LONG ISLAND MYCOLOGICAL CLUB *http://limyco.org*

L.I. SPOREPRINT

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MUSHROOM DAY 2005

SUNDAY, OCTOBER 16

All LIMC members are invited to join us at our annual public mushroom exhibit at Planting Fields Arboretum. **The public display will run from 1 to 4 PM, but if you wish to help, arrive around 12 noon to help in setting up the exhibit**. Mention your membership to the gate attendant to avoid the entrance fee. Bring any interesting specimens that you find for exhibition and identification .

Following the exhibit, we will hold our annual meeting which this year will include an election for president. All other offices are presently filled except for species recorder, for which volunteers are sought. Be sure to attend in order to cast your vote or bring up topics of interest.

A Long Island Fungus Farming Ant

Most of us are aware of the leaf cutting tropical ants, which have been cultivating fungus gardens for more than 50 million years, and are confined to the Americas. We have mentioned recent discoveries regarding their farming practices in the "Gleanings" column, and natural history programs on television have publicized their columns of tireless workers holding aloft their tiny green prizes. (Above their head like an umbrella, which is why they are sometimes called "parasol ants".) But not all fungus ants are leaf cutters, and some species collect insect parts, caterpillar droppings and other frass to provide a substrate for their gardens. One such, I was surprised to learn, colonizes the southern United States, and reaches, in its northernmost extension, to the pine barrens of Long Island.

Trachymyrmex septentrionalis, commonly known as the Southern Fungus Farming Ant, (see illustration) lives in small, inconspicuous colonies of 500 to 1500 individuals. They are found in the Pine Barrens, where their nest entrance is usually hidden in sandy soil among fallen pine needles, but may be discovered by the excavation mound nearby, which takes a semicircular or lunate pattern. The average nest depth is 3 feet or less and consists of 2 egg-shaped chambers, where the fungus is grown, and where their eggs hatch. Larva feed exclusively on the fungus, or to be exact, upon specialized fungal cell protuberances called gongylydia, which are nutritive bodies produced only in ant colonies, and which perhaps represent the fungus's "remuneration" of their caregivers, somewhat in the fashion that, e.g., corn under cultivation produces larger and more nutritive kernels than the ancestral wild variety. In other words, biologists raise the question, "Is the ant domesticating the fungus, or the fungus domesticating the ant?"

(Continued on page 4)

PRESIDENT'S MESSAGE

Except for some unexpected Boletes, this summer has been very disappointing. The summer Bolete, (*Boletus reticulates/ aestivalis*) made a welcome early appearance; *Boletus pallidoroseus* and *B. bicolor* were also found in abundance in the same week or so. (I dried a lot so there will be plenty for our soup at our annual luncheon.) Plenty of *Lepiota americana* were also around, growing on chips; Sulphur shelf made an appearance. Unfortunately, none of the above occurred during the few forays we had. Never have I seen such a dry season. Awful!

On a more positive note, the NEMF Foray was one of the best I've ever gone to. Twelve members of our club attended, which is a very high number. It was hot beyond belief in Waynesboro, Pa. Mushrooms perished on the tables just deliquescing away as there was no AC in the display area. The classes of the many mycologists and their approachability made up for the lack of mushroom species found.

Upcoming events are Mushroom Day at Planting Fields on October 16th. I urge you all to help out with our display if you can. We need a lot of species to fill the tables so bring what you find. Also, our annual luncheon will probably be the Sunday before Thanksgiving so keep that date open.

Lastly, farewell to member Bernd Foerster. He is relocating to Brazil. He'll probably find many mushrooms that we don't have. Good luck Bernd!

EDITOR'S NOTE

If you look at the weather page summary in the Sunday NY Times, you will see that rainfall in the NY City area for the past year was just about normal. This discrepancy with what our senses and memory tell us is the result of several factors: firstly, local geographic variation can be great, particularly during the summer season, when scattered thunderstorms produce much of our rain; and secondly, the fact that long term invariance is the result of short term extremes. These facts, plus the lack of available local detail in precipitation amounts, makes it very difficult to predict when and where we can expect local mushroom fruiting.

Even when rainfall occurs, there is still the question of how long an interval there can be before mushrooms appear. Tiny grass dwellers appear the next day, but larger fungi take longer. The Summer Bolete Peggy refers to above made its appearance about 10 days after significant rainfall; a similar lapse of time occurred for our bountiful harvest of both *Grifola* and *Laetiporus* last October.

Why not keep your own records of this interesting phenomenon, and let us know what you find? Its something to discuss during long winter nights.

MATERIAL FOR THE WINTER, 2005 EDITION SHOULD REACH THE EDITOR BY NOVEMBER 30TH

(Submissions should preferably be typed or submitted in Rich Text Format on PC floppy disk or by e-mail)

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SCANNING FOR 'SHROOMS

by Joel Horman

Over 60% of club members have an email address, and therefore a computer. Not everyone, however, owns and uses a digital camera, which is one of the most convenient ways to document the appearance of an interesting or visually appealing mushroom. Digital cameras, however, have their limitations, particularly in photographing tiny specimens or close-up details of larger specimens. Many of us do own digital scanners and copiers, and I have found this an excellent method of image recording, both for documentary and aesthetic purposes.

Clavicorona pyxidata, medium background

Of course, readers will immediately be dubious of being able to use a scanner without crushing the specimen, which would occur when one lowers the scanner lid. The way around this is to obtain neutrally colored, opaque plastic dishes with deep sides, such as are used for food storage or freezing. These are cheap and easily obtainable; however, you will have to obtain those that do not have a pattern or trademark on the bottom, which may require some searching.

Marasmius, showing gill detail

To scan your specimen, place it on the scanner bed, and position the plastic dish or tub over it before lowering the scanner lid. Various brands of scanners have different options for the actual scan, and you will have to experiment with yours to find the proper settings. In general, we want a full color scan, at a resolution of about 300 dpi (dots per inch), which is more than sufficient for computer viewing or emailing. If you intend to print the photos, you may need a higher resolution, perhaps as much as 600-900 dpi, depending upon the photo size, but this increases scanning time greatly. It is always best to save the image as a jpg, a compressed format that is more versatile.

Scanner images differ from digital camera images in that they are not captured from a particular point (the lens opening) but are "seen" by the scanner from each and every point on the surface of the scanned object. This lends equal clarity to the entire surface (barring shadows) and creates a sculptural, three dimensional effect. (See examples this page.) It is best to obtain plastic covers of different neutral shades, with the darker hues being a more effective background for white or light colored specimens.

Coprinus micaceus, contrasting backgrounds

Inocybe lacera, light background

Many times, you will find that the scan is unsatisfactory in some respects: color, contrast, etc., and will have to be modified by a photo editing program in order to preserve the appearance of the original. Those who have a digital camera will be able to use the associated editing software. If you do not have such a program, there are several options. Firstly, those who have updated to Windows XP have a simple built-in editor in Microsoft Office Picture Manager, which permits adjustments for color, brightness and contrast, and also allows cropping and resizing. For those with older operating systems, free software is available at picasa.google. com/index.html or www. gimp.org. Photoshop offers a trial period for its well known applications at adobe.com/products/ photoshopelemwin/main.html. A simple, free, permanent version (Elements 2.0) is available at adobe.

FUNGUS FARMING ANT *(Continued from page 1)*

This is not as far-fetched as it might sound when we consider such evolutionary developments as the aromas produced by truffles to entice their mammalian disseminators.

Human agriculture, though hardly as ancient, is speculated to have arisen in parallel ways. That is, by foragers accidentally dropping fragments (seeds or spores) in the vicinity of the dwellings, leading to some sort of continued interaction and feedback between the two organisms. In one case this has led to a long history of coevolution, and in the other to directed breeding, although as Darwin remarked, "the art has been simple and .....followed almost unconsciously."

While tropical fungus ants can be active all year round, their northerly representatives are faced with the onslaught of freezing winter temperatures, when no fungus can grow. At this time, they are forced to hibernate, and will not become active again until temperatures rise high enough in the Spring to activate their fungus garden. The fungus also remains in an inactive form during this time, but its exact nature is not known.

Although *T. septentrionalis* does not normally cut leaves, there is documentation of their occasionally doing so in early Spring, when their usual insect material is not available. The higher attine ants, of which *T. septentrionalis* is one, will also gather wild fungi from the field if for some reason they lose their traditional source. (*Trachymyrmex* queens normally transfer a bit of the fungus to a new colony by means of a specialized pouch in their cheek. On L.I. the mating flight takes place in early August.) However, they confine themselves to species very closely related to the original, normally a member of the *Leucocoprineae (Leucocoprinus, Leucoagaricus,* and *Lepiota)* and in experiments, refuse all others. Persistent cropping by the ants prevents the development of any fruiting bodies, although abandonment of the nest may permit such fruiting, as also occurs in African termite colonies, where giant *Termitomyces titanicus,* much sought after by foraging humans, can reach three feet in diameter. However, some farmed species are so highly domesticated that they occur in ant nests only in a yeast-like form and never form fruiting bodies. While the continental separation of *Termitomyces* was long believed to be absolute, Dr. Roy Watling, in his presentation at NEMF 2005, revealed the startling news that it has recently been identified in tropical America, although its symbiotic helpmate remains unknown.

Other genera of the tropical Attine ants cultivate the pterulaceous or Coral fungi, and the more primitive of these weave the hyphae into a veil-like covering that covers the colony like a tent, rather than having an underground nest.

Southern Louisiana, Texas and Arizona are host to several species of leaf cutting ants belonging to the genus *Atta* and *Acromyrmex,* which are at the northernmost limit of their range.

Europe, on the other hand, has no fungus farming ants, but the European forest ant, *Lasius fuliginosus,* uses an ascomycete fungus, *Cladosporium myrmecophilum*, for structural purposes, reinforcing its sponge-like nest with the fungal mycelium. *Cladosporium* usually infests decaying plant material, but this particular species is found nowhere but the nest of *L. fuliginosus,* in a mutualistic symbiosis.

Like human farmers, the fungus ants are cultivating a monoculture, and even after 50 million years, they are only one step ahead of invasive pests and parasites.

Rina's Hen or Chicken Mushroom Easy Sauté

Cut the mushrooms into even slices. Heat up some olive oil in a pan; add thyme and rosemary to the oil, then add shallots and saute.

Once the shallots are cooked add the sliced mushrooms so they cover the bottom of the pan, stirring and flipping mushrooms so they cook evenly. Add salt and pepper to taste and a bit of white wine or cooking sherry at the end to deglaze the pan. Serve hot and enjoy.

(*Recipe by Rina Torinese, via email)*

Special East End Foray

On Saturday, Oct 8th, the North Fork Audubon Society has invited Peggy to lead a mushroom walk at the Greenport Nature Study Area, also known as Moore's Woods, which will start at 10 AM. The starting point will be at the Moore Ave. entrance, directly behind the ball field, between Route 25 and Route 48. All LIMC members are welcome, and we would especially like to see those East End members who have found it inconvenient to attend forays further west. Rain or shine. The Muttontown foray will be held.

■ **DONT BLAME TABESCENS:** A 2002 study by University of Missouri researchers in the Missouri Ozarks investigated the role of *Armillaria* species contributing to oak decline. While major hosts included dogwood, red oaks and white oaks, *A. mellea* caused almost all recent oak mortality, while dogwood more often fell victim to *A. gallica (54% to 38%). A. tabescens* was not shown to contribute to mortality significantly.

(*Inoculum, supl. to Mycologia, Vol. 56 (4), Aug., 2005)*

■**THERE'S GOLD IN THEM THAR 'SHROOMS:** Czech scientists measured gold content in ectomycorrhizal and saprobic macrofungi growing in the wild in the Czech and Slovak republics. Measured in nanograms, (billionths of a gram), the fruiting bodies varied from less than one to over 200 ng. The highest gold concentrations were found in the ectomycorrhizal species *Amanita strobiliformis,* 136 ng ; *Russula claroflava,* 148 ng; *Cantharellus lutescens*, 152 ng;, and *Boletus edulis,* 235 ng. In saprobic species, the highest values were in *Langermannia gigantean*, 160 ng; and *Morchella esculenta,* 189 ng. Commonly, species of Agaricus had relatively high values. The authors state that while these high concentrations depend on many factors and cannot be easily explained, *Cantherellus lutescens* seems to have a unique ability to accumulate gold. *(Mycol. Res. 109 (8): 951–955 (August 2005).*

■**DINOSAURS FELLED BY FUNGI?** A speculative article by Dr. A. Casadevall of the Albert Einstein College of medicine speculates that following the massive meteor collision prior to the Cretaceous extinction, decreased sunlight and cooler global temperatures encouraged a proliferation of fungi. The ensuing concentration of fungal spores in the atmosphere could more easily infect living organisms, leading to the evolutionary selection for high body temperatures seen in mammals, which function as a defense against fungal infection. It is well known that cold-blooded animals, as every home aquarist is familiar, are prone to such diseases. Were dinosaurs cold-blooded? This is presently subject to some dispute, but the fact that birds are the only modern descendants of dinosaurs fits well with this hypothesis.

(*Fungal virulence, vertebrate endothermy, and dinosaur extinction: is there a connection? Fungal Genetics and Biology 2005, 42: 98–106.)*

(Compiled by editor from cited sources.)

NEWS RELEASE:

SOMA Winter Mushroom Camp Coming Up!

The Sonoma County Mycological Association (SOMA) invites you to the 9th annual SOMA Winter Mushroom Camp. The Camp will be held during the Martin Luther King weekend, January 14, 15, 16th 2006, situated near Occidental in beautiful Sonoma County. The camp is located about one hour north of San Francisco.

The Camp, a benefit for SOMA, will be full of mushroom forays, specimen tables, slideshows, and speaker presentations. Of course, the SOMA culinary group will provide a great wild mushroom cuisine.

Scheduled classes and workshops:

Classes: photography, cooking, medicine making, truffle hunting
Workshops: cultivation, papermaking, mushroom dyeing,

Lodging:

The spacious, modern camp buildings are set amongst 225 acres of most gorgeous oaks, madrones, Tan oaks, redwoods, and Douglas fir in the state of California.
The shared cabins are heated, bright, clean, and airy, with hardwood floors and stylish bunks.

Registration information:

Early registration opens August 15, 2005. Fees are $195 until November 15.
Registration after November 15, 2005 is $225 until Wednesday January 5th 2006.
Registration closes on Wednesday January 5th 2006.
Sunday only, February 16 2006 day fee: $110.
Fees include lodging*, meals, and all classes, presentations & activities.
To obtain a registration form, or for more information, check out our website at www. SOMAmushrooms.org, or call (707) 887-1888 or (707) 938-4106

FINDINGS AFIELD

Normally, this columns deals with a known species of mushroom not previously recorded on Long Island, but today we have the extraordinary privilege of reporting an entirely new species of mushroom, one never before found or described and unknown to mycologists. This member of the genus Amanita was encountered by members of the LIMC on the July 2nd foray at Muttontown Equestrian. It was immediately obvious that it was an entity not previously seen by any of us. A medium-sized, dark-capped, annulate and volvate Amanita with **pink gills** is an extremely unusual and confounding sight. The gill color faded rapidly, so that by the time photos were taken, only a hint of the original color remained, and they then appeared creamy orange.

Amanita #53

Although we entertained the possibility of an aberrant *Volvariella*, microscopic examination showed it to be an Amanita, with an inamyloid spore measuring about 10-13 X 7-10 µm. This feature, along with the volva, places it in the subsection *Vaginatae*, while the persistent annulus is indicative of stirps *Hemibapha*, which contains *A. jacksonii, (*now the correct name for the American Caeser). The cap was viscid, striate and sulcate to the disc, and covered with tiny hairs or fibers. Large membranous veil patches remained on the cap surface. (See illustration, this page; for color, access web version of this publication.)

The collection was carefully dried, and the reduced gill color persisted. When Dr. Rodham Tulloss, the internationally known Amanita expert, saw the photo and description, he expressed great interest in examining this "very, very interesting specimen", and it was accordingly forwarded to him. It did not take long for him to conclude that **this was a totally new species whose closest relative is found in China.** Although new species of Amanita are discovered annually in remote areas, finding one in such a well trod area as the Northeast, which has been extensively collected, is a rarer privilege. Dr. Tulloss stated that its closest living relative is, "found in southern China (and) called *Amanita incarnatifolia* Zhu L. Yang (described in 1997 from Pine forests). I've given the number "53" to the new species from Long Island. You find the two species adjacent to each other in the key to stirps *Hemibapha* for the world that can be reached at: http://pluto.njcc.com/~ret/amanita/keylist.html."

At first glance, although the idea of a connection between North American and Chinese species may seem odd and incomprehensible, there is an established congruence in both plant and fungal life forms from these disjunct areas, first elaborated by the botanist Asa Gray, and now referred to as a Graysian distribution. This relationship derives from the break-up and drifting apart of the ancient continental landmass Gondwanaland. Dr. Tulloss has recently authored a paper on the distributional similarity of certain subgenera of *Amanita (Amanita, Validae,* and *Lepidella)* in the Americas with comparison to eastern and southern Asia, scheduled for publication in the September issue of *Mycotaxon.*

BIKE-BY 'SHROOMING

This past weekend as I peddled my bicycle along the north shore I noticed a rather large specimen of *Amanita muscaria* just off the road. I called out to my riding buddy to stop, that I had found a mushroom to show him. I said there's an Amanita over there I'd like to have a look at. My friend was impressed that I could identify a mushroom like this, just riding by. As we approached the mushroom I explained that my family, led by my father Sardo had been picking mushrooms for many years and it was my father's legacy to his children. Just when we were both close enough to really see the mushroom I realized that the cap appeared a little too robust and that the scaling on top a bit too large. It was then, in front of my friend, I realized to my horror that it was not an Amanita I was looking at, but ... a sesame seed bagel that had been out in the rain after being thrown from someone's car window! Needless to say my buddy being a true friend will never let me live this down. We continued our ride and found fresh chicken of the woods that I later prepared for dinner to eat along with "crow".

Well, at least my father left me his sense of humor, as I had a good laugh at myself.

Barry Censi (via email)

FORAY RESULTS:

West Hills County Park, June 18: Thirteen species, including many *Megacollybia plattyphylla* and one "new" species, *Spongipellis pachydon*.

Muttontown Equest., July 2: 30 species, incl. several previously not on our list: *Coprinus radiata grp., and Hypoxylon cohaerens*. **Most extraordinarily, a previously unknown species, a pink-gilled Amanita, verified by Dr. Rod Tulloss.** (see "Findings Afield" in this issue.)

Planting Fields Arboretum, July 9: 20 Species, incl. several new to the list: *Amanita volvata var. elongate, Boletus rubellus,* and *Calocera cornea*.

West Hills, South, July 16: 39 species, including 3 spp. of chanterelles, nice amounts of Black Trumpets, and two new to the list: *Entoloma griseum and Coltricia montagnei*.

Bethpage SP, July 23: 35 spp. including 14 of the *Boleteacea*. Of these latter, one was previously unrecorded here, *Boletus reticulatus,* formerly known as *B. aestivalis* or the Summer Bolete.

Coltricia montagnei

Calocybe cornea

Coprinus radiata, on dung

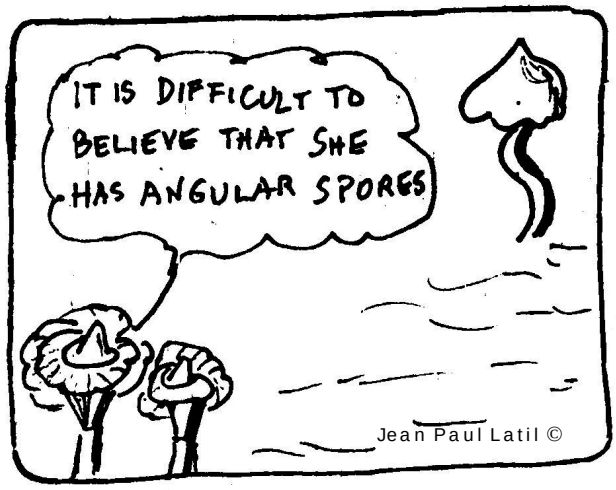
Hypoxylon cohaerens w/unk. parasite

Boletus reticulatus

ALMOND AND ANISE

Different people can experience the odor of the same *Agaricus augustus* mushroom as almond or anise. This mushroom is sometimes known by the English name "the prince" and was found for several years running at Planting Fields Arboretum on Mushroom Day.. The odor of the mushroom is likely due to benzaldehyde and benzyl alcohol. These chemicals are normally thought to have an almond odor, whereas anethole is the compound that has the characteristic odor of anise. When a panel of 38 people was asked to judge the odor of a mixture of benzaldehyde and benzyl alcohol as anise, almond, or no odor, most smelled almond, but a significant minority (5 or 7 people depending on the concentration) smelled anise.

Source: Wood, William F., Richard L. Watson, David L. Largent. 1990. The odor of Agaricus augustus. Mycologia 82(2): 276-278.



IN THIS ISSUE

"There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle." ***Albert Einstein***

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