MycoDigest: The Lichen/Non-lichen Connection

Else C. Vellinga

One thing we knew for certain about lichens: the fungal partner of the lichen symbiosis could not live its whole life cycle without a photosynthesizing slave providing sugars to the fungus. These enslaved, encapsulated algae or cyanobacteria (formerly known as blue algae) can live without the fungi, but the fungus had to find an algal or bacterial partner, the photobiont.

Now we have to rethink this certainty, as it was recently shown that the same fungal species can exist both with and without photobionts and in each case the fungus forms fruitbodies and sexual spores. Both lifestyles were known: the surprise is in their identification. Stictis species were originally the ones without a partner, growing on branches stripped of bark. Conotrema was the name for a lichenized species, growing on the bark of trees. Now, there can only be one name, and this is Stictis, since it is the older name.

If a spore of the fungus lands on bare branches they will grow as a lonely fungus, as no algal cells are found in this habitat. If a spore lands on the bark of a tree it will find an algal partner and go on as a lichen. This strategy of optional lichenization has many advantages in fast changing ecosystems experiencing disturbance or succession. Of course the finding that one and the same fungal species can live either as a fungus or as a lichen, raises many new issues; how widespread is this phenomenon, where does the fungus find its carbon when it is living without photobionts, and what is the role of lichenization in the evolution of the fungi?

The Stictis/Conotrema connection was unraveled by researchers from Sweden who had extensively collected on Populus tremula, a trembling aspen species in the northern boreal region of Scandinavia. They show their surprise and enthusiasm for their discovery in the following paper:


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The President’s Post

David Campbell

Greetings from your new President. I have been selected to take over for Mark Lockaby, who has served us with his exemplary patience and dedication as President for the last two years. I can only hope to match the high standard of service and leadership for the Society that he and the many Presidents before him have established.

I hope you have all had a fine fungal time during our summer recess. I am pleased to report that the mushrooms did not stop fruiting just because we took a break. Those of us who stuck with it were able to collect morels into July at the Power Fire, the scene of our May car-camp foray led by Norm Andresen. In the crawlspace of a home I was inspecting in San Rafael in late June, I collected a pair of the bizarre Battarea phalloides, for reasons I’m not sure of…Those of us who took the hint from Fred Stevens’ generous chat-room posting of fungal activity he had witnessed on a fishing trip to the Sierras enjoyed a cornucopia of high mountain mushrooms in August, including my version of “big game” hunting, Boletus edulis. ‘Twas a good year for coastal fog drip mushrooms. Shaggy Parasols popped in profusion under my favorite cypress grove, and were eventually joined by a tidy flush of Agaricus fuscofrribilis. I felt like I was in a sci-fi movie cutting these mushrooms for the pan back home, with their brilliant orange and vine-red stains illuminating the cutting board. Member Kevin Saddlier jerked my chain in late August to join him for a Salt Point venture, where he had been collecting a rather amazing spectrum of edibles, including Gold, Black and Winter Chanterelles, Russulas, Candy Caps and Hedgehogs!

Okay, so now it’s mushroom season, and the MSSF is convened. When I consider just what one is entitled to and what is required from Society membership, I see a very short list. As members, we are entitled to this newsletter, attendance at Society sponsored forays, events, council meetings. We can join the MSSF yahoo group chat-room, and the Culinary Group. Not much else I can think of at the moment. We are required to…do nothing.

So, those categories hardly define the Society. In fact, if everyone fulfilled the requirement to do nothing, we would not have a Society. And, MSSF membership entitlements pale in comparison to the true value I see in membership, which is the opportunity for involvement in projects, studies, events and ribald enjoyment of mushrooms, combined with the ready access to fellowship with like-minded mycophilic individuals. Now that’s really worth something!

I would like to encourage you all to take full advantage of your MSSF membership by getting involved. If you are new to the world of mushrooms, here is your opportunity to access knowledgeable people and gain from their experience. If you already possess some level of mushroom related knowledge, well, what I have found is that the mushroom knowledge I possess is not worth near as much if I do not share it.

Here’s to another grand year of our immersion into the world of mushrooms. Stay tuned to the monthly editions of this newsletter for announcements of how you can get involved and help the MSSF be all that it can be.

MSSF Discussion Group on Yahoo Groups

The MSSF email discussion group facilitated through Yahoo Groups is a great way to keep in contact with other members and is one of the primary ways in which members keep up on news about the Society. The list features often-intriguing discussion of fungal-related topics, tips about current fungal activity, and up-to-the-minute news about MSSF functions.

The list is available in both individual-message and digest formats. Additionally, you can also subscribe to the group in “Special Notices” mode. That means that if you wish to receive only official announcements from the society and not email traffic from other members, you can subscribe using this method. (Subscribers to the list in regular and digest formats also, of course, receive official announcements in addition to posts from other members.)

To sign up, go to:

http://groups.yahoo.com/group/mssf/

Follow the link that says “Join This Group”. (You will need to sign up for a free Yahoo Groups membership if you do not have one already.)
The Mycena News, September, 2005

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The Foragers’ Report
September 2005

Patrick Hamilton

“Today is the day that is filled with surprises—nobody knows what’s gonna happen. You might find yourself on an elephant on the moon—or riding in an auto underneath a blue lagoon. Oh we MSSFer’s think you’re gonna have some thrills, cause we got a laugh that we’re sure can cure your ills. If you’d like to be sent we will gladly present, the MSSF’s ‘Anything Can Happen Season.’” Or something like that. (Apologies to the Mickey Mouse Club theme song.)

Yeah, that’s it. Here we go again into The Great Fungal Unknown. This beginning of another new season is upon us. It’d be nice to know what’s ahead but nobody knows what gonna happen. Some of us have a pretty fair inkling and that inkling is for sale in the forms of secret maps, charts, graphs, and GPS tracking devices that lead to mushroom miraculousness. Just look in the special section on the web and follow the instructions.

Boletes have been fruiting along the Bay at Land’s End, in The Presidio, and especially in the Sierra where imposing summer thunderstorms—notably on the eastern slopes—have rained. There will be more summer storms in our central Sierra, perhaps while you’re reading this. Check out the pure lodgepole pine stands (6,000’ plus) above the incense cedar band to find these reddish-headed beauties. Unlike our coastal porcini the fall Sierra boletes can much more easily be spotted above the ground, not in shrumps—and yet be maggotty free. And, by the way, because the local bolete does fruit in a shrump, which requires a repairing of the ground after picking, we call those areas “patches” and up in the mountains where they grow easily sighted we say that there they are seen in “spots.”

Maybe.

“The Power of Mushrooms” revisited: many of you have encountered a “bump in the road” but how about a “shrimp in the asphalt?” Hmm? Well, on a new (two-month-old) driveway laid over native, undisturbed soil, at a country home outside of Sebastopol (same weird residence where king boletes fruit under live oaks) there appeared four shrimp looking protrusions several days ago. When first seen they were thought to be some oak seedlings powering their way to the light. Nah. The emergences were thick stemmed sweet smelling Agaricus, that, by the time any person with an idea of what they might be saw them, had been broken up and out of the blacktop by the owner who was more interested in repairing his drive than identifying (or eating) the mushrooms.

Towards the magic orb’s base hologramic hedgehogs, matsutakes, and winters are drifting in and out of view. Does this mean a good or a bad season? (Rats, should I have sprung for the more expensive model?) So it seems that once again we

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A California Gal Goes to NEMF

Debbie Viess

The annual North East Mycological Foray (NEMF), which took place this year in August, draws Eastern mushroomers from as far North as Canada, as far South as North Carolina, all along the Northeastern seaboard, and West to Minnesota. Approximately 160 mushroomers from near and far converged upon the pastoral campus of Penn State, Mount Alto, in the hills of South-Central Pennsylvania. By Pennsylvania standards, this area is relatively wild, with extensive areas of second growth forest. The land is also relatively “mountainous,” with peaks over 2,000 feet tall. This part of Pennsylvania is also steeped in history. Gettysburg, which needs no introduction, and Antietem, site of the civil war’s bloodiest battle, were both close by. We literally hunted mushrooms on the ground where the war had been waged.

Profiting from the dead and dying is not merely a human attribute. A number of interesting parasitic mushrooms were collected. My favorite fungal parasite was the ghoulish and glorious Cordyceps militaris, a flask fungi that feeds upon insect pupae. There were several examples of Boletus parasitiens, which forms a dramatic duo with its host, Scleroderma citrinum, also known as the “Pigskin Puffball.” Someone collected a parasitic ascomycete, Asterophora hyoperloides, which devours blackened Lactarius species and members of the Russula nigricans group. This last parasite, at least, has the decency to wait until its host is nearly dead before consuming it.

NEMF had a stellar lineup of mycologists. Dr. Tom Volk, alive and kicking (albeit gingerly) journeyed in from Wisconsin; Dr. Rod Tulloss and his lovely wife Mary traveled from New Jersey, and helped name the delightful abundance of amanitas; Gary Lincoff was expected, but sadly had to bow out due to health problems; Dr. Roy Watling, M.B.E., traveled from Scotland with his wife Elizabeth to regale us with mushroom science and stories in his lovely Scottish brogue; Dr. Ernest Both shared his many decades of experience with boletes of all stripes; Dr. Bart Buyck, russula expert from Paris, helped to bring this often scorned and difficult to ID group alive; Dr. Roz Lowen, hailing from Connecticut and the New York Botanic Garden (NYBG), shared her expertise with ascomycetes; Dr. Roy Halling, also from the NYBG, entertained us with his scientific mushrooming adventures in beautiful Costa Rica; Dr. Coleman Mc glean from North Carolina, an expert on pholiotas and chief mycologist for NAMA 2004, shared both my air conditioned suite, and my passion for Peet’s coffee.

NEMF offered several microscopy workshops, from beginning to advanced, basidiomycetes to ascomycetes, using Penn State’s science labs. Mycologists lectured day and night, and led bus trips to many different locales and habitats. The school’s gym was divided in half, with one half serving for specimen intake and display, as well as for vendors. (BTW, it was great to see Boston-based vendor extraordinaire, Ben Maleson, his mom and his wife Mei Ching; we need this man and his fantastic selection of mushroom wares at our next Fungus Fair!) The second half of the gym was the mycologists’ work station, where experts on a variety of genera toiled to put names on the steady influx of specimens.

It was my good fortune to be able to work with my friend and colleague, Rod Tulloss. He helped to bring me up to speed on a bewildering array of Eastern amanitas. Collections ranged from the enormous lepidella, Amanita ravenelii, to the tiny and delicate Amanita farinosa. Unusual grisettes, both named and unnamed, littered the tables. There were examples of the rare and intriguing grisette known as Amanita sp.V-3, which shares similarities with Amanita ceciliae of the Southwest with gray warts on the cap, gray ornamentation on the stipe, and no membranous volva. Amanita daucipes, a large and distinctive lepidella with a very large basal bulb and a unique pinkish-orange coloration, was widely collected. Normally an uncommon mushroom, it was brought in by the dozens in all stages of development, allowing me to get a real sense of the species’ variability.

My most triumphant fungal find was a huge Xerula, or the mushroom formerly known as Oudemansiella radicata. I managed to prize its long, delicate “root” from the ground all in one piece (it stretched from my armpit to fingertip); it took my hand plunged into the ground up to my shoulder to get it out.

Collections of edible mushrooms were rather sparse. A few specimens of Cantharellus cibarius were collected, as well as the tiny, spicy, red-fleshed and “delicate enough to be eaten raw,” Cantharellus cinnabarinus. Someone brought in a large and
beautiful bloom of the Eastern version of sulphur shelf; this tender version of *Laetiporus sulphureus* was prominently displayed, and sadly, soon stolen. *Lactarius volemus* was one of the few edibles that were collected in large enough numbers to feed a group. An attractive mushroom with a textured, ruddy-brown cap, its most notable feature is the copious, milky latex that pours out when it is bruised or cut. With sufficient cooking it becomes a tasty edible. This lactarius was fed to NEMF participants in a cooking demo, and to my family back in Pittsburgh, post-foray. We were all delighted to try a new and unusual mushroom.

I traveled home with a select group of fungi. For the cultivation mavens, I brought home mycelia from the beautiful and edible *Leucoagaricus americana* (formerly *Lepiota americana*), cultured by Wes Price, a student of Paul Stamets. This common, edible mushroom of the East, which looks somewhat similar to a rachodes, reddens beautifully with age, and has a stipe that is tapered at the top and fat at the bottom. I also brought back a few beautiful and unusual air and dashboard-dried russulas, a gift for our hard-working MSSF russula expert, Norm Andresen. I couldn’t resist bringing home examples of *Calostoma cinnabarius*, or the “Stalked Puffball in Aspic.” When fresh, this small, dark-orange oddity has a gel coat much like *Leotia lubrica*. Stalked balls, when sliced in half, display the aspect of a carrot curl stuffed with cream cheese (thank you for that description, Phyllis Cole!). Despite specimen room temperatures high enough to melt both (wo)men and mushrooms, I managed to sketch a dozen of the most beautiful or interesting fungi. Expect to see illustrations of those way-cool, eastern parasitic mushrooms in the October *Mycena News*.

Discovering new mushrooms in new environs is thrilling, but the brutal heat of the Eastern summer made me long for the foggy cool of home. But travel, whatever the weather, is so broadening. I learned many new mushrooms, and made many new mushrooming friends. Next year, the NEMF foray is in the trackless, conifer-laden wilderness of Northeastern Canada. If you have a good sense of direction, and enjoy hobnobbing with moose, wolves and an international community of mushroomers, check it out!

In the coastal foothills where I forage, mushrooms appear by size at the start of the season. First come the tiny fungi; you need a child low to the ground to find them. After more rain, you’ll see clusters of these nobodies whose technical names conclude in diminutives like –ina, –tina, and –turner. Field guides give them cursory treatment or none at all. Easily overlooked, frequently stepped on, rarely identified with precision. Mycologists do not bother changing the technical names every few years, a sure sign of professional disdain. No one establishes a reputation discovering a new variety of mycena; no disrespect to this publication intended. Despite its modest name, *Mycena News* devotes most of its column space to large charismatic fungi. When I was introduced to the main marasmologist on the Baltic Coast, I had to bend down to shake hands with him. He wore thick glasses, as his eyesight had deteriorated in the taxing search for tiny fungi. He established a small following when he discovered the Dust Speck Fungus.

During the prime mushroom months, nobody pays attention to nebs, which is perhaps the origin of the genus name. Others attribute the name to Johnny Neb, a confederate soldier of small stature although fierce in battle. Others trace the genus to the Egyptian pharaoh who refused to eat any mushroom under two inches in diameter, which became the basis for his famous decree, “Nebbischer never.” An abundance of nebs is referred to as a nebula; their absence not remarked upon. I gave up sketching these size-challenged fungi a long time ago. Drawn to scale, a single specimen was lost on the page and enlarged, looked grotesque.

Field characteristics are easy to learn, although few bother to do so. The distinguishing feature is insignificance—small stature, drab coloration, and undistinguished shape, like a tiny umbrella was the way an unremarkable child put it. Given the dimensions of birds nest fungi (*Nidulariales*), you can imagine how small the birds must be. The staining response to a mixture of KOH and Melzer’s Reagent is difficult to determine in such miniscule fruiting bodies. Some say it is green, others blue. Chemically, nebs are marked by the absence of the growth hormone GOH, present in better endowed fungi. For survival, they are clustered and congregate, and some, such as *Plectania nannfeldtii*, take on long names in a vain attempt to be noticed.

Of nebbish gastronomy, little need be said. You need a lot of them to make a meal, so unless they have a distinctive flavor, collecting isn’t worth the effort. The FIFO rules applies.
1. Husk the corn carefully, retaining the outer and inner husks (to later wrap the tamales). You can make a cut near the base of the ears to ease the husk removal. Separate the inner and outer husks into two piles. Cut the kernels from the cobs until you have two cups.

2. Sauté the mushrooms in the olive oil, in a saucepan, until almost done, add the shallots, thyme, parsley, S & P, and cook another 3 minutes. Transfer to a bowl.

3. Boil the water in the same pan. Add the corn and 1 tsp of salt and cover and cook over medium heat until softened, about 4 minutes. Slowly whisk in the polenta over low heat and cook until done, about another 4 minutes. Stir in the queso fresca (it will not melt completely); adjust the seasoning with S & P.

4. To make the tamales: spread 2 outer husks on a cutting board, overlapping them at the base ends by 3" or so. Spread 1/3 cup of the polenta in the middle of the husks to within 1/2" of the edges to form a 4" x 2" rectangle, 1" thick. Press 2 sticks of Asadero into the polenta and top each tamale with 1/6 of the mushroom mix. Cover the mushroom mix with 2 large inner husks, overlapping them at their base ends. Tie the ends with kitchen string. Repeat until 6 tamales are made. If there are more ingredients left—hey, make some more.

5. Lightly brush the corn oil on the tamales and grill them, outer husk side down, over a medium hot fire for about 4 minutes, until nicely browned. Carefully turn them and grill another 2 minutes.

Serve at once with your favorite salsa. Quick salsa recipe: lightly char some New Mexico and/or other chiles with skin-on garlic, sliced onion and quartered and seeded tomatoes on a cast iron skillet. Soak chiles in water until softened. Seed and stem then place with the other ingredients (peel the garlic) in a blender and whirl away (wasn’t that the name of a great Thoroughbred?). Season with S & P and some spices, maybe cumin and herbs, maybe Mexican oregano.

Consider this a “starter” or “base” tamale recipe (but certainly not a classic Mexican one). It can be easily changed with the addition of any meat, chile, and spices like cumin, anise, fennel, herbs like cilantro, oregano, and lovage, et al. Try wrapping them in banana leaves for a more classic Mexican style. And, of course, huitlacoche would work well as a primary filling. Good smut fits in almost anywhere.

That’s all for now folks!

Terry Sullivan reports: “I took this photo of Mill Valley chanterelles that I collected August 19. This is the second week of chanterelle fruiting from the extreme fog drip we’ve had this summer. The *Amanita pantherina* and/or *gemmata* mushrooms are also out in force.”

**Nebbish Fungi** Continued from page 5

here—Flavorless In, Flavorless Out. Nebs are easily lost in soups and stews but some, like *C. infundibuliformis*, the Tasteless Chanterelle, are restaurant staples in the infamous wild mushroom mélange. I’m omitting here those little dung mushrooms so avidly hunted in cow pastures. You won’t find them listed on restaurant menus and nobody cares how they taste. Before the dung is scraped off, the flavor is rich and earthy.

**Speaker for September 20** Continued from page 1

Denise will introduce a little-known group of fungi, whose potential medicinal value is just being revealed. Endophytic fungi have been found to inhabit every plant examined to date. Compounds from some of these fungi, aside from providing host protection, are currently being tested as possible sources of drugs to fight such diseases as leukemia, tuberculosis, malaria, herpes simplex type I, certain types of cancer, and bacterial and fungal infections. Please attend the September meeting to learn about these unique invisible fungi and the exciting medicinal potential that they may confer to humankind.
It's never too early to renew... Fill out the required information on the form. Mail a check for the appropriate amount, made out to "MSSF Membership", to MSSF c/o the Randall Museum, 199 Museum Way, San Francisco, CA 94114. Or, to save postage, you can give the envelope with the filled out form and check to Polly Shaw at the monthly meeting, culinary dinner, or the December 3-4 Oakland Fungus Fair.

You can also renew online by using the PayPal option on the MSSF website. If you do, please send Polly Shaw a personal email (at sfwaterbug@yahoo.com or 415-665-3293) with the information on the reverse of this column. PayPal provides only the name, mailing address, and email of those who enroll or renew. It does not give secondary members, telephone numbers, an alternate email address, or interests.

Please note that 2005 memberships expire in December. You need to renew before the end of December in order to receive 2006 publications and to continue your access to the MSSF website. (Check the mailing label on your Mycena News to find out when your membership expires.)

The regular, adult/family membership fee is $25.00. Seniors over 65 and full-time students pay $20.00. E-members pay $15 to download the Mycena News and other publications from the website.

The MSSF treats membership information as private, but it does VERY occasionally release its membership list for mailings by mycological businesses. If you do not want your name included in such a mailing list, either contact the membership chair or indicate on your renewal that you do not want to receive commercial mailings.

Ode to Renewal
Polly Shaw

Hurray! September is here.
And with it, forums, forays, and feasts.
Sharing finds and growing others,
Gourmet camping, new friends, recipes: our treats.

So we invite you, dear member
To renew early with next year’s small fee.
And persuade new members to join now—
For them, ‘til December is free!

Yes, get it out of the way —
Why wait ‘til the Fair (or Spring months)?
Thus saving your humble volunteers
From mountains of renewals at once.

A final plea while renewing:
Please tell us if your email is new.
You’ll please the mighty listserv guards
And receive the next password change, too!
Secretary Needed

As of this writing, we are about to lose our current MSSF Secretary, Mark Thomsen. He is moving to the Far East soon, and will no longer be able to serve on council. We will miss all his fine efforts. We need someone to step forward and fill this MSSF council officer position.

Anyone out there? Call Mark or President David Campbell if you can help out.

MSSF Calendar, September, 2005


Sunday-Thursday, October 9-13 Oregon Cascades Foray with The Wild About Mushrooms Company. This is not a Society sponsored event. Contact Charmoon Richardson or David Campbell for details and reservations. 707-887-1888 / 415-457-7662, or email to charmoon@sonic.net.


Note: Deadline for the October 2005 issue of Mycena News is September 21.
Please send your articles, calendar items and other information to:
mycenanews@mssf.org