sterile base of *small* cells, and is the only puff ball in Europe with such a sterile base, excepting *Lycoperdon polymorphum*. Indeed, when I first saw the plant cut open I thought it was *Lycoperdon polymorphum*.

An error has been made in our account of *Bovistella paludosa* as to the capillitium. In the cut specimen we readily see that the capillitia are not all "separate" threads, but many evidently attached. Those in the center of the puff ball appear to be "separate," and I think we have here a plant with a type of capillitium intermediate between that of *Lycoperdon* (typical) and *Bovista* (typical), connecting the two types.

In the *Annales Mycologici* of last year (Feb., 1908), I noticed a "new species," described under the name *Lycoperdon Bub  kii*, which from the description seemed to me to be *Bovistella paludosa*. I wrote to Professor Bub  k, and he has kindly sent me a specimen, and it is the same species. Professor Bub  k collected it in Montenegro, which is the third collection known. *Bovistella paludosa* is so similar to *Lycoperdon polymorphum* that it can only be certainly known by the microscope, and it is possible that other collections have been taken for the latter plant.

A NEW BROOMEIA.

The genus *Broomeia* has heretofore been known from a single species, *Broomeia congregata*, from South Africa. An account was given of it in *Mycological Notes*, page 193 and Plate 21. As the initial work was well done by Berkeley and a good illustration published, the plant is fortunate in escaping all synonyms. Recently another species has been published by Dr. v. Höhnelt of Vienna. It came also from South Africa. The external appearance of the two plants is the same, and when Dr. v. Höhnelt sent me a photograph of his new species I was disposed to think it would prove to be a slight form. I wrote for some gleba, and find that the spores are *strongly different*, hence

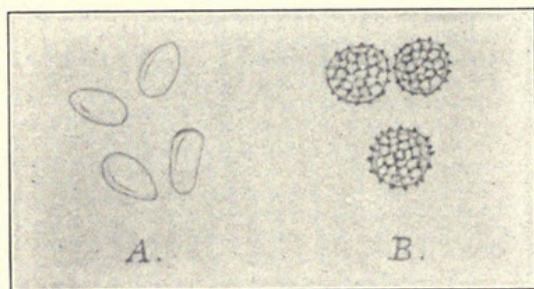


Fig. 249.

Broomeia ellipsospora, natural size. A, spores. B, spores of *B. congregata*.

I consider it a good species. *Broomeia congregata* (Fig. B) has globose, strongly reticulate-echinulate spores. *Broomeia ellipsospora* (Fig. A), as Dr. v. Höhnelt calls it, has *smooth*, elliptical spores. The figure herewith (kindly made by A. D. Cotton) shows the spores in contrast. The photograph of the plant was sent by Dr. v. Höhnelt.

A NEW GENUS, CYANOSPORUS.

BY N. J. MCGINTY.

The common species called *Polyporus caesius* by Fries, was put in the section *Anodermei Carnosi*. This section was discovered to be a new genus by Karsten, and characterized as having white (or whitish-yellow) spores and other characters (copied from Fries). He was followed by our distinguished American specialist, Mr. Murrill. The celebrated French genus-discoverer, Monsieur Quelét, also discovered this same section to be a new genus and named it *Leptoporus*. But *Cyanosporus caesius* does not have "white or whitish-yellow spores." They are *blue in mass*, and hence can not, by any process of reasoning adopted by our modern polyporoid experts, be included in the same genus. In fact, it is the rule now generally adopted by my co-workers to make the color of the spores the primary division of the polyporoids, the same as Fries did for the *Agarics*. I hence have discovered that *Polyporus caesius* (Schraeder) Fries, forms a new genus, *Cyanosporus*, characterized by having bluish spores (and other characters as specified by Fries under *Anodermei Carnosi*), and I have named the plant *Cyanosporus caesius* (Schraeder) McGinty.

FOMES APPLANATUS AND FOMES LEUCOPHAEUS.

It is well known to those who are familiar with the subject that the European species, *Fomes applanatus*, presents characters quite different from those of its American analogue, *Fomes leucophaeus*. The European species has a *dark brown crust*, rather soft; often you can indent it with your thumb nail and easily cut it with a knife. The American species has a *hard, pale, horny* crust, and if you want to cut it you had better take an ax. *Fomes applanatus* is a European plant, not (surely) known in America, though as has been pointed out several times, our American species was for many years passed off as being this plant of Europe.

We have in America a very similar plant, *Fomes reniformis*, a good species, I think, but a bad name. It has the same soft texture and *soft, brown crust* as *Fomes applanatus*, but is an annual plant (hence, not a true *Fomes*) while *Fomes applanatus* is a perennial plant. If *Fomes applanatus* grew in the United States, it would be difficult to distinguish the first year's growth from *Fomes reniformis*, unless by the spores.

Fomes leucophaeus is the most common *Fomes* in the United States. It occurs in Europe rarely, but when it does occur it is easily distinguished from the common European species, and has been so distinguished by all recent writers—Bresadola, Patouillard, Rolland, Boudier, etc. As to spores, Patouillard has published that *leucophaeus* has smooth spores, and *applanatus* rough spores. That has always been my understanding, though I have relied on Patouillard's published statements. Atkinson has recently published that the spores of *Fomes leucophaeus* and *applanatus* are both smooth, and that they are the same species. I have examined a number of specimens since and think he is right as to the spores, but it does not follow that the plants are the same species, nor that the spores of all "*Ganodermas*" are smooth. I have observed our American species, *reniformis*, a number of times, and never questioned but that it has rough spores, and am still of that opinion. Also *lucidus*, I believe, has rough spores. Atkinson tells us that the spores are not rough, that they only look rough under the microscope, and that this is consequently an optical illusion. That may be true, but if it is an "optical illusion" it is much more "illusive" in some cases than in others.

All three of these species are closely related, and many intermediate, connecting forms occur, and all three can be held to be forms of one species, as Atkinson alone holds, as to two; or, they can be considered as three different species, as everybody else now considers them, including our own Mr. Murrill, at least in the last published work I have seen from his pen.

THE VARIATION OF THE CORTEX AND SPECIES.

There is one factor that is not taken into account by those who see a new species in every slight difference. That is the factor of variation of the same plant. I could well present the above photographs and claim that I have two species very different in their cortex nature. And yet both these specimens grew from the same mycelium. They are about the same age, and are brothers in fact. The species is *Lycoperdon umbrinum* which Persoon well illustrated, showing it with a very minute cortex as our plant on the right. Had some one shown Persoon the plant on the left, it would for him have been another species. But not only does the cortex of *Lycoperdons* vary in different individuals of the same species, but it changes on the same individual with age. For instance, who would regard our enlargements (Fig. 251) as representing the same cortex? And yet they represent the same plant, the same cortex at different ages.



Fig. 250.

Lycoperdon umbrinum, showing variation of cortex.

The study of mycology is not a matter of exact measurement. It is rather a study of variation, a study of change. All things that live change. Nature, instead of casting her species in molds, each specimen like the other, seems to delight in producing an infinite variety. The learned professor gets a specimen with a little different spores, or cortex, or color, or form, and looks wise and says that it is a new species. "I will name and describe it and add my name to it, and be handed down to posterity as a wonderful discoverer." About three times out of four he will be sorry for it if he lives long enough to learn better. Luckily for the learned professor, when it is found out it is printed in small type and put in synonymy, and the matter is smoothed over. But in plain English "synonymy" (in the opinion of the writers) is simply a record of some one's blunders, and there is no subject on earth where there is more synonymy than in mycology.

Nor is there any finality to it. No one knows what a species is, and each man's species are only individual opinions. If he knows but few plants his

species are clear to him and he has no trouble or hesitation in discovering new species. The more specimens he studies, however, the more vague become his species until at last he is apt to reach the conclusion that there is no such thing as species. The whole series becomes one confluent, connected mass. We can illustrate that best by a relief-map. We put our finger here and

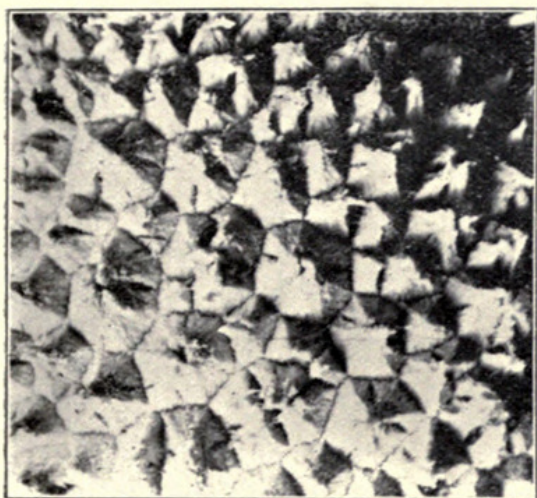


Fig. 251 (X 6).

Cortex of *Lycoperdon pratense* at different ages.

say this is a mountain, and here there are foot-hills and here a plain. But you can not say where the mountain ends and the foot-hills begin. So it is with species. We pick out certain prominent characters and say these are the characters of this species, and other characters of that species, but if they are "related" and we have enough collections and material, we will find that our two species run into each other and we can not draw a line between them. The fewer specimens a man sees the clearer his species are to him.

DUPLICATE NAMES.

The great bugaboo that is always offered as an excuse why authors should write their names after plant names is—"What are you going to do when different authors call different plants the same name unless you designate the author?" These cases are relatively rare.

I have just worked over the names of the phalloids. There are about a hundred phalloids known (or more or less known) and they have about three hundred names. In this lot there are only two instances where the same name is applied to different plants, viz: *Mutinus elegans* of Java, in the sense of Fischer, is not the same as *Mutinus elegans* of the United States. Nor is this instance very serious, for *Mutinus elegans* of Java is much better called *Jansia elegans*. *Phallus roseus* of Egypt is not the same as *Phallus roseus* of Java. Nor is this instance very serious, for neither species has any value. On the other hand, there is one case where twenty-four different names refer to the same plant, each one of the twenty-four bearing the advertisement of the learned author who proposed it. The advertising system of mycology is very much a case of straining at a gnat and swallowing a camel.

WANTED—A GOOD COLOR BOOK.

If there is one thing more than another that is needed in mycology it is a good color book, with good, permanent, ample specimens of colors *named*. When Monsieur Klincksieck told me that he was working on a color book,

I had great hopes, for Klincksieck has a pretty good business head and I thought he would get out something practical.¹⁰ I am very much disappointed with the book as it was issued, being only a series of small sample colors with numbers. Numbers give no idea of colors that can be expressed to another, though perhaps convenient for keeping private memoranda. You can, however, send ten cents to A. E. Wilde Co., 28 E. Seventh St., Cincinnati, Ohio, and get a sample book of kindergarten color papers that will answer the same purpose. What we need in mycology is a good book with *color names*, for colors have names, though I think there is no other subject in general less known or as uncertain, unless it is fungus names. Because we do not know them is no reason why we should not have a book to learn them. The chrysanthemum lovers are more practical than mycologists. They publish a book¹¹ with ample color samples *with names* of the color in English, French, German, etc. Each color is given a distinctive name, a name taken from use in commerce or the silk industry, or chemicals, or flowers, or the house-painter, or some other recognized *definite* source.

The house-painters have clearer ideas as to colors than mycologists have, for the house-painter can tell his workman to paint a house a dark terra-cotta and the workman will know exactly how to mix the paint. A mycologist can write that his spores are ferruginous, and the reader will not know whether they are a dirty yellow or a chocolate brown. It is unfortunate that this chrysanthemum book is such a cumbersome, inconvenient and expensive affair. Otherwise I think it would have a large sale among the mycologists where there is a genuine need for a good color book. In future when I wish to express myself in definite color terms I shall use this chrysanthemum book. They are at least definite, and carry some idea of their meaning with them. While such names as Mars yellow, Quaker drab and blood brown may not seem very scientific and perhaps can not be translated into pidgin Latin, they have a definite meaning, and convey some idea even to those who do not have the book. I admit I know very little about colors, and in the past have used such terms as "reddish," "yellowish," etc., that have no real meaning. With the aid of this chrysanthemum book I hope to be a little more definite in future.

PLEUROTUS NIDULANS IS FETID.

We recorded several years ago that this plant is fetid, but have seen no other reference to it in any other publication. We found it in Sweden a number of times and it certainly has a very nauseous odor when fresh. It has various local names. For many years it masqueraded in the United States as *Panus dorsalis*, and even recently Kellerman perpetuated this joke. Then Peck discovered it had pink spores and called it *Claudopus nidulans*. A wonderful discovery was also made by Quélet in France, that it had "citrin-incarnat" spores and was a *Crepidotus*. Furthermore, with a date dictionary and Fries' synonyms he unearthed one of Paulet's old names, *jonquilla*, hence the plant is often called in France, *Crepidotus jonquilla*. Mycology ought to introduce the Bertillon system to identify the various aliases under which fungi pass. In connection with the record that the plant is fetid, it is interesting to know that *Panus foetans* described from Switzerland is also the same thing.

¹⁰ This article was written with the hope of interesting Monsieur Paul Klincksieck in the needs of mycologists for a color book *with color names*. He was a practical man, and could have given us a practical book. We were very much shocked to learn of Monsieur Klincksieck's death which occurred before the article was printed.

¹¹ *Repertoire de Couleurs*, Librairie Agricole, Paris, 1905. Price, about five dollars.

NEW PUFF BALLS FROM SOUTH AMERICA.

In a recent number of the "Arkiv för Botanik," Robert E. Fries has given an interesting account of the Gastromycetes that he collected in Bolivia and Argentina, including three very distinct and marked new species.²⁴ My readers may be surprised that I should be interested in "new species" but I take the same interest in them that I do in old ones, provided that they are new to others besides the author. All of Mr. Fries' work, both as to new and old species, is correctly done,²⁵ and it is a marked improvement over the careless and inaccurate work that was current fifteen or twenty years ago. Mr. Fries does not agree with me as to names in a number of instances, but that is a matter to which I take no exceptions. As long as he gets the facts correct, the names will take care of themselves in time. The following is a synopsis of the paper:

Phalloids.—*Simblum sphaerocephalum*, which, according to the illustration, takes a rather depauperate form.

Itajahya galericulata, with fine illustrations. Heretofore only known from Brazil, unless the doubtful "*Alboffiella argentina*" proves to be the same, as Fries suggests, and which is quite probable.

Lycoperdaceae.—The common puff balls of the world that Fries records are *Lycoperdon pusillum*, *Lycoperdon Wrightii*, *Calvatia lilacina*, *Catastoma subterraneum*, *Lanopila bicolor*, *Mycenastrum Corium*, *Geaster striatulus*, *Geaster asper*, *Geaster saccatus*, *Geaster velutinus*, *Tylostoma albicans*, and *Tylostoma Berteroanum*. *Calvatia rubroflava*, a rather rare species of the United States, is also recorded. It has been found in Brazil and recently in Australia. *Geaster peruvianus* is recorded, which was heretofore only known from the type at Kew.

Phellorina argentinensis is figured and seems from the figure to be distinct from the African species. It has a strongly developed outer veil or volva, on which Spegazzini based the genus *Cypellomyces*. Mr. Fries concluded, doubtless correctly, that it is only a stronger development of what is found in the African species and is not of generic importance.

Battarrea Gaudichaudii is also recorded. I am satisfied this species is the same as *Battarrea Stevenii* of Russia and is, in fact, only a robust form of *Battarrea phalloides*.

Nidulariaceae.—Mr. Fries records three of the common tropical forms, *Cyathus Montagnei*, *Cyathus stercoreus*, and *Cyathus Poeppigii*. The latter he shows, quite conclusively to my mind, to be the same as *Cyathus plicatus*, a prior name. I have always had but little doubt on the subject, although I have never examined the type of *Cyathus plicatus*, but even if true I think

²⁴ They are all new and good unless they have been named by Spegazzini. No one knows anything about Spegazzini's work. Like all hit-and-miss new species exploiters, he undoubtedly gets from time to time more or less that are really good. I do not pretend to be able to tell which they are, for I have no means to even guess intelligently. I should be glad (as would others of whom I know in Europe) to conserve any of Spegazzini's names that have any merit, if we had any way to do it. A few of Spegazzini's puff balls have strayed into Europe in Balansa's *exsiccata*, most of them mis-named. If Spegazzini will send a set of his "new species" to any museum in Europe, I should be glad to study them and adopt and preserve any names that have any merit, and reject such as have none. It is possible, even probable, that some of Mr. Fries's species have been "described" by Spegazzini, but no one has any way of knowing.

²⁵ I note but one error, and that one was evidently taken from my publications, though I have since corrected it. *Geaster Berkeleyi* is not a synonym for *Geaster asper*. It is a quite different plant.

the name should not be dug up to displace better work, and Mr. Fries seems to think the same—at least, he does not do it.

New Species.—Three interesting new species are described and well illustrated:

Lycoperdon abscissum, a most curious plant that might well be made the type of a "new genus." It is almost *all sterile base*. In fact, I thought it was

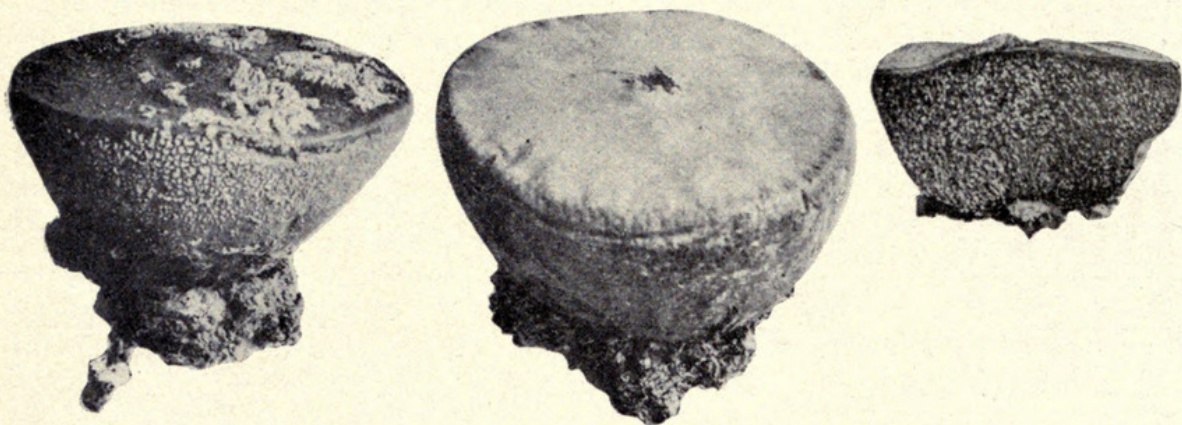


Fig. 252.

Lycoperdon abscissum.

a sterile base when I first saw it, but it has *normally* a very thin, scanty layer of fertile gleba. The spores, capillitium, cortex, shape, in fact everything points to its being a degenerate form of *Lycoperdon pratense*, and if only known from a single specimen I should so consider it. But Mr. Fries has abundant collections from various localities and finds it a constant, normal plant in both Bolivia and Argentina. It is the most curious puff ball that has been brought to light for some time.

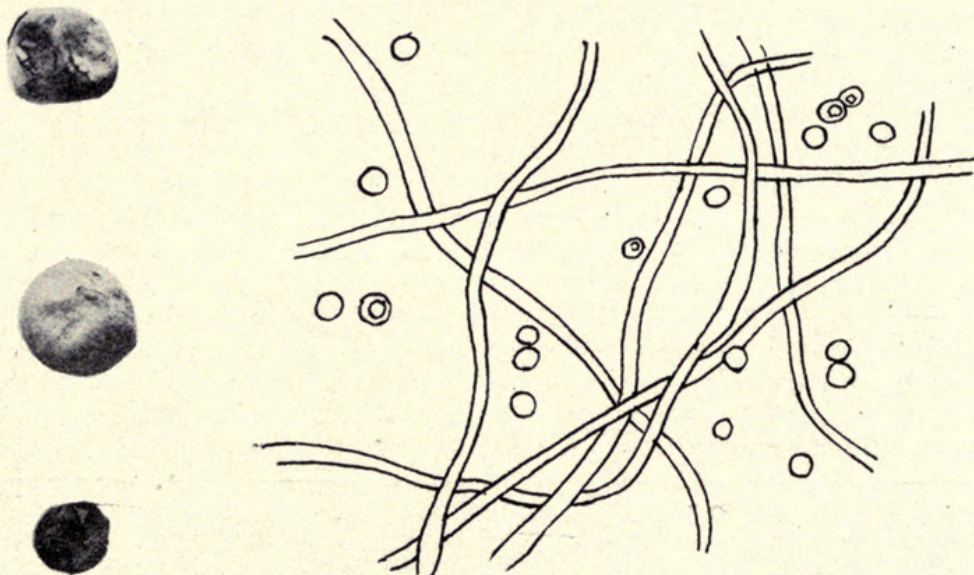


Fig. 253.

Lanopila pygmaea.

Lanopila pygmaea is an interesting addition to a small genus, heretofore only known from a single though widespread species, *Lanopila bicolor*. It has all the generic characters of the genus *Lanopila*, but has no resemblance to *Lanopila bicolor*, having a very small size and *olive, smooth* spores.

Catastoma Pila is a plant that I have known several years. I received it first from W. H. Long, Jr., Texas, and I wrote Mr. Long it was a new species and urged him to name and describe it. Mr. Long has been too long about it. It has since reached me from other correspondents, both North and South America. Its characters are the purplish color of both gleba and



Fig 254

Catastoma Pila.

peridium, and the rough, short, pedicellate spores (the pedicels are not shown in Mr. Fries' figure). In general appearance and even in size it closely resembles our *Bovista Pila* of the United States, so that the plant is well named.

Tylostoma leiospora is also proposed as a new species, but *Tylostoma* is a difficult genus and I would prefer not to pass on a collection without a comparative study.

MILK IN POLYPORUS.

"During August and September I had the opportunity to observe *Polyporus sulphureus* in every stage of growth in great abundance. During the stage while the pores were attaining growth, usually three or four days, the fungus was invariably filled with *yellow milk*. In many cases this was so abundant that it dripped from the fungus when broken. August was a month of abundant rain in New Hampshire. I have not had an opportunity to observe the growth of this plant so carefully in dry weather, so that I can not state whether the plant would always be milky in dry weather. This is the only *Polyporus* that I have observed which is really milky, though I have found a number of species which in wet weather are filled with moisture and under certain atmospheric conditions appear to secrete a drop of clear fluid, as for example in *Polyporus circinatus*. It is always in a young stage of the plant, and is in some cases slightly turbid as it exudes from a broken plant."—Theodate L. Smith.

THE GENUS MATULA.—An investigation at Kew convinces me there is no valid reason for not taking the generic name *Matula*. Berkeley first published it as *Artocreas* but that was only an unintentional transposition for *Michenera*, for he refers the Ceylon species (*Matula poroniaeformis*) to a genus previously published from Cuba (*Micheneri Artocreas*) and transposes it (*Artocreas Micheneri*). An examination of the specimens from Cuba and Pennsylvania shows both to be co-generic (at least to all appearances) and very different from the Ceylonese and Brazilian genus *Matula*.

CORRECTION.—The statement in Letter No. 23 that *Fomes pomaceus* is not *Polyporus fulvus* of Scopoli was due to an error of the type. I do not know *Polyporus fulvus* in the sense of Scopoli, and I question if any one knows much that is definite on that score.

A NEW POLYPOROID GENUS.

BY N. J. MCGINTY.

Our literature is enriched by a wonderful boletoid genus discovered by the late Dr. Hennings, which has a volva at the base. He called it *Volvoboletus*, and reconstructed a picture from Persoon's old work to illustrate it. It grew in France, that is, it was said to grow in France about a hundred years ago, but it is remarkable how elusive these things

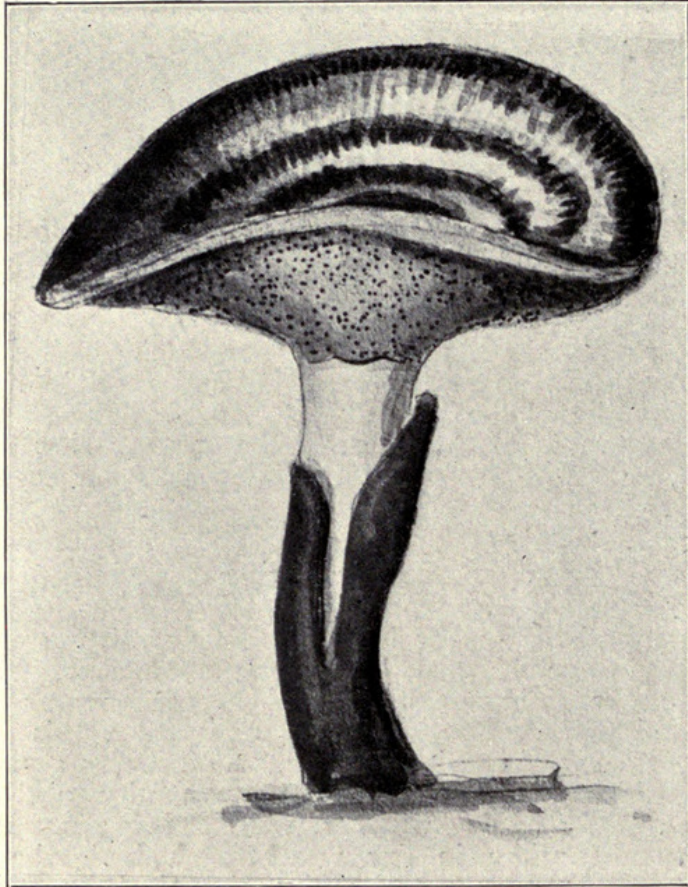


Fig. 255

Volvopolyporus peronatus.

are, for none of the present generation of French mycologists have ever found it, and some of them are unkind enough to surmise that it exists only in imagination. I trust they will not be so skeptical as to the new genus that I propose herewith, as I present a figure that can not be questioned, the *type illustration*, and also proof that cinches it, a Latin (pidgin) diagnosis in keeping with the "rules."

VOLVOPOLYPORUS, N. G., MCGINTY.—Tubuli in stratum porosum, facile ab hymenophoro separabile. Stipite centrali. Totus fungus primitis quidem in volva inclusus. Volva persistentis, cum basi stipitis connata.

But one species of *Volvopolyporus* is known (viz.: *Volvopolyporus peronatus* (Schulz) McGinty), like the celebrated genus *Dictybole* that is only known from a drawing. It was said to grow in the beech woods in Hungary.



Lloyd, C. G. 1909. "Mycological Notes No. 33." *Mycological writings of C. G. Lloyd* 3, 425–444.

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