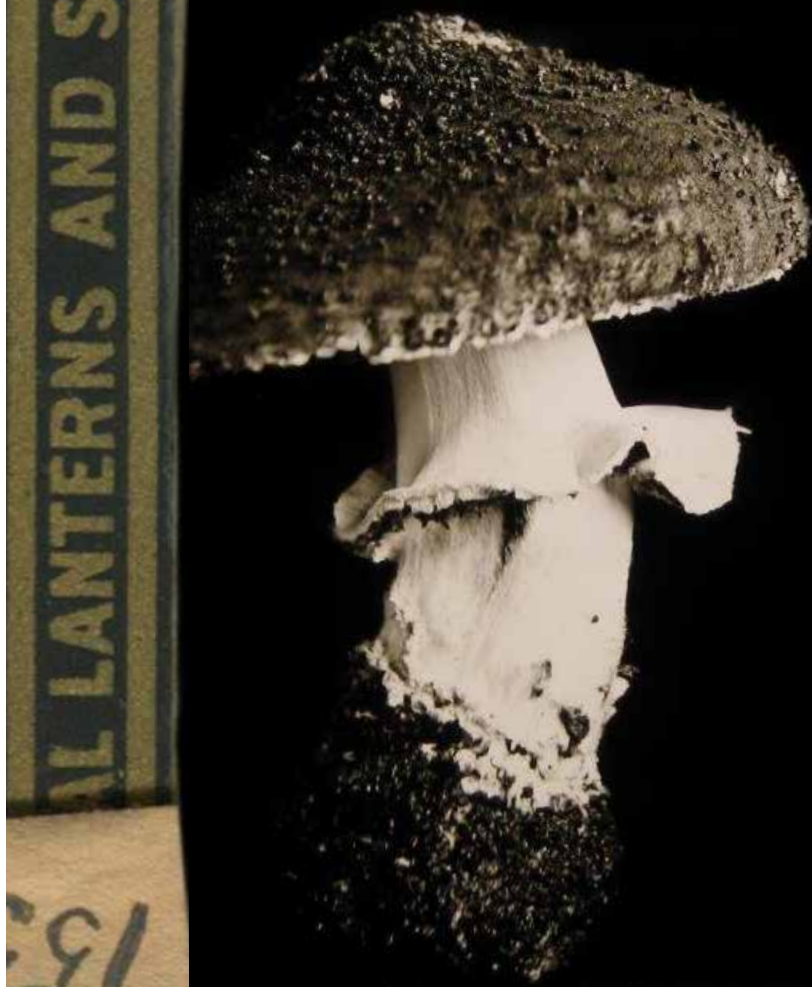


VOLUME 71, No. 2.

July 2016

The Bulletin

A Publication of the Boston Mycological Club
Since 1897



PRaise SAM • A MOREL? • WHITE MOUNTAIN FUNGAL FORAY
THE LANTERN SLIDE COLLECTION • BICOLOR & LOOKALIKES
TAXONOMY • MYCOLOGY IN THE MEDIA • MYCO-DISCOVERY

*A publication of the
Boston Mycological
Club prepared
diligently, at times
relentlessly, by your
faithful Editorial
Board*

Zaac Chaves
Editor-in-chief

Susan Goldhor
Editorial advisor

Lawrence Millman
Editorial advisor

Liz Anderson
Editorial advisor

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Restlessly we have engrossed ourselves in the thrill of this issue while in anxious anticipation of a saturating summer rain. It has been dry. The next couple months will be important to monitor against our hypotheses on what this might mean for fungi and forest ecology.

Over the past few months you pleased us immensely with your pictures, drawings, poetry, and articles. We find it reassuring to see that amateurs we take their work seriously and hold it to a high caliber. As it should. Every issue will be housed permanently in Harvard Herbaria archives.

This oughtn't discourage the new writers among you; we are eager to accurately reflect how everyone dwells in the many realms that encompass amateur mycology. Remember we are continually in need of your work. The newsletter staff and all of us at the BMC are grateful for your efforts.

You can be of any age, capacity, or temperament to write and we make a concerted effort to publish from people we have not heard from.

Okay, we are headed back to our computers, work tables, and local bookstores just waiting for you to surprise us with your generous content. We hope you have a fantastic coming season and send best wishes to you all.

The cover image comes from the BMC archives: *Lepiota friesii*. No. 155. Photographer and date unknown. This photo was found by Jason Karakehian, the clubs archivist and references an Archival article on page eight of this Bulletin.

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Letter To the Editor

I don't believe it. The new bulletin is unbelievable. In beauty and content. A masterpiece! A blowout for the eye and the mind. I could go on.... (Want me to?) I am pleased beyond words. I wish you continued success.

One small picky comment OK? Please include the address of the treasurer so one can pay the annual dues without having to look up Joel's in the directory, which I did in order to send him my check.

Elio Schaechter

Thank you for your generous words and thoughtful advice
Elio. We have added registration info to the back. -Zaac

Letter To the Editor

I just want to let you know how much I enjoyed the recent BMC Bulletin. The articles ranged across the spectrum from the moderately erudite to just plain entertaining, and I enjoyed every one of them.

The enthusiasm, wonder and humor that permeated both Boris' and James' articles really resonated with me even though I've been dabbling in the subject for a few decades. Please pass on my appreciation to both of them. I've already communicated individually with some of the other contributors. Hope to see you in the field or at the talks.

Joel Kershner

Joel, we are grateful that you wrote and hope our writers
will be reinvigorated by your kindness. -Zaac

A Mushroom Computer Game

And now I, dear fellow forest hunters, I have something both new / old and exciting to tell you. Not only am I fungi hunting, but also looking for more fungi wisdom in old fables and in new media. Now my hobby as a storyteller is tweaked as I learn that my Russian formothers were also keepers of Mushroom Wis-

dom. And my fascination with Babba Yagga stories leads me back to the Russian woods of my ancestors who probably foraged daily for their table. Florian Veltman's digital tribute to her elders brings me back to my grandparent's original forest.

Let Oma guide you through the forest, by Globe Correspondent, Jesse Singal. "My grandmother is probably the most important person ever to me, write Florian Veltman on the website for her game "Lieve Oma," which translates to "beloved grandma." In "Lieve Oma" you play a child walking on a nature trail with your Grandma....picking mushrooms.

Nyanna Susan Tobin



Screenshot Lieve Oma
by Florian Veltman

Nyanna, Your story is temporally astonishing. -Zaac

The **BMC** is hosting **NEMF 2016**
The Northeast Mycological Federation's
40th Annual Sam Ristich Foray
“The Role of Fungi in the Ecosystem”
at Fitchburg State University
in Fitchburg, MA
Thursday, July 28 – Sunday, July 31, 2016



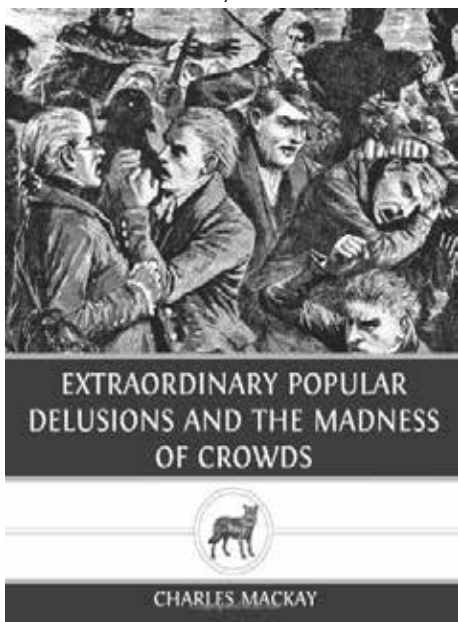
More information and the registration form
are online at **NEMF.org** and the
Boston Mycological Club.org

Beginners are encouraged to participate!

Is This a Morel I See Before Me?

by Patricia Buchanan

One day in mid May I was invited by a friend to see if I could identify an odd-looking fungus growing in her garden. I had never seen a Morel *in situ* before, and of course I was thrilled. My friend had no interest in eating it (or its nearby companion) and so I brought one home to sketch. It so happened that, at the time, I had just begun reading Charles Mackay's *Extraordinary Popular Delusions and the Madness of Crowds*. The first chapter in the book is called *Money Mania.—The Mississippi Scheme* and introduces John Law, a devilishly charming Scotsman, who, in the early 18th century, bamboozles an entire French citizenry, convincing them to invest in a plan to extract gold and other valuable metals from the fertile lands beside the Mississippi River. It was the Dotcom Bubble of its day. I wanted to see more of this bamboozler and, going online, I found a plethora of old engravings showing Mr. Law in the context of his various French banking endeavors. One portrait of him transfixed me, as I had just finished sketching the cross-section of the Morel I had brought home. I invite you, dear reader, to share in my delight.



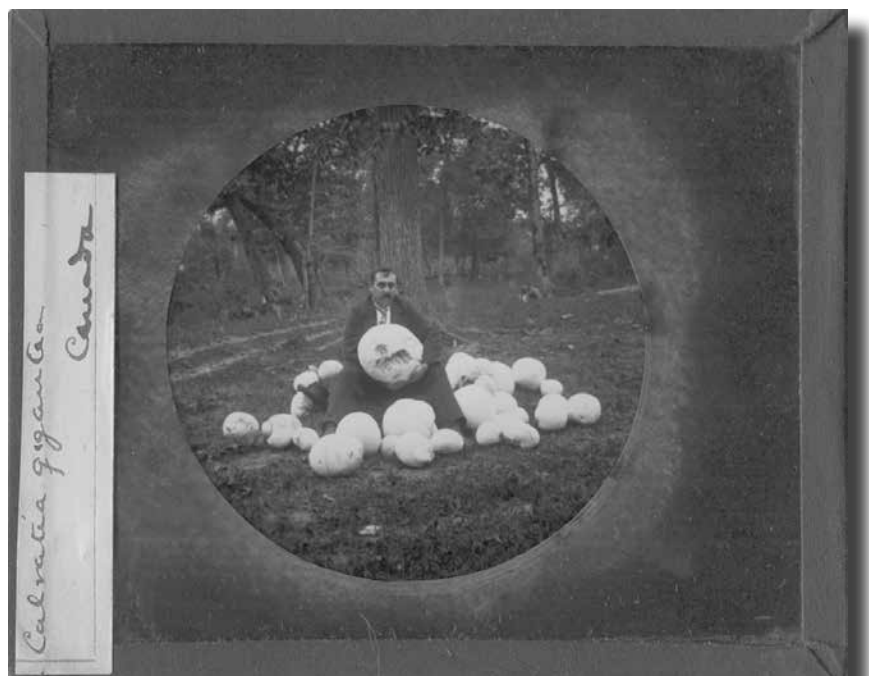
Cover Image *Extraordinary Popular Delusions and the Madness of crowds*
by Charles Mackay



John Law - Contrôleur Gen'l
of Finances of France 1720



In April, Patricia Buchanan with Carol Govan treated the BMC to a marvelous workshop on drawing fungi. For those of us not privileged to be in attendance, we can only urge you to catch the next round of these extraordinary workshops which will be offered at NEMF this year.



Unknown man surrounded by *Calvatia gigantea*
Canada. Date unknown.

Photographing Fungi: The Boston Mycological Club's Lantern Slide Collection: 1889-1924

From the Archives of the BMC

by Jason Karakehian

In terms of sheer bulk, no other collection of items which comprise the archives of the Boston Mycological Club can compare with its collection of lantern slide images of fungi. Each slide, measuring 4 x 3 ¼ inches, is made of a positive black and white photographic image sandwiched between two thin plates of glass, and the whole taped together along the edges. Slides of higher craftsmanship have a black paper marquee cut with an oval or rectangular window to frame the image. A label might bear the manufacturer's name, the name of the fungus and possibly even the photographer's name. Each slide was given a number

and all of this information was entered onto an index card. The cards were then arranged into order by form groups like cup-fungi, bracket fungi, agarics, etc., and with subjects on fungal biology such or mushroom cultivation mixed in. Therefore, the index cards served as a searchable catalog of every lantern slide that was in the collection, keeping them in a comprehensible order which facilitated picking the appropriate image to illustrate a point in lecture.

Each lantern slide was large, heavy, and fragile. Up to fifty of them could be stored in the slots of special cases constructed of wood or pressed board and black paper, with a full case weighing more than seven pounds. Pulling glass lantern slides to illustrate a lecture meant some degree of pre-planning and exertion. The lantern slide projectors, predecessors of the 35 mm slide projectors which some readers of a certain vintage may remember, are called "magic lanterns." Nothing is known of a make or model of a magic lantern used by club lecturers, but with possible sources of illumination in electric arc lamps and incandescent bulbs, or in oil or spirits lamps, one might imagine its operation was a toasty affair.

Continued on page 10



Cantharellus floccosus

No. 131. Photographed by Hollis Webster in Alstead, NH, 1902.

The index card catalog to the lantern slide collection offers a glimpse into the pedagogy of amateur mycology in the late 19th and early 20th centuries, which is generally unchanged to this day. The pot-hunter's first commandment: *Any mushroom which ye cannot specifically name – with Latin binomial or by ye local name, shall not be eaten*, dictates correct taxonomy as paramount in the prevention of accidental poisonings. This concept had to be well-articulated and consistently reinforced to a particular subsection native-born Americans, emerging out of a traditionally mycophobic culture and members of the newly coalesced mycological clubs who were becoming increasingly curious mycophagists during the mid to late 19th century. Italian and eastern European immigrants were operating within strong traditions of foraging for wild plants and mushrooms from their mother countries. However, it was clear that by the end of the 19th century that both populations were poisoning themselves by eating misidentified or rotten fungi with alarming frequency (note this column's most recent piece "... dangerous mushrooms"). Identification of genera and species for amateurs means a reliance on the gross characters of a fruiting body such as shape: club, stem and cap, bracket, cup, etc. and morphology of the fertile surface such as pores or gills, among many other taxonomically important characters including color, taste, smell, habitat and season. Though a few slides in the collection are hand-painted, a skilled photographer could masterfully convey subtleties of form and texture in the black and white format. The lantern slides were regularly employed for lectures and exhibitions, especially during winter meetings, fulfilling, in the words of Hollis Webster, then Secretary and Treasurer of the BMC, "the first and main purpose of the Club, that of education and guidance in the study of edible and poisonous fungi..." (Boston Mycological Club Bulletin, 1898).

Webster had ambitions for a large library of photographic images of fungi upon which the club could draw and exhorted "much valuable photographic work" might be accomplished in the summer. Furthermore, the products of these efforts might go towards a club collection which could then be parlayed into lantern slides and perhaps even a series of high-quality prints along the lines of which C. G. Lloyd, the colorful and controversial mycologist of Cincinnati, OH, had recently produced. It would appear that the latter goal was not achieved, but the club had amassed about 200 slides by its third year in 1898 (Boston Mycological Club Bulletin, 1898) and more by 1899. There were around 500 lantern slides in the collection by the time they must have been ren-

Continued on page 12



Polyporus umbellatus.

No. 73. Photographed by Hollis Webster in Alstead, NH, c.a. 1901.



Helvella sp.

No. 25. Photographed by Hollis Webster in Alstead, NH, 1902.

dered obsolete in the 1930's or 1940's by 35 mm slides, which were considerably lighter, sturdier, easier to store and organize, and most importantly, they were in color.

When I began working on organizing the lantern slide collection about five years ago, the bulk of the slides were well organized into their original cases, though these were in a fragile state and the contents grimy. The prints and negatives were scattered among other boxes, with some negatives stored in crumbling acidic boxes of their original manufacture. There were even a few vintage boxes of apparently unexposed glass negative plates; these were all discarded. In archiving the lantern slide collection, glass items were cleaned with a slightly damp lint-free cloth, entered into a spreadsheet and all prints, negatives and slides were cross-referenced. Therefore, any negatives, prints or slides of the same fungal collection subject were discovered. Each item was then placed in an archival envelope with the number and other relevant information written on the front. I placed these envelopes in new archival boxes in numerical order along with the original index card catalog, and the old cases were discarded. Lantern slide images of drawings or paintings made from books were discarded, and this was noted on the corresponding index card, which listed the title of the image and further documentation. Having no original order, two series of prints and negatives each by photographers Cora H. Clarke and Hollis Webster were organized numerically, as well as a third series comprising the general lantern slide collection. Photographers represented in this collection are Hollis Webster, Cora H. Clarke, Louis C. C. Krieger, H. L. Clapp, F. V. Coville and O. E. Fisher. The whole collection spans the years 1889 – 1924. The localities of the fungi photographed are primarily New Hampshire, Massachusetts, Michigan and Ohio. The principal lantern slide manufacturers are: Uranus Hord, Cincinnati, Ohio; A. T. Thompson & Co. Boston, Massachusetts; B. F. White, Cornell University, Ithaca, New York; G. E. Francis, Worcester Lantern Slide Club.

References:

Boston Mycological Club Bulletin No.'s 6 & 7. July, 1898.



See front cover for a lantern slide of *Lepiota friesii*

Next Issue: Part II Early Photographs of Fungi by Naturalist Cora H. Clarke:
1889 – 1893.

Mushroom Poetry

by Bill Dill

HOOTENANNY FOR INKY CAPS

Coprinus atramentarius

Dancers crowd in shaggy grass
on slender stems, mad to share
the joy of now, twirling flowing locks
around till hair ends deliquesce –
black tears of ecstasy, then grief.
By dawn just topless corpses
drowned in ebon dew.



THE DESTROYING ANGEL

Amanita virosa

I am the strumpet in the shade.

Cool white, I tempt with bitchy boot,
slyly sinuous stem, a scarf around
my neck and saucy parasol.

Like Greek statues once, so real
that men sought to fuck the stone,
I want that fondling touch, a kiss.

My taste gives bliss for hours, but
sours – days until your liver fails.
Sweet, my subtle way to kill.



Baorangia / *Boletus bicolor* and Look-Alikes: A Study of East Coast

Species

by Gary Gilbert

The *Boletus bicolor* group is more commonly found than the *Boletus edulis* group but telling them apart from their look-alikes is often a subtle, if not brain-breaking, endeavor. The need for distinction is important because one, and only one, of the look-alikes is known to cause gastric upset and the rewards lie delectably on the dinner table. Many authors disagree about this very polymorphic mushroom which may prove to have species variations based on region but this is an effort to make a difficult subject more understandable and perhaps at least serve as a framework for understanding them. Michael Kuo has said that trying to ID this group could be more about psychology than mycology and perhaps that is true but I believe we should try to be naïve enough to at least give it a try.

The *B. bicolor* group all have strongly contrasting yellow pores and reddish caps with often a mix of both colors on the stipe and olive-brown spores. Brilliant and delightful to look at, they are highly photogenic and can scream at you from a distance in a dense oak forest. Most are very good edibles and some people like them just as much as *Boletus edulis* particularly if dried or even dried and aged a few years. However, many people get stymied if their mushroom doesn't follow the descriptions in the guide books and especially if the staining pattern varies, or if one person's brick red appears more like a bright apple-red or a faded cherry-red to another person's eye. The good news is that of the dozen species similar to *Boletus bicolor*, they are all considered edible, except for the one troublemaker *Lanmaoa* (*Boletus*) *sensibilis*. Yet again, at least one mushroom hunter claims he has served these to many people over the years with no signs of illness. Go figure?

The big picture differences between the two kings of this group are that *Lanmaoa sensibilis* typically has a mostly yellow stipe, and stains blue instantly on the stem and cap flesh as well as the pore surface. Generally speaking, only the pores on the *Baorangia* (*Boletus*) *bicolor* stain blue and the stem is predominantly the reddish color of the cap. Pictures and color can be confusing also, but the overall summation of the macroscopic features of the mushroom is what you will have to rely on to form a final decision. Where have you heard that before?

See back cover for a photo of *B. bicolor*



Baorangia bicolor
 Photo used with permission of Gary Gilbert

Baorangia bicolor (Boletus bicolor)

Notes: Brick-red cap with yellow pores. Yellow flesh. Stains on the pores only. No odor. Medium to large in size.

Cap: Brick-red, apple-red can be buff to red-brown. Clearly in the red vs brown spectrum. Often inrolled margin. Sometimes has a distinct yellow band, not pinkish red, on the margin.

Staining: Often stains on pores, not often on stem or cap flesh.

Stem skin may show a blue thumb print.

Stipe: Predominantly the color of cap, often thicker at the base, not equal, long graphic lines, small amount of reticulations, turning yellow at apex. Often gets red-stained worm holes. If the stipe stains blue, you probably don't have bicolor.

Pores: Stain blue or wet looking, thin pore layer, pale yellow, angular, small, broadly attached to stipe.

Flesh (context): Light yellow in cap, bolder yellow in stipe, rarely bruises blue and, if so, slowly.

Taste/Smell/Chemicals: Not bitter. Possible odor of chlorine, normally none. Context stains gray with iron sulphate.

Continued on page 16

Lanmaoa sensibilis (Boletus sensibilis)

Notes: Non-edible, though some can eat it. Stains blue on pores and cap and stem context. Distinctive curry odor.

Cap: Rosy or light pinkish to reddish-brown to plain old brown. Often yellow spots at margin.

Staining: Stains blue everywhere, fading to brownish-red. Stains slowly with age.

Stipe: Typically all yellow with red highlights, thick and solid. Lightly reticulate at top.

Pores: Thin, circular, pale not bright yellow, fade to grey-blue or brown-yellow. Tips can have a dull orange cast with age.

Flesh: Pale yellow to whitish, bluing then fades back to original color.

Taste/Smell/Chemicals: No taste. Curry odor, stronger when young. With potassium or ammonium hydroxide, the cap surface and context stain yellow. With iron sulphate, cap surface stains gray and cap context stains yellow-orange to yellow-brown.

Lanmaoa pseudosensibilis (Boletus pseudosensibilis)

Notes: Similar to *L. sensibilis* but more reluctant to stain and no odor. Green flash on cap with ammonia. Fairly common.

Cap: Pinkish to red-orange, fading to brown-red. Smooth, margin is even. White to pale yellow context.

Staining: Distinctively the pores stain blue then fade to red-brown.

Ammonia makes cap stain blue, then briefly turn green, then fades, even on old ones.

Stipe: Thick, solid, even color smooth, with no striations. Mostly yellow with some pale red/brown at base, if at all. Less red than most others in this group. Often deep yellow flesh.

Pores: Pores short compared to thickness of cap flesh, yellow.

Taste/Smell/Chemicals: Taste none. Odor not recorded. Cap, as mentioned above. Context stains brownish with KOH.

Hortiboletus(Boletus) campestris, H. fraternus and H. rubellus

Notes: All 3 much smaller and more slender than *B. bicolor*. *H. campestris* (1) always near grass. *H. fraternus* (2) in grass, woods, gardens. *H. rubellus* (3) slow staining.

Continued on page 25



Lanmaoa sensibilis

Photo used with permission of Martin Livezey



Lanmaoa sensibilis

Photo used with permission of Martin Livezey



Lanmaoa pseudosensibilis

Photo used with permission of Andres Khitsun



B. fraternus

Photo used with permission of Bill Neill



Lanmaoa pseudosensibilis

Photo used with permission of Bill Neill

The White Mountain Fungal Foray

by Boris Arapov

I grew up in Russia, where the only good mushroom was an edible one. Then I attended Lawrence Millman's White Mountain Fungal Foray, and I learned about what Larry refers to as "choice inedibles." This change my life! What follows is a brief interview with Larry about the White Mountain Foray, which I am of course attending again.

Boris: Your foray is totally unique, Larry. How did you get the idea for it?

Larry: I'd gotten fed up with the big regional forays, where no one ever seemed to learn anything, and all the faculty ever did was hammer each other over the head with Latin binomials. Educate? Perish the thought! Judicious collecting? Hah! Huge piles of the same species would always lie rotting on the tables....

Boris: But only the fruiting bodies are disturbed, not the mycelium.

Larry: Sorry, Boris, but the mycelium puts a vast amount of its energy as well as a presumably large degree of its biomass into its fruiting bodies, so it is being disturbed. Plus, the fruiting body is the fungal sex organ — how would you like it if someone came along and repeatedly yanked off your genitals?

Boris: Uggh — not even Stalin would have stooped so low! Anyway, how come you chose the World Fellowship Center in Albany, N.H., for the foray?

Larry: Well, you don't have to bussed to a foray site. You only need to step out the door, and you're surrounded by a forest and its fungal inhabitants. Also, the food at World Fellowship is superb, and the accommodation is pleasantly rustic — far more natural as well as more comfortable than the college dormitories where most forays are held.

Boris: You told me that you try to limit the number of people?

Larry: That's right. We're looking to educate rather than make money, and in order to do so, we try to remain intimate. You can hang out with the faculty morning, noon, and night.

Continued on page 22



White Mountain Fungal Foray

An enchanting gathering of
fungal immersion near Mount
Chocora at the Harvest Moon

Beginners encouraged to apply

Sept. 16-18

worldfellowship.org

Squam Lake and Mount Chocorua

, The Bay State Monthly, Volume 3, No. 2, published May 1885, released February 2006, via Project Gutenberg.

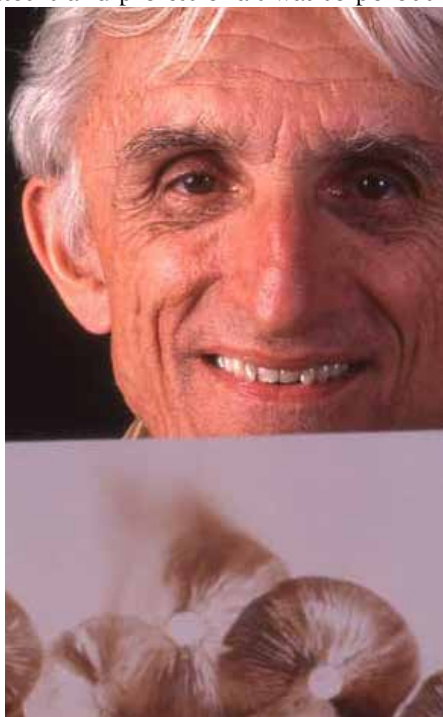
In Praise of Sam

From the BMC Bulletin June, 2003
by Susan Goldhor

Every now and again one comes across an expert whose sweep is so broad, whose targets are so well chosen, and whose style is so pleasing, that other authorities seem like one note drones. And often part of the charm of these experts is that (unlike the authorities) they present themselves as bumbling amateurs – just like us. “Look what I just happened to stumble across,” they exclaim happily. Or, they recount the false trails they followed and the ridiculous errors they made, thus providing us with both entertainment and ego balm, since most of us have followed those trails and made those errors. Certainly, the best travel books follow this pattern. One may respect those who did the research, followed the map, made wise decisions and reached their goals in good health and with food and water to spare, but it’s hard to love them. If the British are the unquestioned masters of gormless travel (anyone who doubts this statement should read *Three Men in a Boat* and *A Short Walk in the Hindu Kush*), so are they also the best at amateur expertise – the person who in real life is a rector or a civil servant or a secondary school teacher but who makes that real life bearable by a private life in which s/he acquires mastery over an imaginary (C.S. Lewis; J.R. Tolkien) or real field of knowledge.

It seems to me that the 19th century was the pinnacle of the amateur naturalist and, in fact, a time when the line dividing amateurs and professionals was so porous as to often be nonexistent. Was Darwin an amateur or a professional? Is an amateur someone who does something for love rather than for money (positive)? Or is it someone who is amateurish (negative)? Or who does it only in spare time (neutral)? Whatever the answer, there are fewer areas in science today where amateurs can contribute to science. In fact, there are relatively few areas in science today where outsiders – even scientists in related areas – can understand what’s going on. One of the unique aspects of mycology has been the continuing ability of amateurs to contribute, and the good relations which have generally existed between amateurs and professionals.

I started this column by praising those enthusiastic folks – often amateurs – who are always calling our attention to something amazing that they have just happened to stumble across. Of course, they are not always amateurs. Many of the best scientists have had



this gift. Charles Darwin had it. Sam Ristich has it in spades. I thought of Sam as I read the Colorado Mycological Society's April *Spores Afield*, in which Ellen Jacobson suggested that readers go out and collect cowpats for culture, to see what would grow. One of the more arcane pleasures of reading *Mainly Mushrooms* is counting the species of poop that the members (under Sam's enthusiastic prodding) collect and culture. Numerous newsletters this season had articles and ads calling attention to *Sam's Corner: the Public Journal of a Mushroom Guru*, available for \$18 (that's including postage) at www.vfthomas.com. Maggie Rogers in her ever-rewarding column for *Mushroom the Journal*, says, "When Sam Ristich puts his eye to the microscope, amazing things appear. In the July 2002 issue of *Mainly Mushrooms*, he wrote:

I wanted to recheck the anatomical changes more critically on deer droppings I collected in January. The pellets were in the refrigerator 80 days. I was surprised to see *Pilobolus* growing after eight days in the petri dishes. Two weeks into the experiment, I got zillions of nematodes doing their "undulating" dance on the deer droppings.... Nematodes are thin white unsegmented worms. Many species are parasites on plant roots and in intestines of mammals. Two weeks later the nematodes disappeared. At about the same time hundreds of tiny white fungi appeared on the droppings. In Ann Bell's book, *Dung Fungi: An Illustrated Guide to Coprophilous Fungi in New Zealand*, they keyed out to *Arthrobotrys oligospora*. Laurie Leonard and I found these nematodes on porcine dung also.

Sam (and others mentioned in this column today) always makes me think of the statement by Joseph Wood Krutch, "The rare moment is not the moment when there is something worth looking at, but the moment when we are capable of seeing." Of course, this only applies to the natural world. If you're watching "Survivor" or any other phenomenon in the manufactured world, all bets are off.

PS I feel obliged to note that since I originally wrote this column, I introduced Larry Millman to a friend that has llamas. Larry indignantly noted that nothing grew on the llama dung ~ a first in copromycology. What is it about these creatures?



White Mountain Fungal Foray; Continued from page 18

Boris: The White Mountain Foray is for – whom?

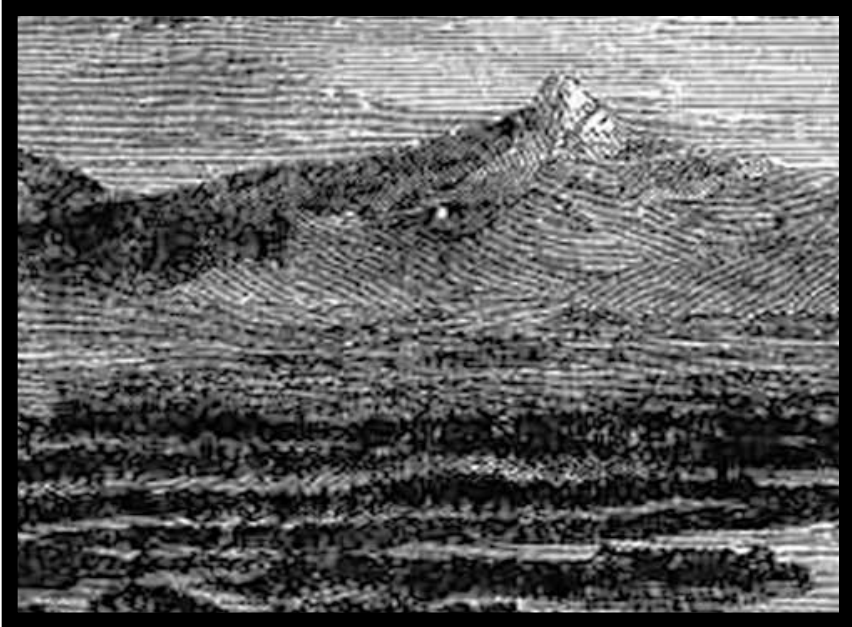
Larry: Both beginners and enthusiastic amateurs. People who really want to learn about fungi. Also folks who want to learn about fungal ecology. We love telling attendees what fungi are doing in their respective but not always respect-able habitats.

Boris: Let's say someone has an interest in – I hate to say this! – eating mushrooms. What would you say to such a person? Go away, you stupid fool?

Larry: Not at all. The Foray always has a culinary element. For instance, mushroom dishes are served at almost every meal, and on the last day, there's a big culinary event. This year Master Chef Luke Smithson will be giving a mouth-watering cooking demonstration...

Boris: My mouth is already watering, Larry. I'll see you in September, in New Hampshire!

For more information about the White Mountain Fungal Foray, go to the World Fellowship Website (<www.worldfellowship.org>) or call 603-447-2280.



A View of Mount Chocorua From the White Mountain Fungal Foray
-, The Bay State Monthly, Volume 3, No. 2, published May 1885, released February 2006, via Project Gutenberg.

Common Lichens Of Northeastern North America

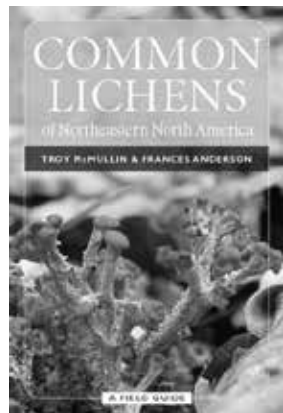
Reviewed by Lawrence Millman

2014, The NYBG Press, \$39
182 lavishly illustrated pages

Although lichens are fungi that happen to farm algae, they receive far less respect from mycophiles than slime molds, which, unlike lichens, don't even inhabit Kingdom Fungi. Slime molds invariably appear in fungal guidebooks; lichens, almost never. I suspect part of the problem comes from the absence of a decent portable lichen field guide. Or I should say came from that absence. For I am now holding in my hand *Common Lichens of Northeastern North America*. Soon it will be in my backpack when I venture out into the rain, from which I bet that its glossy pages will not suffer one iota. (Note: They didn't.)

This small book documents 138 species – more than enough for the lichen novice. Its color-coded approaches uses marginal tabs for ID-ing. Those tabs divide species not only by color, but also by the three main lichen substrates (soil, rocks, trees). Using the superb photos as well as the text, I had no trouble identifying *Fuscopanaria ahlneri*, a species I hadn't previously known, in the field. Speaking of the text, it includes the usual categories – habitat, distinct features, shape/size, apothecia, etc – but it also includes (rare for a guidebook!) the meaning behind scientific names. Thus I learned that *F. ahlneri* was named after the 20th century Swedish lichenologist Sten Ahlner.

My few reservations about this excellent little book are as follows: there's no reference to the dilemma of collecting an entire organism, which *alas!* you do when you collect a lichen; there's almost nothing about lichen ecology or about the current use of lichens as pollution monitors; habitat specifics are frequently ignored, such as the fact that *Usnea strigosa* is seldom found far from the sea; and, finally, \$39 would seem to be a rather steep price for a book intended for amateurs. Even so, I recommend *Common Lichens of Northeastern North America* as an introduction to an oft-ignored organism.



Cover Image Common Lichens of Northeastern NA
by T. McMullin and F. Anderson





**Boletus
campestris**

Boletus campestris
Photo used with permission of William Tanneberger



B. rubellus
Photo used with permission of Bill Neill



Boletus miniatopallescens
Photo used with permission of Walt Sturgeon

B. bicolor and *Look-Alikes*; Continued from page 16

Caps: $\frac{3}{4}$ "–3". (1) rosy or brick-red. Hints of yellow w/age. (2) red, yellow-red, pinker or dull with age. (3) often tomentose (short hairs). Dark to brick red.

Staining: (1,2,3) Pores, cap and stipe context stain green-blue. (3) staining slowly. Stipe flesh stains orange at base.

Stipe: (1) slender, equal, not tapered at base, solid. Colored like cap and yellow at top. Often little red or orange dots in the context at the base of the stipe. (2) May taper at base. Yellow with or without red. Striate at top. (3) Often tapered at base. Covered with red/orange dots.

Pores: (1) Quickly stain, but not instantly. Tubes turn green-yellow, fairly deep compared to thickness of cap flesh. Depressed near stipe. (2) Brown-yellow with age. Angular. (3) Large, olive or blue-green. Angular.

Taste/Smell/Chemicals: (1,2,3) No taste or odor. (1) Ammonia has no reaction on cap surface, removes blue staining on interior flesh. (2) Ammonia stains orange on cap, gray with iron sulphate. Cap context stains dull orange with potassium hydroxide, grayish with orange perimeter with ammonia and gray-green with iron sulphate. (3) Interior flesh stains pale orange with potassium hydroxide and olive with iron sulphate

Boletus miniatopallescens

Notes: Yellow stem. Cap fading to apricot-buff or orange-yellow with age. Thin pore layer.

Cap: Brick-red to orange-red, fading to apricot or orange-yellow. Often surface cracks. Thick flesh.

Staining: Pores stain blue instantly. Stipe stains tourquoise-blue, or not at all. Cap context quickly stains green-blue, then minutes later, brown.

Stipe: Predominantly yellow with cap color towards the base. When young it is all yellow with pink at the base. Yellow flesh. Long, often crooked, with dots but no reticulation.

Pores: Bright yellow, very small, circular. Become depressed at stipe.

Taste/Smell?Chemicals: No odor or taste. Cap has no reaction to ammonia. Cap context stains pale amber.

Continued on page 27



Boletus pallidoroseus
Photo used with permission of Jon Shaffer



Boletus pallidoroseus
Photo used with permission of Igor Safonov



Boletus bicoloroides
Photo used with permission of Jon Shaffer

Boletus pallidoroseus

Notes: Pink color of stem & cap (pallid) and beef bullion odor is very distinctive. Fairly common.

Cap: Margin inrolled when young. Pale pink to distinctive pale yellow at margin.

Staining: Blues slowly on cap and stipe. Pores bruise blue in 2-3 seconds changing to brownish gray.

Stipe: Thick, solid. Reticulate & yellow at top. Stipe context is darker than cap context.

Pores: Circular, yellow. Bright when young. Olive to brown-yellow with age.

Taste/Smell/Chemicals: Odor is a pleasant beef bullion. No taste. Cap stains olive, then darker with ammonium hydroxide and rusty brown with potassium hydroxide. Cap context stains bright yellow, then pale gray with ammonium hydroxide and orange with potassium hydroxide.

Boletus bicoloroides

Notes: Large size, completely red stem, inrolled margin, is distinctive. Michigan, possibly New England. Some claim this is not a separate species but merely a variation.

Cap: Dry, not cracked when old. Commonly brick red or light red, then ochre, inrolled margin

Staining: Cap flesh blues but can be slow. It is thought the context does not stain.

Stipe: Thick, equal, solid, fully dark red. Can be yellow at apex.

Pores: Often bright yellow, stain blue slowly, angular, notched at stipe

Taste/Smell/Chemicals: No taste or smell. Chemical tests not reported.



Next Issue: Part II will cover more look-alikes to *B. bicolor*.

Taxonomy or Why You Should Learn the Names of Mushrooms

by Susan Goldhor

A while back, a friend, who's been a volunteer at Harvard's Museum of Comparative Zoology for about a decade, gave me a tour of "his" department: Ichthyology. Since I spent a couple of decades working in fisheries, he thought that this would be familiar territory to me but, in fact, the collections of the MCZ were completely different from my working life, although they were a surprisingly powerful reminder of my days as a grad student. My time with fish was in the context of commercial fisheries; either cod and haddock on this coast or Pacific cod, halibut and sablefish in the North Pacific. Except for Atlantic cod, whose Latin name had somehow gotten inscribed in my admittedly really awful memory, I couldn't even tell you the binomials of the other fish I worked with. I was working with processors and fishermen and common names were all we used. When I had to write a paper, I looked up the Latin names each time and then promptly forgot them.

But the MCZ collection is all about Latin names. There are thousands and thousands of specimens there, pickled in alcohol, and each one is labeled with the full Latin name, the date and place of capture, and the name of the person who captured it or, at least, who labeled it and donated it to the museum. The loss of the labels would be a catastrophe equaled only by the loss of the specimens. And the most valuable of all are the "type specimens"; those specimens which (according to the Smithsonian National Museum of Natural History) are "the objective standard of reference for the identification and naming of species". In case



Fig. 54. — Method of Mounting Alcoholic Reptiles at the Museum of Comparative Zoology

Hornaday, William T., Holland, W. J., Taxidermy and Zoological Collecting, published 1894, released June 2012, via Project Gutenberg.

of fire, these are the specimens that workers are instructed to save first.

What my friend has been doing in his years of work there is checking the nomenclature of certain specimens (at the time of my visit he was plodding through the shad family) which might be incorrectly labeled, or whose names have changed since their acquisition. Exciting? No. Important? Yes.

It's clear why accurate naming is important to scientists. If I wanted to talk about my work to folks in Norway or Saudi Arabia or Botswana, I'd use the Latin binomials and they would know exactly what organism I was talking about. But is the ability to name organisms important to everyone else in the world? The answer turns out to be a resounding yes. That ability is important to us and ~ unexpectedly ~ important to the world's organisms. For if we cannot name something, it becomes part of an unrecognized and devalued mass and ~ in the same way that it's easier to accept the obliteration of millions of people who live far away and speak a language we can't understand, than it is to accept the death of one person we know ~ it becomes easier for us to allow that unnamed creature to slide into extinction.

This was brought home to me by a review by Paul Greenberg of a book entitled *On Extinction: How We Became Estranged from Nature* by Melanie Challenger (N.Y. Times, Jan. 27, 2013, Book Review, p. 13,

Ends of the Earth). As Challenger crosses a moor in West Cornwall, she realizes that she cannot name the birds whose songs she hears, and she writes, "I was bereft of speech for this landscape, suffering from a kind of amnesia shared with others of my generation." Whereupon the reviewer points out that although Challenger is a poet who is possessed of enormous richness of language, "as an inhabitant of nature, she, along with most of modern humanity, is losing or has already lost the vocabulary necessary to interact with her environment." And, if we can-

Continued on page 30



Cover Image *On Extinction*
by Melanie Challenger

Taxonomy; Continued from page 29

not interact with our environment other than by dominating or *utilizing* it, we are being impoverished and threatened along with all the other species that we are sending to extinction.

A few years ago, Carol Kaesuk Yoon wrote a book called *Naming Nature: The Clash Between Instinct and Science*. She pointed out in it that naming and ordering species (and for our purposes, any group of organisms that is recognizably different from all the others will be called a species) is common to all folk and tribes, all of whom recognize certain basic categories such as fish, birds, snakes, trees, herbs, etc. and can name hundreds ~ sometimes thousands ~ of



Cover Image Naming Nature
by Carol Kaesuk Yoon

their members. How else could they make sense of their environments? How else could they have conversations about things that are as central to their lives as electronic gadgets or movies or newspapers are to ours? How else could they know what was good to eat and what was poisonous? We might think that we don't know the names of organisms because our memory bank is full of other information which is actually more useful to us, given the life we lead. But in fact, there is evidence that the part of our brain that recognizes living organisms may be separate from the part that recognizes computers or subway trains or cereal packages. There are a group of patients who have received brain injuries that deprive them of the ability to recognize living things ~ and only living things. This suggests to Yoon that there may be a part of the brain dedicated to taxonomy. Of such injuries she writes,

These are people completely at sea. Without the power to order and name life, a person simply does not know how to live in the world, how to understand it. How to tell the carrot from the cat – which to grate and which to pet? They are utterly lost, anchorless in a strange and confusing world. Because to order and name life is to have a sense of the world around, and, as a result, what one's place is in it.

And here is the key issue for Yoon and Challenger and others: we are becoming like those people but, unlike them, we are doing it volun-

tarily. We are injuring ourselves by depriving ourselves not only of the experience of nature, but the comfort that comes from naming nature. If we can't name it, we probably can't see it. We see a mass of green; a lot of bugs; a bunch of flowers. But if all we see are these lumped categories, we won't notice when a species goes extinct. We are living through one of the greatest periods of extinctions that the planet has known, and we don't see it. If our only experience of humanity was a mob, would we notice the deaths of individuals?

Yoon has written "that sorting and naming the natural world is a universal, deep-seated and fundamental human activity, one we cannot afford to lose because it is essential to understanding the living world, and our place in it." This is what my friend over at the Museum of Comparative Zoology is doing, and why he's spent so many hours without pay, sorting over bottles of dead fish. It's not an accident that in Genesis, God creates the animals and then gives Adam "dominion" over them, commanding him to name them. If anything demonstrates the power of naming, at least in the Judeo-Christian-Islamic tradition, it must be this passage. There are some of us who think that giving humans "dominion" over nature, and thus creating a separation between one species and all the rest, was a bad step, but we must keep in mind which species got to write the Bible. However, the Bible was not originally written in English, and we can reinterpret the meaning of this passage to say that naming gives you power ~ not the power to trample and destroy nature, but the power to see it with greater clarity, to understand it and your place in it more accurately, and to better appreciate the beauty and the variety and the singularity of it all.

Realistically, none of us is going to master the Linnean names for all of creation. Even Adam only named the animals, and my guess is that it was limited to the kind of charismatic megafauna that we see ascending the gangplank in Noah's Ark toys. But, simply making a start at learning to name and order some part of nature will enrich your life in ways that you cannot even imagine. And, since you were interested enough to join a mycological club, why not start with mushrooms?



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An Interesting Myco-Discovery

by Lawrence Millman

On the drive to this year's Rhode Island Bioblitz in Hopkinton, Ryan Bouchard, Emily Schmidt, and I stopped to examine several large orange fruiting bodies on an obviously compromised maple tree not far from the road. They were growing so high on the tree that we could only take down a few bottom specimens – an example that Nature itself sometimes will dictate judicial collecting.

The convex-umbilicate fruiting bodies averaged nine inches in diameter and had short darkish hairs in the center of their caps, while the stipes were squat and somewhat hairy. The gills were deeply decurrent as well as quite deep, thus offering a perfect habitat for a large group of *Staphylinid* beetles. The reader has doubtless encountered *Staphylinids* himself or herself while preparing oyster mushrooms for the table.

The species in question was *Lentinus levis*, formerly known as *Pleurotus levis* or *Panus levis*. Without saying that it's rare in the Northeast, I will say that it's seldom documented here. That it appears frequently on *Mushroom Observer* is a tribute to its scarcity. After all, who would post an image of a common species like, for example, *Amanita citrina* on *Mushroom Observer*? As for myself, I'd only found *L. levis* once before, in upstate New York in the 1990s.

While *L. levis* is white when it's fresh, it becomes increasingly orange in maturity and remains that color until its demise. Thus orange is not a sign of freshness, as it often is with other fungi. Our specimens were also quite sturdy, a reminder that the *Lentinus* genus represents the most agaricoid development for a polyporoid morphology. Indeed, some mycologists refer to *Lentinus* as a gilled polypore.



Lentinus levis

used with permission of Ryan T. Bouchard and Emily Schmidt



Lentinus levis and Emily

used with permission of Lawrence
Millman

Mycology in the Media by Marshall E. Deutsch

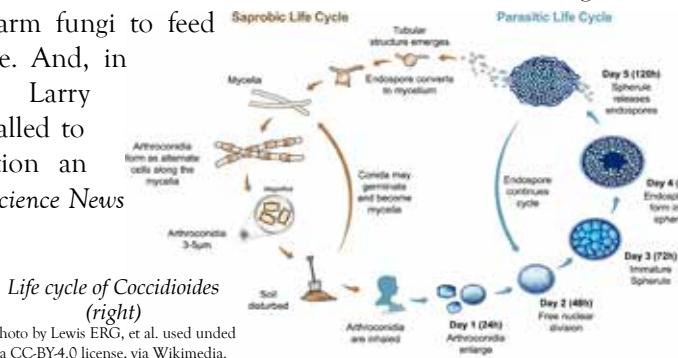
On May 9 of last year, *New Scientist* warned of the arrival in the UK of a skin-eating fungus which had wiped out 95% of the salamander population in Belgium and the Netherlands. The same issue described the more friendly effect of *Botrytis cinerea*, which causes “noble rot” in grapes, making wine produced from the grapes intensely sweet. And on 14 August, *Science* printed a long article on microrrhizal fungi, referring to them as “the littlest farmhands.” Less complementary was an article in *Science* for 28 August entitled *The Fungi That Ate My House* which described the effect of *Trichoderma* on the author’s house, following its subjection to hurricane Katrina.



Fire salamander covered with *Batrachochytrium salamandrivorans* ulcerations
Image from page 6 of “Bulletin of the British Museum (Natural History), Mineralogy” (1973), via Flickr: The Commons.

Mushrooms get a mention in *American Scientist* for September-October in an article on the most powerful movements in biology. These include the launching of fungal ballistospores. And *New Scientist* for October 31 2015 describes using a strain of *Clonostachys rosea*, (a fungus which attacks “crop diseases and pests”) by sticking it to the legs of bees, for which it is harmless. The same issue describes how stingless Brazilian bees farm fungi to feed

their larvae. And, in November, Larry Millman called to our attention an article in *Science News*



which described how Mallorcan midwife toad tadpoles could be protected from chytrid fungus infection by a combination of antifungal treatment and environmental disinfection.

Design News for December reports that *Portabella Mushroom-Based Bio-Battery Gains Capacity Over Time*. The porosity and high potassium salt concentration of the mushroom tissue makes it a useful constituent of a lithium-ion battery anode.

But *New Scientist* for December-January brings us back to fungi as menaces, with an article on *Coccidioides* in the air over the desert soil of southwestern US and Mexico. On dry, windy days it can get kicked up into the air and inhalation of a single spore can cause pneumonia, or worse.

As for the potential uses of mushrooms, no one appears more sanguine than Paul Stamets who, in an interview in *New Scientist* for 13 February asserts that “we’re sitting on a mould mine” and that “mushrooms can protect us from viruses, save the bees and even help to tackle climate change.”

An article on gene editing in *Scientific American* for March (*Editing the Mushroom* by Stephen S. Hall), focuses on its use to prevent browning of mushrooms, and an article on *Pseudogymnoascus destructans* in *Science* for 8 April describes how this fungus is ravaging bat populations on the west coast.

Finally, for this report, an article in *New Scientist* for 16 April suggests that the US Dust Bowl of the 1930’s may have been precipitated by plowing, which “released millions of wheat rust spores, creating so many ice nuclei that they [the nuclei] couldn’t grow big enough to rain,” i.e. they “constipated the clouds.”

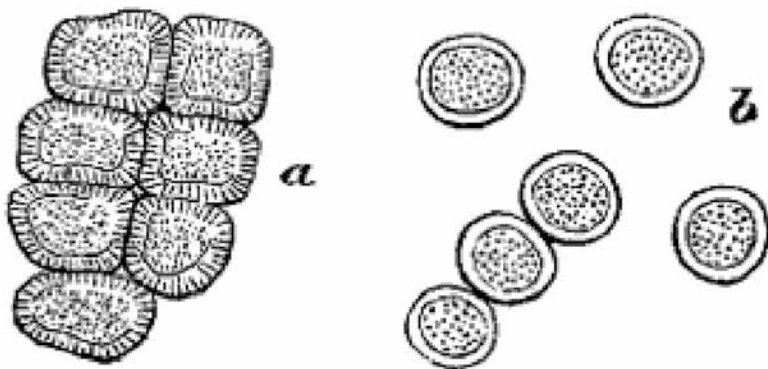


Fig. 107.—Cells and pseudospores of *Aecidium berberidis* (A Wheat Rust)
Cooke, Mordecai Cubitt, *Fungi: Their Nature and Uses*, published 1875. Appleton, released October 2009, via Project Gutenberg.

BMC Eagle Hill Scholarship Has Been Awarded

A lucky recipient proudly accepted an Eagle Hill Scholarship from the BMC and Eagle Hill this year. Be sure to look out for a forthcoming article in an issue coming soon!

July 3 to July 9 **Lichens and Lichen Ecology**
David Richardson and Mark Seaward

July 10 to July 16 **Crustose Lichen Identification**
Irwin Brodo

July 31 to August 6 **ID for New Mycophiles**
Greg Marley and Michaeline Mulvey

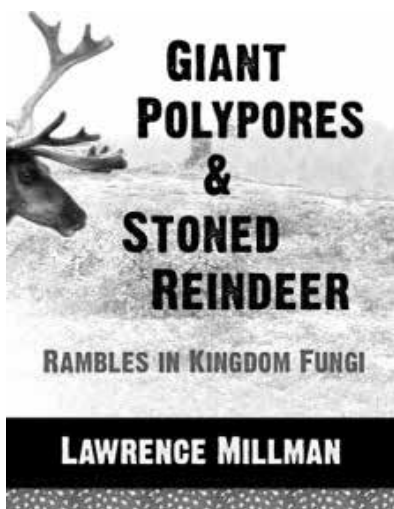
August 7 to August 13 **Slime Molds: Miniature Marvels of Nature**
Steven Stephenson

August 21 to August 27 **Polypores and other Wood-inhabiting Fungi**
Thomas Volk
note: this class is full, call for waiting list.

Our Website

<http://www.bostonmycologicalclub.org/>

This is an incredible resource created with the generous patience and extraordinarily talents of Scott Shafer. Among past lectures and other resources you can use your account to readily view digital back issues of *The Bulletin*.



Giant Polypores and Stoned Reindeer

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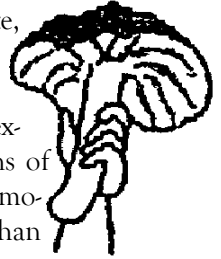
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CALL FOR SUBMISSIONS

Calling for submissions regarding the pursuits of amateur mycologists: we can receive these in any form from those who write, draw, and capture digital images. We need the utmost generosity of all your expressions to accurately reflect our passion. Remember, the bulletin's most explicit purpose is to broadcast the grandest expressions of the amateur: those vital mycological pursuits whose motivations are far more various, and often profound, than those who pursue for money.



Generously submit all contributions to BulletinBMC@gmail.com

Hibbett Lab Exclusive BMC Offer

If you have a cool but mysterious fungus that you would like to ID, but can't make it to the Monday night ID sessions in Cambridge, please consider bringing it to the Hibbett lab at Clark University. We can't promise to put names on everything you bring in, but we are always happy to look at interesting finds from current BMCers. If you would like to consult, please get in touch by e-mail (David Hibbett: dhibbett@clarku.edu) and we can try to find a time to meet.

Homola NEMF Scholarships Has Been Awarded

The deadline has past. Be sure to register for next year.

BMC NEMF Scholarships Awarded

Debbie Shore and Zaac Chaves proudly received scholarships to this years NEMF foray. We look forward to seeing what creative approaches they will take to bring all this knowledge back to the club.

Membership for 2017

We invite any interested person to apply for membership. One of the ten best wedding gifts (refer to minutes from the BMC hygiene committee, May 11, 1996). Join the BMC online using PayPal or by mailing a completed Membership Application to

Brett Maguire (BMC Membership Secretary)

111 Williams St. Apt. 2

Boston, MA 02130

Annual Dues

\$20.00 - Individual member

\$25.00 - Family membership (all at one address)

\$10.00 - Junior member (individual under age 21)

Corrections

The genus of the reindeer lichen is not *Cladina*, as Susan says, but *Cladonia*. The species name remains *rangiferina*.

Lawrence Millman

I regret to say that Larry is correct. I can only excuse my error by quoting from the U.S. Database on Lichens,

“... the taxonomic status of *Cladonia* spp. has been debated, with some authorities using the genus *Cladina*, while others have given *Cladina* subgenus status within the *Cladonia* genus.

A study of phylogenetic relationships within *Cladonia* and *Cladina* species based on DNA sequences, morphological data, and chemical analyses led some researchers to conclude that *Cladina* is best treated as a subgenus of *Cladonia*.” Alas, I was using older sources.

That should be pretty clear – I hope!

hugs,

Susan Goldhor

Corrections

The following correction is made regarding the previous *From the Archives* column entitled *Avviso-Funghi Dannosi. Two Public Safety Advertisements: “Dangerous Mushrooms”, c.a. 1898* in the Vol. 71(1) April 2016 issue of *The Bulletin*. The legend accompanying the posters should read:

Left image adapted from plate 22 “Fly Agaric (*Amanita muscaria*)” from William G. Farlow, *Some edible and poisonous fungi*, US Department of Agriculture Yearbook, Washington, 1897. Right image adapted from plate 9 “*Agaricus (Amanita) vernus*” from Julius A. Palmer Jr. ed., *Mushrooms of America, edible and poisonous*, L. Prang & Co., Boston, 1885. Artist not attributed in either plate.

Jason Karakehian

UPCOMING EVENTS

- | | |
|--|--|
| July-October
Most
Weekends | The BMC's Weekend Walks have started.
See <i>The Book of Walks</i> for details. Walks listed for July 10, 17, 24; Aug 7, 14, 21, 28; Sept 4, 11, 18, 25; Oct 1, 2, 9, 14, 16. |
| July-October
Most
Mondays
7-9pm | BMC Monday Night ID Sessions
Harvard Herbarium Seminar Room. We will have open access to the BMC's Mycological Library while we endeavor to place more accurate names on our recent specimens. |
| July 28-31 | NEMF Foray in Fitchberg, MA
Hosted by the BMC |
| Sept 8-11 | NAMA Foray in VA |
| Sept 16-18 | White Mountain Fungal Foray
Albany, New Hampshire |
| Sept 22-25 | COMA Foray in Copake, NY
with Alan and Arleen Bessette |
| Sept 28
6-8pm | Peter McCoy 2016 Book Tour
Commonwealth School of Herbal Medicine |
| Early
December | BMC Annual Duff Sale and Movie Night
Herbaria Seminar Room |
| Late
December | The Christmas Mushroom Count
Location to be announced at Duff Sale.
with Lawrence Millman |

Join our efforts in sharing all regional mycology related events with
BulletinBMC@gmail.com



Above are boletes drawn by Carol Govan. Can you identify the species depicted? Email us your answer for fame. Read about Carol & Pat's workshop pg 7.
Below Photos reference *B. bicolor* and *Look-Alikes* on pg 14.



Boletus bicolor
Photo used with permission of Bill Neill