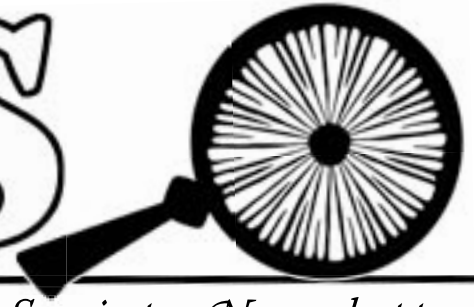


nyms



Summer 2006 New York Mycological Society Newsletter

Good Season Ahead?

The last I left this space, we were looking forward to the morel breakfast and hunt. I was not able to go to either event, but from reports given me, the morel hunts were pretty productive, especially considering it did not rain in the area much during April.

As I write this on June 8, 2006, it has been raining off and on all day. It has been raining for the last several days. Looking ahead to the summer walks, wet weather seems to bear good news. But as we know, rain today in New York City will not mean mushrooms in Harriman or Depew or Central Park a month from now. Inside this issue, Dennis Aita provides some word on online weather information in order to stay on top of mushroom weather markers.

The spring has been full of information for me in many ways. Elinoar Shavit's lecture on mushrooms of the Holy Land (April 9 at the Natural History Museum in the Linder Theater, our usual spot) was lively and informative. From Lebanese Viagra to the relationship of lightning to the fruiting of puffballs, Elinoar blended geography, linguistics and history with mycology for us. Later in April, at a workshop on the relational nature of experience, I kept thinking about mycorrhizae and the mushrooms I was missing. Coincidentally during the same week, Alice Barner and Maria Reidelbach sent in some mycorrhizal-related stories from the *New York Times* and *Science News Online*. Both articles are excerpted in this issue.

In the first-person vein, Frank Spinelli has written an article on his experience looking for a particular mushroom on the island of Jamaica. And we have beautiful pictures with it as well. Claudine Michaud shares impromptu recipes for *Stropharia rugoso annulata* (wine caps) out of her recent bounty of them. And finally, speaking of bounties: consider the future of our Society to hold more tasting events with our own mushrooms. Notes from the business meeting and the *Future Mushroom Tastings* article might give some ideas.

But now it's time to walk.

Thanks,

Pam

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✦ Upcoming Events ✦

July 9-October 28: NYMS walks. Various parks. Consult the walks schedule for more information.

July 28-30: Chanterelle Weekend, Londonderry, VT. See spring newsletter or Page 2 of this issue.

August 17-20: NAMA Foray, Hinton, Alberta, Canada. Details at <http://namyco.org/events/index.htm>

September 1-4: NEMF Foray, Lac-Bouchette, Quebec, Canada. More information at: <http://www.nemf.org> and <http://www.mycomontreal.qc.ca>

September 10: Joint NYMS/COMA picnic and walk, Fahnestock State Park, Putnam Co., NY. Contact Dennis Aita (212-962-6908 or denaita@verizon.net).

September 15-17: Catskills Weekend, Crystal Spring House, Big Indian, Ulster Co., NY. More details are on Page 2.



NYMS Newsletter

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Submissions for the autumn issue of the NYMS newsletter must reach the editor by August 20, 2006. Various formats are acceptable for manuscripts. Address questions to Pam Kray, editor. See above for addresses.

You many now receive the newsletter as a PDF. Contact Paul Sadowski by email to be added to the PDF list. If you choose the PDF format but still want to receive the paper version, make sure Paul has that information.



NYMS Business

The annual business meeting took place on Sunday April 9, 2006. After hours of election speeches and passionate politicking, the same slate of officers was elected unanimously. The New York Mycological Society elected officers for 2006-2007 are:

President: Maggie Vall
Vice President: Dennis Aita
Secretary: Paul Sadowski
Treasurer: Alice Barner

Other business was discussed. It looks like we will be having more lectures and talks during other parts of the year besides our regular winter lecture series. Taylor Lockwood is tentatively scheduled to speak to us on Wednesday, September 6. More specific information on time and place will be forthcoming later in the summer. Other speakers who might also be programmed are Bruce Stutz, author of *Chasing Spring*, Roy Halling, and Rich Kerrigan, among others.

We discussed the banquet briefly. Dennis is considering forming an online advisory committee to seek out a place for our annual banquet in December. Those attending the meeting seemed to agree that although Tatiana's was very good, three consecutive years is enough. We need a bigger place that can also accommodate our members bringing member prepared appetizers and conversation. If anyone has any ideas, contact Dennis Aita.

We discussed getting involved with the Tribeca Community Center that will be opening soon. Since it is going to have a kitchen, our food programs could hold more people than they have been able to in the past at Maria's. It was decided that the New York Mycological Society would send a letter to the Center stating our desire and intention to become involved there.

Along the lines of having food events and where to have them, the subject of mushroom tastings came up. The successes of these events, including the last morel tasting in March 2006, the cooking class in 2005 and the tastings that we have had during our Foul Weather Friend

identification sessions, all taking place at Maria Reidelbach's loft, have been consistently great. However, the cost of buying mushrooms for the morel event caused a reality check. If we ourselves can put away a portion of our pickings of morels and boletes, at least, for example, we will not only save money but will also be able to have real local bounty to compare with the more remote, bought ones.

Ralph Cox mentioned that if anyone has any material for the archives, especially from before 1990, to send it to him. (See membership list for Ralph's address.)

The newsletter is now available as a PDF file to members. This format will allow the delivery of color pictures that is prohibitively expensive in the printing process. The paper version will continue to be mailed. The information to set up receiving the PDF version is listed on this page below the masthead.

The meeting adjourned onto a beautifully sunny April afternoon. ☀



More(l) Thoughts

Dear Pam,

Where – oh where – did those Ph meter readings listed in the last newsletter for *Morchella esculentas* and black morel spots come from? They should read as the following: 6.75 for *esculentas* and 6.6 for black morels. These are the minimum values I get on my Instamatic Ph meter when I find these morels (In the past I purchased these meters at farm and garden nurseries). This May I also did a few Ph readings on some *M. deliciosa* spots (only a few as my morel-hunting companions get very impatient and would rather hunt/pick morels putting me into a dilemma!). For them I recorded values around 6.5 (The Ph scale is a logarithmic one so these differences are actually significant). I must admit that my other more cumbersome and difficult to use Ph meters show lower values than the Instamatic (and lab tests are expensive) but an important point is that *esculentas* just about always have higher Ph levels (which indicates less acidity) than black

cont. p. 10



Remember!

Stay responsibly in touch with us. If your telephone number, mailing or email address changes, please contact Paul Sadowski, secretary with your new information. An additional note for listserv users: please remember to set your spam filter to be able to receive listserv emails.

NYMS walks policy: We meet when public transportation arrives. Check the walks schedule for other transportation notes. Walks last 5 to 6 hours and are of moderate difficulty except where noted. Bring lunch, water, knife, and a basket for mushrooms. Leaders have discretion to cancel walks in case of rain or very dry conditions. Be sure to check your email or contact the walk leader before a walk to see if it has been canceled for some reason. Non-members' attendance is \$5 (note: the Morel Breakfast and morel hunts are members-only events).

Warning: Many mushrooms are toxic. Neither the Society nor individual members are responsible for the identification or edibility of any fungus.

All statements and opinions written in this newsletter belong solely to the individual author and in no way represent or reflect the opinions or policies of the New York Mycological Society.

Finding The Magic Mushroom

By Frank Spinelli

I asked G, my friend Robin's caretaker, if he ever saw mushrooms growing in the bush behind the houses where they lived in Jamaica. G, a handsome, middle-aged Creole man with wavy salt-and-pepper hair, nodded when he told me that very few mushrooms grow in the winter, even with some rain. The best time for mushrooming, he said, was June and July, the beginning of the rainy season in the West Indies. I asked if he knew about the mushrooms that grew nearly all year long on dung, commonly known as the Magic Mushroom. G knew to what I was referring. In Jamaica, the hallucinogenic mushroom, *Panaeolus cyanescens*, is legal and generally sold to the public in the form of a brewed tea. The most famous venue is Miss Brown's, located less than a mile from Negril on the Savanna La Mar highway. Although the market for the tea is mostly for tourists, the mushroom inevitably creates a reaction among the locals. While the Jamaican landscape is a lyrical place of outsider art and people who take pride in thinking on their feet, the cane farmers, cattle ranchers, and service people who cater to the ever-expanding tourist trade have little time for hallucinogenic mushrooms, and my friend Robin fits the Jamaican profile.

Robin's house at Retreat is seven miles from the Negril rotary. The Retreat farm valley is a two-mile-wide sea of sugar cane parenthesized by ancient limestone moun-

cont. p. 8

Weather sites (see “Whether the Weather” right)

<http://www.erh.noaa.gov/box/dailystns.shtml>

www.intellicast.com

www.weather.com

Forays and Weekends

Listed on Page 1 are the dates for the big forays and weekends that are coming up from July through the end of September. For some refresher information:

The Chanterelle Weekend in Londonderry, VT, looks to be a wonderful event. As of this newsletter going to print, about twenty people have responded. For details and booking, contact Claudine Michaud (718-622-5834 or 631-749-4398).

For information on the NAMA and NEMF forays that will both be happening in different parts of Canada in August and September, visit their websites: NAMA (<http://namyco.org/events/index.htm>); NEMF (<http://www.nemf.org>). The registration form for the NEMF foray was included in our spring newsletter.

We have a new walk on the schedule for this year at Clove Lake Park in Staten Island, NY, on Saturday, August 19. Frank Marra (718-448-3092) will be the walk leader. Directions are on the walks schedule and the walk is listed as “easy”.

The eleventh annual joint NYMS and COMA (Connecticut-Westchester Mycological Association) picnic at Pelton Pond in Fahnestock State Park, Putnam County, New York, will be on Sunday, September 10 starting at 10:00 A.M. We do an easy mushroom walk around the pond before lunch, gather for a potluck lunch, then a mushroom ID session (please bring any fungi that you want identified or just to show off!), and in the afternoon there will be a longer walk in the park if there is enough interest and mushrooms to find. Please bring plenty of good food and drink (wine if you want) to share with everyone. This year the clubs will be providing plastic forks and knives, plates, cups, napkins, etc. Do bring serving utensils for your dish. Pelton Pond has tables, both sheltered and outdoors. Walk leaders: Dennis Aita (212-962-6908) & Marc Palmer (718-636-6348 & 914-225-3721). There is no direct public transportation, so Dennis will attempt to get people rides or a pickup from the train station. Please call him (or email Denaita@verizon.net) if you need or can offer a ride as early as possible in order to make his task as easy

as possible!! If you arrive late, catch up with us by walking the yellow blazed trail around the pond in a counterclockwise direction.

The Catskill Weekend will be September 15-17 at the Crystal Spring House, Big Indian, Ulster County, NY. The price of about \$160.00 includes 6 meals and 2 nights lodging. Transportation costs are separate. Paul Sadowski is the contact person for this event. Reach him at: 212-348-3092 or pabloski@earthlink.net. 🍄



Whether the Weather

By Dennis Aita

Often during the summer and fall mushroom season, the question of where to go mushroom hunting becomes one of ‘what are the local weather conditions?’ Just because it has been raining cats and dogs in one locality doesn’t mean that 20 miles away—especially during the summertime with locally heavy thunderstorms—it’s also raining on your favorite mushroom patch. You will want to know where it has rained the most in the last week or two and how much it has rained.

Now you can easily follow where and how much it has rained with online weather maps at www.intellicast.com. This website has particularly useful “daily precipitation” and “weekly precipitation” maps that can both be found on the “Historic” submenu: click on “weekly precipitation” which goes directly to that map and then click on “historic”. Or, click on “US Weather”, “US Radar”, or “US Satellite”, to find the menu. You can then zoom in for a closer look. I like to save the weekly maps on my hard disk for future reference. This way I can see where it has rained over a period of several weeks. If you have a PC, the easiest way to save the image is to right click over it, choose “Save Picture As”, and save it into “My Pictures”. I also like to check out the 10-day forecast. Enter your zip code in the upper right corner to get it. (Sometimes it is accurate!) At that point you’ll also have access to the “Historic” menu.

Even more detailed local climatic in-
cont. p. 10

They're All Part Fungus:

Grass blades, coffee or cacao leaves... probably all plants

By Susan Milius

Reprinted from *Science News Online*

Week of April 15, 2006; Vol. 169, No. 15

"You've mistaken a fungus for a pine tree" can be a ticklish thing for one botanist to say to another. Yet, in the 1990s, one respected university researcher made that very accusation to another. Stories such as this have spiced botanist gossip for years, but in this case, the two scientists resolved their differences and published a paper telling the whole story.

Plant species of forests, deserts, and farms all seem to have fungi living deep within their tissues. Most of these hidden houseguests don't cause disease but can still have big effects on their hosts.

In the mid-1990s, Aaron Liston of Oregon State University in Corvallis was studying the evolutionary history of pine trees and managed to sequence a long stretch of DNA from pine needles. "It was still a big deal in those days," he says. He searched databases for genetic sequences from similar pine trees and found some that didn't match his results at all.

After more work, he became confident that his lab had the real pine-DNA sequence. He contacted Anita Klein of the University of New Hampshire in Durham, whose graduate students had contributed the other sequences to the database and used them in a journal paper.

"I broke the news to her slowly," he says. In a series of e-mails over about 2 weeks, he persuaded her that what her students had described as pine and fir genetic material wasn't actually from a plant. Nor was it from surface contamination or DNA wafting around the lab. It came from fungi living inside the needles.

In figuring this out, Liston says, he had the advantage of his colleague Jeffrey Stone, who was "one of the few people who knew and cared about fungal endophytes." These fungi grow intermingled with cells inside plants but don't cause any apparent disease. Thus, from the outside, a leaf may look like solid plant tissue, but deep inside, spaghetti-like strands of fungal cells twist among the plant cells. The fungi are ensconced far more intimately than are the microbes that thrive on the vast plains of human skin or in the wet caverns of animal guts.

Klein says that she now realizes that her lab's primers for the procedure preferentially amplified fungal, rather than plant, DNA. The fungi probably coevolved with their plant hosts, she says, so fungal DNA taken from seven-or-so spruce and pine species showed plausible relationships when regarded as a plant family tree. "I can look back on it now and chuckle," she says. "But I was devastated then."

Plant-entrenched fungi have been challenging to study, but modern molecular technology is finally revealing their world. Now, they're turning up all over, and their influence can be big, even though they are not.

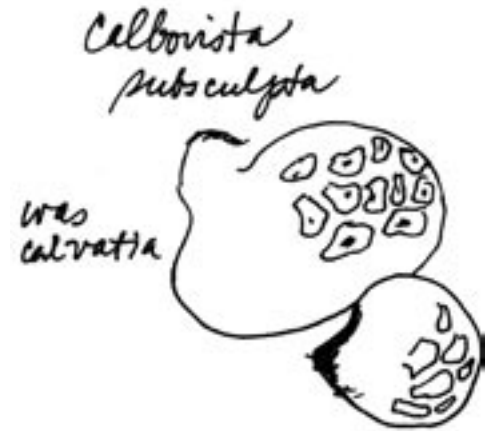
Fungus among them

Fungi can put the greediest human land developers to shame when it comes to turning open real estate into homes. Given just a few lucky breaks, some fungi exploit the vast acreage of leaf surfaces. Other fungal species target plant roots and show up routinely on some 85 percent of plant species. These mycorrhizal fungi can boost the root system's efficiency.

Fungal endophytes slip into plant leaves and stems to set up housekeeping between, or even inside, plant cells. Some fungal endophytes, such as those in tall fescue or other grasses, also infiltrate the seeds that their host plants are forming, thereby stowing away for the ride to the next generation.

More commonly, endophyte spores waft through the air in search of a new home.

cont. p. 11



*Tricholoma
vaccinum*



Drawings by Naomi Stern, bottom drawing of NYMS founder John Cage.

Wine Caps!

Three Recipes for *Stropharia rugosoannulata*

From Claudine Michaud on June 5, 2006

Here are my made-up recipes for the *Stropharia rugosoannulata* (Wine cap) that I found last week on chipped wood. They were so good, almost good enough to die for!

I made three types of meals depending on the shape or size of the *Stropharia*. They came in 3 shapes: (1) the very young with bell-shaped, reddish-brown cap with the annulus still attached, (2) the small and medium ones with the caps wide open, (3) the very large (one was 10 inches in diameter, very firm and clean with no worms!)

Baby Winecap Stew

8 cups of very young wine cap
 1 medium-sized onion chopped
 4 garlic gloves sliced
 ½ cup of red wine (or white, whatever you have)
 3 tablespoon of olive oil
 thyme, salt, pepper to taste

Leave the mushrooms whole. Heat the oil and sauté the onions for few minutes. Add the mushrooms and garlic, sauté 3 minutes, add wine, spices and cook slowly for 30 minutes. Adjust for taste and serve on rice, barley, pasta, or bread.

Broiled Wine Caps

Small and medium Stropharia with the cap open and flat

In a prepared baking pan (foil-covered if desired, and sprayed with oil), place the cap(s) gills up, sprinkle with oil generously, add salt and pepper and broil for 10 minutes. Serve hot as an appetizer.

Stuffed Stropharia

The very large ones (mine were 10 inches in diameter!):

2 large *Stropharia*
 oil, salt and pepper
 1 cup of breadcrumbs
 5 garlic cloves, finely chopped
 4 smaller wine caps chopped
 thyme, salt and pepper, parsley or coriander
 Grated Parmesan
 Olive oil

The *Stropharia*: place them on a prepared baking pan (see recipe #2 above), gills side up, sprinkle with olive oil, add salt and pepper, and broil for 10 minutes, set aside, save the juice for the stuffing.

Stuffing: in a frying pan, pour 3 tablespoons of olive oil, sauté garlic for one minute, add the chopped wine caps, fry for 5 minutes, add spices then the breadcrumbs. Mix everything well, add the juice from the broiled large caps. If the mixture is too dry, add some drops of wine or water.

Fill the caps with the stuffing, add the Parmesan to taste, and return to the oven for 5 minutes. Add either parsley or coriander before serving.

Serve for lunch with a salad.

Bon Appetit!



An extra-large wine cap found in Marbletown, NY, April 2006.

Black Trumpets with Cream and Dill

By Bob Hosh

Reprinted from NJMA News, Sept.-Oct. 2004

8 oz. fresh or 3 oz. dried and reconstituted black trumpets, cleaned and coarsely chopped

2 Tbsp. minced shallots

3 Tbsp. unsalted butter

2 Tbsp. flour

½ cup vegetable broth

¼ cup dry white wine

½ cup heavy cream

1 Tbsp. minced fresh dill

1 tsp. salt

¼ tsp. freshly ground pepper

Method:

Melt the butter over medium heat in a heavy saucepan. Add the mushrooms and cook for 6-8 minutes; add the minced shallots and cook about 3 minutes more. Dust the mushrooms and shallots with the flour and, stirring, cook for a minute or so. Then add the vegetable broth and white wine, stirring until smooth. Simmer this mixture for about 3 minutes and then add the heavy cream, salt, dill and pepper. Simmer for 2 more minutes and serve. This sauce goes well with fish.



Future Mushroom Tastings

By Dennis Aita

After the morel tasting there was a strong consensus that we should do more of these mushroom tastings. As I see it there is only one “slight” problem: getting interesting mushrooms at affordable prices. The fresh, cultivated morels directly flown in from Michigan were prohibitively expensive as are many of the other fresh wild and cultivated mushrooms found in the fancy food emporiums. I love to check out these places (Garden of Eden stores have the best selection in all seasons) but sometimes I just can’t believe the prices (Whole Foods was selling black morels that weren’t exactly in their prime for \$70 a pound on May 27; at the Union Square Greenmarket that day beautiful, large esculentas were selling for about \$100 a pound [they were from Herkimer County, NY]).

So for a scheduled tasting we need to think mostly about dried—or even frozen—mushrooms. Do we buy them, and are members willing to contribute some mushrooms? I have some dried collections of morels, black trumpets, and local “porcini.” I would like to do some more comparison tastings like the one in March and compare the following: our local porcini with dried Italian porcini, our eastern black trumpets (*Craterellus fallax*) with the western black trumpet (*C. cornucopioides*), our local morels with the Oregon morels (they were actually from SW Oregon and northern Californian), or even some other boletes such as *Boletus bicolor* or *B. separans* with the *B. edulis* group.

I am writing this on June 3 on just another rainy day. We’ve had plenty of rain in mid-May (lately it always seems to come just after our local morel season) and now again in early June. Unfortunately, these rains have meant—and will probably mean—little to finding the major spring and summer edibles. Too late and now too early. But if we should get some similar rains in late June, July, August, and September and even in October please think about putting some prime mushrooms aside for some possible future mushroom tasting and contact me. In order to do future mushroom tastings we will need to know where we can get our mushrooms before we schedule a tasting.

Black Trumpets,
Das Fleine Pilzbuch, Germany, 1912
(collection of Frank Spinelli)

Antifungal Invasion:

Garlic Mustard Casts a Pall on the Forest

By HENRY FOUNTAIN

Reprinted from the New York Times May 2, 2006

In drama, the uninvited visitor is a common plot device. Everyone is getting along swimmingly until a new character arrives and upsets the apple cart. Things quickly fall apart.

Garlic mustard, a tall weed native to Europe that was introduced to the United States in the late 1800's, is a bit like that uninvited visitor. Researchers have found that it disrupts a healthy relationship between hardwood tree seedlings and soil fungi, with results that can be disastrous for a forest.

Like other scientists, Kristina A. Stinson, who studies invasive plants as a research associate at the Harvard Forest, Harvard's ecology and conservation research center in Petersham, Mass., had noticed that native trees suffered in the presence of garlic mustard. "We thought their dependence on native fungi might play a role," Dr. Stinson said.

Many plants make use of arbuscular mycorrhizal fungi, which form an elaborate network of filaments throughout the soil. These fungi are a diverse group, but they all have one thing in common: they help plants take up nutrients from the soil, getting carbon in return.

Garlic mustard is a member of the mustard family, "one of the very few families that do not need to associate with mycorrhizal fungi at all," Dr. Stinson said. These species produce chemicals that have antifungal properties. Native mustards have been around long enough, she suggested, that the mycorrhizal fungi have learned to live with them. But the fungi haven't had time to adapt to garlic mustard. "It basically is killing off the fungi," she said.

In a study using soils from a forest in Ontario, Dr. Stinson and colleagues found that sugar maple and other hardwood seedlings grew much slower when the soil came from an area infested with garlic mustard than from a mustard-free area. The findings are published in the journal *Public Library of Science Biology*.

In studying invasive species, scientists often see a direct effect. Invasive cane toads in Australia, for example, wipe out snakes and other predators that try to eat them. But garlic mustard displays a mechanism that, so far at least, appears to be unique. "It's really a demonstration of how 'the enemy of my friend is also my enemy,'" Dr. Stinson said. By killing fungi, "it's disrupting this longstanding native mutualism."

Garlic mustard has now spread through 30 states, from Maine to Oregon, and into Canada. "When this plant shows up in a forest, the tree species themselves that become the canopy are most at risk," Dr. Stinson said. "That could have tremendous impact by changing the composition of the forest."

While the effect might not be immediate, it will occur nonetheless. "Our experiment was on seedlings," Stinson said. "But those are the future generations of forests." 🌱

cont. from Spinelli p. 3

tains. Robin said his family had been farming the valley for nearly 115 years. He knew Negril when it was little more than an inaccessible swamp but could not recall ever seeing mushrooms. G said he knew of a few places where we could look. He added there was a good chance of finding some specimens since the weather had been unusually wet and cool; the north front that had blown in had lingered and replaced the balmy sunshine typical of mid February.

Early the next morning G led me behind the house and to the edge of the cleared land so we could take a look into the dense bush. All that we saw of interest was a pair of plum-sized hermit crabs and some bleached white snail shells. After five minutes,

cont. p. 9



cont. from Spinelli p. 8

G cut through a wall of vines and creepers with his machete, and in a few strokes we were in another clearing on a path that wended down a limestone hill made bare of plant growth by a half-dozen goats tethered to pylons. On the other side of a swale, two donkeys stood tethered to stakes at the edge of the morass, a swampy, bowl-shaped depression bordering the cane rows. I asked G where the cows were. He said people didn't graze cows close to the road anymore because route taxis and small trucks would stop in the middle of the night, lead the cows into the cane, slaughter and quarter them, and then transport the meat to the markets. He added that a few months ago the authorities had apprehended a taxi driver who had eviscerated a goat, placed an overcoat over its shoulders and a hat on its head, and sat it upright in his cab's passenger seat. The driver was caught when he broke an axle on a pot-hole.

The marsh was covered in a dense growth of low-lying green vines. I was beginning to doubt our chances of finding anything until G called out, and in moments, I saw the flush of mushrooms. There were seven in different stages of growth, from buttons to full caps that measured from one-half to two inches in diameter. The mature caps were waxy, rippled, and a creamy bluish white that resembled old porcelain. A reticulated mocha color radiated three quarters of an inch from the crown toward the margin, where it was lightest in color; the unattached black gills were nearly crowded. Beads of dew were attached to the fibrous and brittle four-inch stem, which leached downward from a creamy white to a light brown at the base. A small white knob no larger than a dime anchored the mushroom to the earth. Black dots speckled a few of the stems. I felt a fleeting moment of larcenous guilt as I always did when finding an interesting or edible mushroom.

When I stood up to survey the landscape around me, I noticed the cane trash filaments, a byproduct of the cane fires, floating around me like black snowflakes. An opening in the cloud cover sent a round searchlight of sun racing across the face of the mountains a mile in the distance. I thought about the commonly described *Psilocybe* experiences: the feeling of being at one with nature, walls that breathe, and, of course, the spectral color enhancements. I had read that the Aztec word for *Psilocybe cubensis* (the first psychoactive mushroom documented by Franklin Earle in Cuba in 1904) was *Teotlaquilnanctli* (or *Teonanacatl*), "the mushrooms that paint." I stared down at the mushrooms and, although I knew this was not *P. cubensis*, I identified it as most likely another *Psilobin*-based mushroom, the *Panaeolus cyane-scens*. These were the mushrooms I had wanted to photograph.

After clearing the foreground growth with G's machete, I knelt, surveying the terrain for the best camera angle. Once I had the angle, I picked through pieces of briquette-sized donkey dung, grass and plant growth that impeded my view. My goal was to discover light or environmental elements that would lend a signature to the photo and to establish a point of view. While moving the dung, I couldn't help but notice the vast arrays of mycelia coating its underside. When I explained to G, who was watching the process over my shoulder, that the white thread-like lines were the body of the organism, he was quick to grasp the concept and asked if this was the same with all mushrooms. I nodded affirmatively.

While I was making my exposure, G surveyed the remainder of the morass and called out again. I collected specimens for a spore print and joined G and his new discovery. He had found a flush of velvety brown mushrooms with conical caps that were definitely not *Psilocybe*, but were also growing on donkey dung. I photographed the mushroom and collected one for a spore print. We ranged along the edges of the morass for another half hour, but found nothing more.

Back at the house, I prepared an area to make spore prints. I then drove the Polaroids over to Miss Brown's to corroborate my find by comparing my mushrooms with hers.

cont. p. 10



Photographs by Frank Spinelli



Orson K. Miller, Jr., passed away on Friday, June 9, 2006. Orson, who wrote *The Mushrooms of North America*, among other field guides, and who was at nearly every mushroom foray from coast to coast during more than thirty years, will be missed by mushroom hunters everywhere.



cont. from Spinelli p. 9

Identical. Some hours later, the spore prints were ready. I showed the black-and-brown prints to my friend Robin, who had never seen anything like them. Robin, a fellow photographer, mentioned that he had tried the Magic Mushroom back in the late seventies when he had been working in the darkroom for months printing a show for the National Gallery in Kingston. He said the mushrooms, when taken in small amounts, had given him the ability to stay focused at the end of a long and tedious printing process. He did say that he didn't know if the physical drain he experienced after the sessions had to do with the mushrooms or the stress of making perfect prints, but he had never sampled the mushroom again.

The following afternoon, G came down from his cottage to see the spore prints. By then the most mature of the mushrooms had melted into a black puddle and nearly obliterated its own print. With quiet authority, G took in the scene and added that he had asked a farmer friend about the mushroom. They agreed that they could not recall ever seeing the mushrooms growing on cow dung. G asked if he could see the film. I showed him the Polaroids again. He said that the Polaroids were the real magic in the equation. I replied, "G, you're just a wiz." 🍄

cont. from More(l) Thoughts p. 2

morel spots and that deliciosas will grow in somewhat slightly more acid soils. The other important point is that as one moves away from a morel spot the Ph of the soil almost always goes down (becomes more acid). I'd also like to clarify a couple of other points. First, to the north of New York City there are limestone areas in the counties along the Hudson River from New York City straight up to and into Canada. But one probably doesn't want to spend much time near the Hudson River as most of these are silty alluvial soils that are not derived from limestone. And then there are the glacial soils. The focus should be on the glacial limestone soils to the north of the glacial terminal moraine which bisected Long Island, NYC, and New Jersey and not on the terminal moraine in our area (During the interview I was talking about the moraine further to the west in New Jersey where several years ago one could find lots of elms and morels). Now it is in these glacial soils to the north where the American elm can still often be found.

Regarding the morel tasting, I preferred the "burn-site" black morels over the "natural" black morels which I was told are found in areas that had been logged within the year that they were picked. Other said they preferred the "burn-site" blacks but it's possible that they were agreeing with me just to be nice to the cook. We agree that many of us at the tasting disliked the "hot burn-site esculentas" (We also had them again at the Morel Breakfast and once again found them to be bitter). Studies have shown that when it comes to the bitter sensation there are three groups of tasters: (1) 25% of the population who can't taste bitter [these people should not be trusted to cook a mixed batch of boletes!], (2) 50% who are considered "normal" and taste some bitter, and (3) 25% who are considered "super-tasters" and are very sensitive to bitter. I think that this partially explains some of our reactions to the morels. Although these morels were slightly more expensive than the other black morels I don't think that we will be ordering any more of them in the near future.

Mushrooming,
Dennis Aita

cont. from Whether p. 4

formation can be found at the following U.S. government webpage (Northeast U.S. Climate Data): <http://www.erh.noaa.gov/box/dailystns.shtml> .This site has up-to-date climatic data including precipitation and temperature for weather stations in the Northeast. For New Jersey 15 weather stations are listed and for New York there are almost 40. So if you live in the City you can look at the stats for Central Park as well as weather stations all over the Northeast and see where it has rained the most. 🍄

cont. from Part Fungus p. 5

The spores are impressive at breaking and entering, says Elizabeth Arnold of the University of Arizona in Tucson. They usually don't take the easy way in, through a leaf's breathing holes. Instead, a spore typically lands on a leaf, germinates, and drills a strand of tissue right through the plant's fortified coatings.

A colony founded by one of these intruders typically grabs only a few cubic millimeters of internal leaf space, favoring locations near the plant's internal plumbing. The fungus lives off carbon and other nutrients from leaky pipes. Under a microscope, strands of the fungal lurker can be seen curving through the brickwork of plant cellular tissue. The fungus grows, often extremely slowly, by sprouting off more strands of cells.

For many of these fungi, scientists don't know how the life cycle wraps up, says Arnold. Somewhere, somehow, most of the species must make spores. Yet the fungal lurkers have only rarely been caught sporulating in living plant tissue.

that the endophytes, other than those in some grasses, wait until the plant dies to make their spores, says Arnold. A big benefit of invading living tissue might be preparation for fast postmortem access. "Maybe they're like little vultures," she says.

Whatever drives the plant-endophyte fungus relationship, it's showing up all over. Every one of the several hundred plant species tested so far has yielded lurking fungi, says Arnold. They've turned up in the little dryas wildflower of the tundra and in leaves of tropical trees. In 2005, an international research team even collected an abundance of endophytes from the innards of cacti.

A single plant species can have a large assortment of the lurkers. Arnold says that she was first jolted into an appreciation of the variety of fungi inside plants when she worked as a research assistant in Panama. To learn how the age of leaves influences their disease resistance, she placed strips of tropical-tree leaves on a standard lab-fungus food. The dishes turned into fantastical fungus gardens

with spots of white fuzz, dark slime, and colored fur. One of her prize specimens grew out in a cluster of little rounded arcs "like a green rose," she says.

A sample of 83 healthy leaves from just two species of tropical tree yielded more than 400 kinds of fungus living inside, Arnold and her colleagues reported in 2000. They called the fungi not diverse but "hyperdiverse."

Endophyte variety seems to far outstrip that of the plants they inhabit. In the tropics, there may be dozens of fungal endophyte species per plant. Researchers have estimated that Earth's endophyte species outnumber its plant species by a factor of four. More than a million kinds of endophytes might be lurking around us.

[Ed. Note: This is about half the article. The entire piece is available to subscribers only at <http://www.sciencenews.org/articles/20031213/fob7.asp>. I still have it on file. Email me at: pamkray@mindspring.com if you want to read the full article.]

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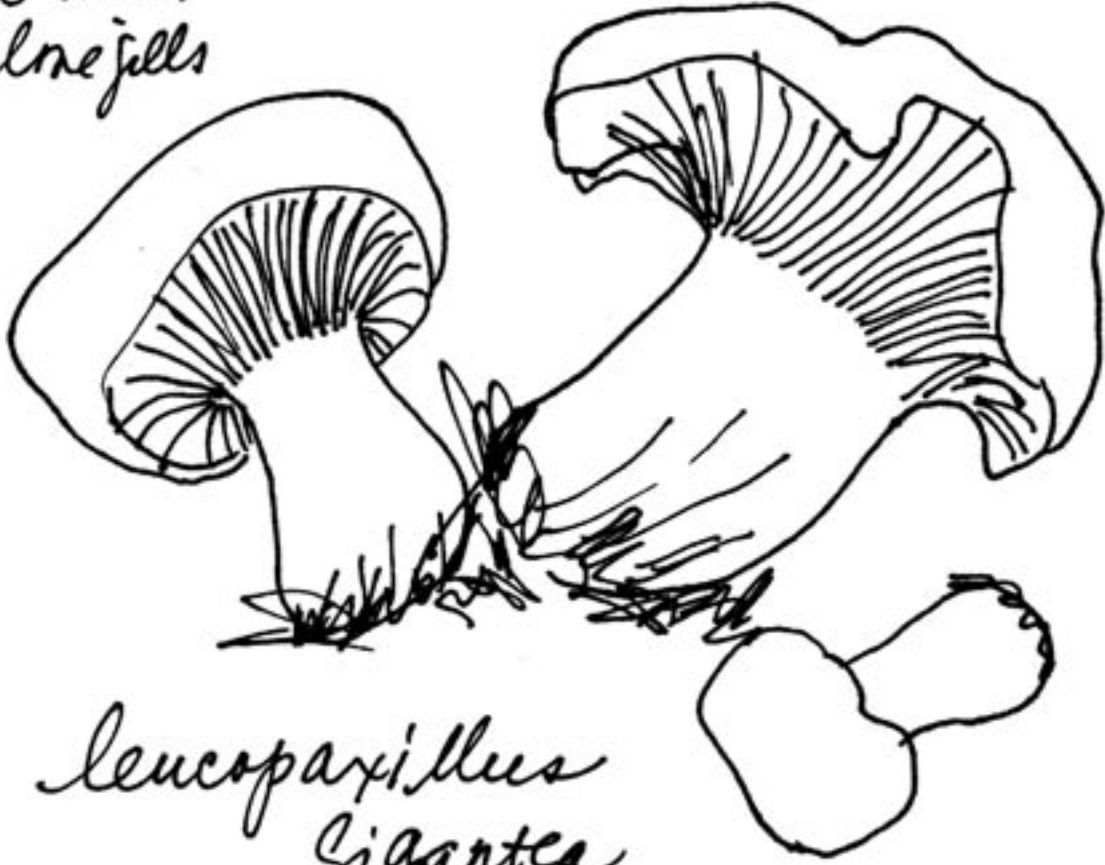
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