

Connecticut-Westchester Mycological Association

Spores Illustrated

**SUMMER
2009**



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www.comafungi.org

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All meetings are held at the **Friends' Meeting House** in Purchase, NY [see directions below]. Meetings are scheduled for **7:30 p.m.** and are open, free of charge, to the public. Bring samples of your fungi finds to all of our evening programs and we will help you with identification.

COMA Programs – Summer 2009

Wednesday, July 1; 7:30 pm

The Good, the Bad, and the Deadly – Mushroom photographer extraordinaire Taylor Lockwood will present his new DVD on how to identify edible mushrooms and their poisonous look-alikes. Taylor's presentation focuses on eight groups of toxic mushrooms, their characteristics and symptomatology, and how to identify them in the field. The program will feature Taylor's superb mushroom photography. Both the talk and the DVD will provide essential information about mushroom identification for both beginners and advanced amateurs – don't miss it!

Directions to Friend's Meeting House

From I-684. Take Exit 2 to stoplight at Route 120 (Purchase St.). Turn right and go one mile to a sharp left turn (following Rt. 120). The Meeting House is on the left at the corner.

From I-287. Take Exit 8 (west-bound) or Exit 8E (east-bound) and follow signs for Anderson Hill Road and SUNY Purchase. Take Anderson Hill Road to Route 120, turn left and go about two miles to the intersection with Lake St. The Meeting House is on the right just before the intersection.

Mushroom University-Testing Classroom Studies in the Field

By JJ Murphy

As I write this article, I'm reaching for my Mushroom U. notes and getting ready to apply my study of Lactarius and Russulas to my discoveries in the field.

Unlike the Bolete lessons of last year's Mushroom U. classes, Russulas do not reveal their identities readily. I've got my work cut out for me if I'm going to successfully identify the Russulas I find.

My first encounter with a Russula was a few years ago when "Wildman" Steve Brill encouraged his then toddler, Violet, to throw the brittle mushroom against a tree. It shattered in a spray of white shards as Violet giggled and her dad beamed. Some mushrooms are not worth eating and this was an effective lesson, if a little harsh on the mushroom.

Edibility is typically a great motivator when learning new fungi. My fellow COMA members fall into two distinct groups: those who say some Russulas are indeed edible and those who consider Russulas as undeserving as Half-free Morels.

So what's my motivation to learn more about the lowly Russula? A promise made in class to contribute to the scant and often contradictory published information on Russula identification. I'm also working on improving my nature observation skills.

With any luck, I'll have a large supply of Russulas to study, including the edible ones, with a surplus to throw some against a tree when my pursuit of knowledge becomes frustrating.

JJ Murphy, www.WriterByNature.com is a freelance nature writer, photographer and passionate aspiring mycologist.



Russula emetica photo by Dianna Smith

Charles Darwin Speaks at COMA Meeting

by Rena Wertzner

You can imagine the surprise when COMA members who came to the May 19th meeting learned that Gary Lincoff would not be the speaker, but that he had arranged for Sir Charles Darwin to speak in his place. It was truly a moment of shock and awe.

After the initial surprise, Sir Charles proceeded to give us a stirring account of his five-year voyage aboard the Beagle. Knowing that his audience was primarily interested in fungi, he explained why his collections of fungi were relatively scant compared to his collections of plants and animals. This was due, in part, to the difficulty of transporting fragile specimens and to the nature of the habitats which he encountered, frequently describing them as “barren and sterile.”

Most interesting was his description of a fungal tree parasite which he found in Tierra del Fuego. “It is a globular, bright-yellow fungus which grows in vast numbers on the beech-trees. When young it is elastic and turgid, with a smooth surface; but when mature, it shrinks, becomes tougher, and has its entire surface deeply pitted or honey-combed.” This fungus seemed to be the only vegetable material in the diet of the del Fuegians.

Sir Charles appeared to enjoy his brief visit with our COMA members and was surprised and pleased to hear that everything he had ever written was available to us at www.DarwinonLine.com. To learn more about Sir Charles and his discoveries, this would be an excellent place to start.



Sir Charles Darwin as he appeared at the COMA program, May 19, 2009

GROWING MUSHROOMS IN YOUR GARDEN by Bill BakaitisFruiting *Stropharia rugosoannulata*

Collecting spawn

Consider planting *Stropharia rugosoannulata* in your garden this spring. If you like to eat mushrooms, and would like to gather them fresh, along with your vegetables, now is the time to consider inoculating a piece of your garden. You can easily fit a patch on one of your paths or tuck it into a mulched weed barrier. Here is how.

First find yourself some fruiting *Stropharia rugosoannulata*. From May through June it can be found in a wood chip pile near you. If there is an easier mushroom than this to grow I certainly don't know it. At the moment (mid May 2009) it is fruiting, not only in our garden, along with the asparagus, but in heaps of wood chips throughout the area. Look and ye shall find; under the Rhododendron or Azaleas or roadside in the piles of wood chips thrown there by the power line maintenance crews. If you get really hard up, try one of the green composting facilities like the one behind Vassar College in Poughkeepsie NY, or purchase some ready to grow starter from Fungi Perfecti, <http://www.fungi.com/>.

I first became acquainted with this mushroom in 1984, finding it in the Cary Arboretum Rhododendron and Lilac gardens. The plant scientists at the arboretum had never seen it before, nor had I, but it was very easy to identify.

When I checked Gary Lincoff's description of the mushroom in *The Audubon Field Guide to North American Mushrooms*, I was struck by his comment, "This flavorful edible can be gathered week after week on compost or wood chips, where it produces hundreds of large, firm, fleshy mushrooms" (729). So I just grabbed a handful of mycelium and stuck it around under the base of a pile of wood chips near the barn, sort of like sweeping dirt under a rug. Nothing could have been simpler. They grew just as he said they would, and have become part of my garden routine ever since.

The following is how I described the process in 2001 for "Mushroom; The Journal of Wild Mushrooming". The editors, with wry humor, subtitled the piece "With some effort this spring, you'll be able to go on mushroom walks ON your mushroom walks". Since the MTJ articles have not been digitized, I include this one in full, along with suitable images and comments from our recent garden activities.

COMA

Raising Stropharia on Your Paths. (Issue 74, Vol. 20, No.1 Winter 2001-02 MTJ)

There comes a time in mid summer when without rain both the land and imagination become parched. It seems as if there might never be another mushroom. Thoughts of roaming forests and fields wither. Plans for collecting never germinate. Dust and heat desiccate the soul. In such a year August is the cruelest month!

So it was last summer, dry and empty. Then in mid-September a brief shower, the first in nearly four months, and suddenly in a wood chip path of my garden moist bumps appeared. In a day they turned into large umbos, silvery gray with lilac gills, a double ragged ring, white rhizomorphs rooting from the base of the stipe into rich mycelium which cemented the path together – *Stropharia rugosoannulata!* More emerged with each subsequent shower. A good peck and a half appeared with the first tropical down-pour to drench the area, but only some of my paths responded to these rains, the ones that got the dog food.

As is my custom, I double dig my gardens, enriching the soil every fall by incorporating mounds of leaf litter and manure from a crew of willing horses and sheep. I make large heaps of soil and organic matter in November when the garden is put to sleep, and often incorporate into this stew the decomposed wood chips of my paths. The paths get dug under every two years or so, after the *Stropharia*, which had been previously introduced, has had a chance to run its course.

Spawn is collected in the spring from active flushes (selectively available throughout the area where road crews have dumped their chips). I just take a garden fork and lift up the soil, mycelium, sporocarps and all, and stuff it into a plastic garbage bag that is then hauled to my garden and dumped into the new path. Collecting spawn is as simple as digging up a forkful of mushrooms, wood chips, mycelium and soil included. I do this in May when the *Stropharia* fruit. It generally takes a full year for my paths to produce, and I can usually count on another, smaller crop the second spring as well.

It is in the second fall that I scrape the path down to mineralized soil, pitching the remains of the wood chips and remaining mycelium into the giant compost piles where, in theory, it aids in the breakdown of the leaf matter over the winter. (I have also learned to pass a lawnmower over the leaves as I heap them onto/into the piles. By spring this preparation is ready for redistribution and planting, "Black Gold" according to some.)

This spring (2001) when the new paths were set out, I tried something a little different with the inoculant – in some paths I mixed in some dog food soup with the *Stropharia* mycelium. I recalled hearing once in a microbiology lab that boiled dog food was a good substitute for Bengal Rose agar as a culturing medium, so I reasoned that a little dry dog food sloshed around in some warm water and dumped into the path might give my *Stropharia* inoculant a boost. Nothing fancy, certainly no sterile techniques, no autoclave, not even boiling water. After all there is dirt and contamination everywhere.

The technique is simple: strip the path down to the mineralized soil, throw the inoculant along the path, cover with a thin layer of wood chips, then the dog food soup (a couple hands full of Senior blend soaked in a 5-gallon bucket of warm water with a few mature mushroom caps thrown in), followed by a 4-inch layer of wood chips. It is now a path. Walk on it. Strip the soil from the intended bed. In this case a mulched weed barrier on the outside of our garden fence. A layer of soaked cardboard, an additional weed barrier and a Paul Stamets recommended enhancement is laid as a foundation. Stem butts, clumps of mycelium, and bits of mushrooms are laid on, in and next to the cardboard, our finished weed barrier mushroom bed. Wood chips, freely available from transfer and recycling centers, are used to cover the bed. In my experience mixed hardwood chips work best. If you already have your paths in place try inserting stem butts or mycelium right into the established path.



Water-soaked cardboard



Mycelium in place

Stropharia patches should be maintained by annual additions of fresh wood chips.



Stropharia planting

Well-maintained inoculated paths

Since the only paths which produced mushrooms in the rains of that September, 2001, were the ones enriched with the dog food, I am assuming that this technique may have been responsible. It is the first (and only) time I have coaxed up a flush of Stropharia in only four months, and in a very dry year to boot. So, here's some food for thought, and another possible take on the "Dog Days of August". (In a replication of that 2001 experiment, one arm of our 2009 weed barrier bed shown above was enhanced with some cat food soup; one without. Results may be available by fall. Stay tuned.)

In the years since this MTJ article ran, Paul Stamets published a dandy book, *Mycelium Running*, replete with simple mushroom growing techniques. You will want to own it if you intend to grow your own mushrooms. By way of contrast, to the simplicity of the rough and ready techniques described above, you might like to check out the sophisticated techniques and industry standards at www.unicornbag.com/cultivation/stru.shtml.

Other mushrooms beside Stropharia will undoubtedly come to live in your bed. The one most likely to be confused with rugosoannulata is *Agrocybe dura*, another common, mulch-loving, spring mushroom. It can be found in most field guides. It is not recommended for the table. *Agrocybe dura* is a non-edible, easily identified, contaminant of our mulched beds.

(For more photographs of the planting process, go to <http://www.leslieland.com>)

The Million Trees Kids by Gary Lincoff, 2009

In early December I was asked to teach a basic botany course to a group of kids in the Million Trees NYC Training Program. I wasn't told much more than that the kids were around 20 years old, many of them hadn't finished high school, and that they had applied and been chosen for this program. I was also told the class would be large, as many as 30 students, and that there would be 3 supervisors in the classroom at all times, which got me wondering why. On the first day of class, at the time it was scheduled to begin, only two of the supervisors were there and only a handful of students. A cell-phone call from the missing supervisor informed us he was in traffic with a van full of students.

Eventually, the classroom filled and I was introduced to a room filled with high spirits and a short attention span. The boys were asked to take their hats off, but most wouldn't, or wouldn't keep them off. One of the girls got a cell-phone call and tried to carry on a conversation in class. I was there to teach them about cell division and photosynthesis and plant families. I knew I was being tested; I just didn't know why. This class wasn't my usual group of middle-aged, upper-middle income Whites from the suburbs. These were minority kids from the projects. Botany for them wasn't a given; it would be a hard sell.

By the end of the first class, though, thanks to an endless stream of stories about plants that I was able to dredge up from long past trips to the Amazon and adventures with plant and mushroom hallucinogens, I finally got their attention. I never had a problem with the kids in the first row; they were always eager to learn, but the back rows had to be convinced that botany was cool, that it was for them, that it was something they could imagine seeing themselves doing as a career.

I was one of several teachers at the New York Botanical Garden who would be working with this class. The students would take courses on soil science, tree and shrub identification, planting, pruning, plant diseases, pest management, even tree climbing. It would be a seven month ordeal. Attendance was mandatory. There would be homework, projects to do, tests to take, and grades.

On Friday, May 29 I attended the graduation ceremony of this first class in the Million Trees NYC Training Program. It was held at the Central Park Arsenal. Parks Commissioner Adrian Benepe welcomed everyone, as did First Deputy Mayor Patricia Harris. The kids were in the same high spirits as I remembered them on the first day of class, but they looked different. Many were dressed up, none wore a hat, and that chip on so many shoulders was noticeably absent. They received diplomas, many received special awards, and one even had a perfect 4.0 grade average! They were all going to interviews for green collar jobs, some had already secured positions, and with the backing of the city and the foundations funding this project it looks like this first class in the Million Trees NYC Training Program is a resounding success. So much so, that a second class is in the works for the fall.

And, oh, I was invited to attend the graduation ceremony because they wanted to present me with a "Best Teacher" award. I knew some of what I taught them had stuck because they welcomed me by talking the language of botany, that this tree outside had opposite branches, that that plant had compound leaves, that the strawberries served at the rooftop luncheon following the graduation ceremony were in the Rosaceae. I couldn't

have asked for anything better. One of the graduates, who got to speak during the ceremony, would have made Robert Frost proud. He said when his friends ask him now what he's doing, he says, with a confidence born of experience, "I climb trees."

The program at the New York Botanical Garden, MillionTrees NYC Training Program, run by the Department of Parks and Recreation, is financed in part by the Mayor's Fund to Advance New York City, a 501(c)(3) not-for-profit organization established to promote partnerships between the City and the private sector. If you go to the "Mayor's Fund to Advance NYC" website, and click on 'Projects', you'll find a write-up about the MillionTreesNYC Training Program that this article is about:

Launched in November 2008, the MillionTreesNYC Training Program is a 7-month green collar job training program in support of the MillionTreesNYC initiative. The objective of the MillionTreesNYC Training Program is to help disengaged young adults aged 18-24, a target population of the Mayor's anti-poverty efforts, develop marketable employment skills to meet the growing need for qualified "green collar" professionals in the arboriculture and landscape industry as a result of MillionTreesNYC. Instruction in arboriculture, ecological restoration, and garden restoration and design is provided through in-the-field training at the Parks Department and New York Restoration Project. The Program also relies on the collaboration of other MillionTreesNYC non-profit partners including the New York Botanical Garden which provides a customized educational curriculum in botany, horticulture, forestry, and soil science for the participants, and the Lower East Side Ecology Center, Trees NY and others who provide certificate training.

What the above write-up doesn't reflect is the change I saw in the kids at their graduation ceremony. They were not the disengaged young adults described above, but a group of enthusiastic, forward-looking, accomplished graduates with marketable employment skills in the process of becoming green collar professionals.

Gary receiving award for best teacher



MillionTreesNYC graduates



Two Countries Separated by a Common *Mycota* by Peter Russell

When I moved to New York from England a year ago, I was excited by the prospect of foraging somewhere completely different, as for years I had rarely strayed beyond the borders of my home county of Sussex, and instead contented myself with finding out what grew where in my local woods and grasslands. Flicking through the American field guides, I was encouraged by so many species with the same names as those I was familiar with at home. I came armed with a must see list of species that were very rare back home. However having been coming on Coma forays for the last year, I have been surprised at how different fungi are over here. Just a few notes on some of the differences:

My first foray was the annual Morel hunt at Tallman State Park. My sole find on that day was a large False Morel. In England I am used to finding *Gyromitra esculenta* which has a narrow stem and a brain like cap appearing like a Turban perched on top; but the False Morel I found appeared different in having a very wide stipe and a squarish cap, although it shared the same characteristic of a solid stem that separates the False Morels from the true Morels. What excited me was that this *Gyromitra gigas* was last recorded in England in 1916 and over there is classified as extinct in that country's red data list of threatened fungi. It is not uncommon here judging by the fact it's been found on several forays I've been on.

One exciting find was visiting a Farmers Market in Brooklyn and finding a stall with boxes of Lion's Mane (*Hericium erinaceum*). Although these had been farmed, I was just as excited by tales from fellow Coma members of finding and picking them in the wild. In England this is a very rare species that is protected by law and it is illegal to pick. I had only seen it once on the front page of my local newspaper when somebody had reported a find. It forms a spectacularly conspicuous fruiting body, and has been described as the most beautiful fungus. It is a member of the wood-inhabiting *Hericium* genus that bears spores on white downwardly pointing spines (hence the common name of Tooth or Spine fungi). It is the only member of the genus that when mature bears the spines in a single clump rather than a branched structure. It tends to grow on trees that have been damaged by gales or lightning, usually on fallen trunks, but sometimes on living trees. It seems to be restricted to ancient woodland which has been continuously wooded for hundreds of years and also to large fallen logs. Both are rare habitats in England because most woodland has been felled and replanted, and most woods are kept tidy and clear of dead standing timber. I thought a lot of the woodland in Westchester was fairly recent secondary growth, so am surprised it is so common.

One of the biggest surprises was that some of the most familiar species to me in England looked so very different over here. One of the first examples I found was the Blusher, *Amanita rubescens*. Although it has the same distinguishing features of an indistinct stem base that lacks a prominent sac like covering or rim and has a tendency for the flesh to discolor pink or red, the shape just looks so different having a long thin stipe. Even more surprising was that the person who first showed me a specimen put it straight into a frying pan and proceeded to eat it. Most guides in England would recommend boiling beforehand. I can't believe these are the same species.

One of my main interests in England was searching for old grassland that had been unimproved by fertiliser. That is a rare habitat nowadays as most farmland has been improved. But refuges can still be found such as old cricket greens, steep downland slopes, and, very occasionally, pasture still farmed in a traditional way. There is a distinctive fungal community that seems only to be found in such places. It is called after the four main taxonomic groups of which it is comprised, the CHEG fungal community: Clavariaceae (Fairy Clubs), Hygrocybe (Waxcaps), Entolomataceae (Pink Gills), Geoglossaceae (Earthtongues). When the brightly coloured Waxcaps are fruiting, it can give the appearance of a field of flowers bringing a flash of color to a dull autumn day. The richest sites I have found have had scores of such species, sometimes all within a very small area such as a village churchyard. The nutrient status of the soil is key to the presence of CHEG fungi. It appears these fungi are adapted to growth in very low-nutrient soil and can access nitrogen locked up in soil organic matter. The addition of nitrogen (e.g. fertiliser or excess manure) allows other microbes adapted to uptake of more accessible nutrients to outcompete and exclude them.

This community seems to be lacking in America for reasons not immediately clear to me. Many times I have passed what looks like a suitable habitat of a short mossy sward, but have found nothing on inspection. Yet the species themselves are found in woodlands. I have several such as *Hygrocybe conica* and *H. virginea*. Those two are probably the least representative of the community as they are amongst the first to colonize improved grassland.



Peter with his camera



Gyromitra gigas

Wine-caps in Wine*

0.5 tbs. olive oil

12 c sliced *wine-cap Stropharia* mushrooms

0.5 tbs. freshly ground fennel seeds

0.5 tbs. salt

0.5 tbs. fresh ground nutmeg

6 tbs. fresh lemon juice

6 tbs. white wine

1) Heat oil in a large skillet over medium heat. Cook mushrooms, stirring often, until they begin to release liquid, 3 to 5 minutes.

2) Stir in the remaining ingredients, and bring the pot to a boil. Reduce heat to low, and simmer, covered, for 15 minutes.

3) Uncover, and cook the mushrooms over high heat, stirring constantly, until all liquid is evaporated or absorbed, another 5 to 10 minutes. (Add protein if desired, to make a balanced main course.)

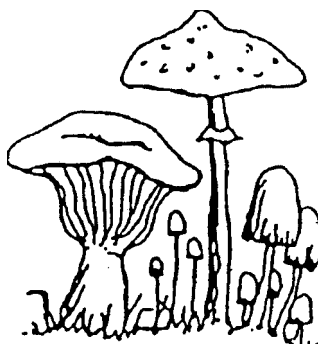
Serves 6. Serve over pasta or rice.

(*courtesy of "Wildman" Steve Brill, from *The Wild Vegetarian Cookbook*—see <http://www.wildmanstevebrill.com/Web%20Recipes/Mushroom%20Recipes/Wine%20Caps%20in%20Wine.html>)

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Register now for COMA's ROGERSON FORAY- Only a few spaces left.

Contact Don Shernoff: 914-761-0332, or see www.comafungi.org

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