LONG ISLAND MYCOLOGICAL CLUB

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L.I. SPORE PRINT

HAPPY NEW YEAR!

VOLUME 12, NUMBER 4, WINTER, 2004

FINDINGS AFIELD

by Joel Horman

Amanita is the most frequently encountered genus on Long Island, according to our club records. This is somewhat surprising, with so many other large genera of gilled mushrooms, such as *Russula, Cortinarius, Lactarius,* etc. Perhaps the explanation is that *Amanitas* are mostly large and showy, and usually distinctive enough to be identified by their macro-characteristics; whereas *Russulas* are prone to be dismissed as JAR's: just another Russula. And the same with Corts, notoriously difficult to identify.

Amanita tephrea

On August 5th this past summer, Peggy and I encountered a very distinctive, large Amanita

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An Overview of Mushroom Poisonings in North America

by Michael W. Beug (Reprinted from The Mycophile, newsletter of NAMA, March/April 2004.)

Since agreeing to chair the NAMA Toxicology Committee in the summer of 2003, 1 have scanned over 1,700 reports of mushroom poisonings in the NAMA registry maintained since 1984. I have fully reviewed the reports for 2001, 2002, and 2003, which total 130 human cases involving 792 people and 23 reports of poisoning of dogs (involving 25 dogs). Of all poisonings reported to poison and drug centers, about two thirds involve ingestion (usually by young children) where no symptoms are observed. Nearly every case where symptoms arc observed involves either vomiting or diarrhea, usually both.

The most striking aspect of all of the reports was how rarely a human died from a mushroom ingestion. Even people who ate one of the deadly *Amanita* species usually survived (though often with significant liver damage). In fact, the two cases of human deaths in Canada or the United States in the past three years where mushrooms were eaten shortly before death of the individual were not attributed to consumption of mushrooms, but were clearly due to other causes.

With dogs, there were eight reported deaths in the past three years. What was striking to me was that a dog could die within hours after ingesting a deadly Amanita.

The other surprises were that there are stinkhorns (*Phallus impudicus* or similar mushrooms) that can cause contact skin rashes just from handling them and that the juice from *Omphalotus illudens/olearius* may cause a burning sensation on the skin.

Tracking down mushroom poisonings involves a lot of sleuthing and a fair amount of guesswork. Often, no experienced mushroomer ever sees the suspect mushroom. Even when an experienced individual studies a collection, it is often unclear whether or not the mushrooms examined were the same as the mushrooms consumed. Was there just one toxic mushroom mixed in with other edibles and no evidence remaining of the toxic species? It is particularly difficult to get dogs to tell you exactly what they ate or when they ate it.

On top of all of this, underlying disease may lead to lethal results with a mushroom that is not normally deadly. Excessive con-

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PRESIDENT'S MESSAGE

Mushroom season has slipped away, gone but not forgotten. Colorful blewits and robust oyster mushrooms continued to be found by some club members up to the second week of December, and Oysters would not be out of the question during a January thaw. This kind of find makes up for some of the poor forays we had in the summer.

This has been quite a year for our little club. LIMC continues to grow, with over 30 new members having joined during the year. It's always nice to see new faces, particularly younger ones. We welcome two newly elected Board members, Ken Gobright and Lyle Peters. LIMC participated in the annual BioBlitz for New York State at Caleb Smith State Park. We had at least two *great* forays where members collected plenty of edibles. (The best had to be Muttontown after a week of dry weather. There were hen-of-the-woods in abundance! I never thought I would get tired of collecting but I did that day.) Lets hope for more of that next year. Our annual luncheon was a great success, with a record 36 attendees. It was truly nice to see everyone there and I am sure all who attended had a good time. ("Thank you" to all who donated items or helped find mushroomy things for our raffle.)

We lost a true mushroom lover, Sardo Censi. He was always very enthusiastic and shall be greatly missed by all who knew him.(See Dom's eulogy on page 3.)

Moving on, 2005 renewal forms are enclosed with this issue. Please note that there is a section for you to mark indicating which day of the weekend you would prefer to have a foray. Some people may not be able to attend because they either work or have other responsibilities on Saturdays. Please check a box . (In my role as treasurer, I am asking that renewals be sent in as soon as possible. It takes time and money to do a second mailing. Thank you.)

EDITOR'S NOTE

Social scientists classify people as risk-aversive or risk-embracing, sometimes pegging mushroomers as the latter. But if you read Dr. Beug's article on mushroom poisoning, you will find no reports of poisoning by experienced collectors. So perhaps we are not really the reckless gourmands that some make us out to be. Certainly, the accident rate among mushroomer does not approach even the relatively low rates of truly dangerous hobbies, such as mountain climbing, spelunking and deep sea diving. Nevertheless, lest we become too cavalier, that article and Dom's tale of near mishap should give us pause and remind us that none of us is infallible, and disaster can be the result of a moment's inattention. As Dom points out, it is prudent for less experienced pickers to stick to those species they can identify without doubt. Dr. Beug's comments on poisonings by normally edible genera, such as Leccinum, should dissuade us from accepting as edible untried species of those genera. Experimentation is for the laboratory, not the kitchen.

MATERIAL FOR THE SPRING, 2005 EDITION SHOULD REACH THE EDITOR BY FEBRUARY 28TH

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

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Gleanings

■**Barcodes for Birds- Are Fungi Next?** the on-line journal Public Library Of Science recently published "Identification of Birds through DNA Barcodes" an article that proposes DNA bar coding as a rapid, automatic way to identify species. Ideally, this would permit field biologists to feed a cell specimen to a hand held device and immediately identify the species it originated from. Authors Dr. Paul D. N. Hebert, a population geneticist at the University of Guelph in Ontario, et al, sequenced a segment of a mitochondrial gene,[cytochrome c oxidase I (COI)] of 260 species of birds and found it effective in distinguishing between them. So effective was it that several traditional taxons were shown to possibly be comprised of more than one species. Can Russulas be far behind? (*http://www.plosbiology.org/plosonline)*

■**Attack of the Split Gill:** Although gilled mushrooms rarely cause disease, the familiar and widespread *Schizophyllum commune,* usually found as a wood decomposer, has a darker side, an ability to cause human infection, according to the Royal Botanic Gardens, Melbourne. Medical data document its occurrence as an infection of the nails, sinuses, meninges, and brain, with sinusitis being the most frequent. Verification has been provided by formation of the characteristic fruit bodies in cultures from infected tissue, and by DNA samples. While these infections usually occur in persons with compromised immune systems, that is not always the case. Since its presumed method of entry is the inhalation of spores, the author (Tom May) recommends that this be avoided by not sniffing the fungus.

■ **Strange Bed-fellows:** Recent DNA analyses and morphological comparisons of world wide (NA, Asia, Europe, & USA) samples of *Sparrasis* species (Cauliflower mushrooms) and other polypores were carried out by researchers from Clark University and the Chinese Academy of Sciences. Results suggest that there are 7 lineages, represented by *S.spathulata, S. crispa, S. brevipes, S. radicata,* and 3 undescribed species. They form a monophyletic (sharing a common ancestor) group with *Phaeolus*, united by the production of a brown rot, the presence of a bipolar mating system and the habit of growing as a root and butt rot on living trees. Moreover, all polypores that produce brown rot may also form a clade (common line of descent.) Both *Sparassis crispa* and *S. spathulata (herbstii*) are found on L.I. *(Mycologia, 96(5), 2004, pp. 1015-1029)*

Sparrasis crispa

■ **New Species of *Cordyceps*:** Scientists of the Department of Botany and Plant Pathology, Oregon State University, have discovered a new species of *Cordyceps* and have named it *C. cardinalis.* Macroscopically similar to *C. militaris* and *C. pseudomilitaris*, it is described as microscopically, culturally, and molecularly a distinct species. A parasite of lepidopteran (butterfly & moth) larvae, it occurs in the southern Appalachian Mountains and southeastern Japan. *(Mycologia, 96(3), 2004, pp. 658-666.*

(Compiled by editor from various sources.)

REMEMBERING A DEAR FRIEND

Rosario Censi, known to his friends as Sardo, died on September 20, 2004 due to an industrial accident at the plastics plant that he founded and directed.

I became acquainted with Sardo and his lovely family while I served as president of the Long Island Mycological Club. During the 10 years or so that I mushroomed with him I found him to be an truly generous and unassuming man. He was a great supporter of the LIMC, enrolling all the members of his immediate family, and serving on the Board of Directors. He designed and fabricated the novel plastic trays the club uses to display mushrooms on its annual Mushroom Day display at Planting Fields Arboretum, presenting them as a gift to LIMC. I know he derived a great deal of satisfaction in helping others. Many members can recall receiving spontaneous gifts from him, ranging from mushroom calendars to canned oyster mushroom chips.

Autumn was a favorite mushrooming time for Sardo. His quarry, the honey mushroom would not soon escape his search. He made it clear that this was his prized mushroom and he was buried with a wooden sculpture of them clutched in his hands, as his father before him had been. A touching tribute to his love for our pursuit.

Sardo was an even-tempered, warm, amiable man who was well liked by everyone. He will be greatly missed.

Dom Laudato


Photo © Sue Gaeta

SOME FORAY RESULTS

Caleb Smith (BioBlitz), Sept.4: A record total of 84 taxa, 4 identified only to Genus.

West Hills South, Oct.2: 43 taxa (3 to genus only), including 12 species of *Amanita,* 6 of *Russula, Armillaria ostoyae*, and *Tricholoma* sejunctum (uncommon). One new species, *Hydnum umbilicatum*, and one new genus, *Tomentella,* a resupinate corticioid form on moss, found by Michael Strenk, Jr.

Muttontown, Oct.9: (***see photo above***) Noteworthy not for its 27 species, but for its large amounts of edibles: *Grifola frondosa, Laetiporus sulfurous* and *L. cincinnatus,* estimated at over 30 lbs. *Entoloma abortivum* was present in unparalleled quantity, at least 40-50, and were very tasty. Other edibles found were Brickcaps, *Laccaria laccata* and *L. ochropurpura,* and *Lycoperdon pyriforme*. **Our best day this year!** New to the LI list were *Hygrophorus readii*, and *Melanophyllum echinatum,* a striking red-gilled species which Sue Gaeta found in Brookville.

Edgewood, Oct.16: 23 species, including good quantities of *Leccinum aurantiacum* and *Lyophyllum descastes* (fried chicken). Also *Hydnum repandum* and *Boletellus russellii* (uncommon).

Peconic Hills, Oct.23: 48 species, including good quantities of Gypsies (*Rozites caperata*), Brickcaps (*Hypholoma sublateritium*), and *Suillus brevipes*. Anna Warasila found an albinistic specimen of the latter, which eminent boletologist Ernst Both later reported was the first he had ever seen. Also found were *Tricholmopsis rutilans* (Plums & Custard), 6 species of *Tricholoma* and 4 of *Suillus*. New to our list was *Hydnellum peckii, Inocybe fuscodisca*, and *Cortinarius collinitus.*

Bethpage SP, Oct. 30: 31 species, including *Agaricus micromegathus, Tricholoma caligatum, Boletus edulis.* One new species, *Mycena epiterygia v. lignicola,* an entirely viscid species with a chrome-yellow stipe, was plentiful.

Wading River, Nov.6: 33 species including eight of *Tricholoma*, many *Neolecta irregularis*, fair quantity of Brickcaps, and 2 new species, *Cortinarius obliquus,* and *Mycena griseoviridis.*

Edgewood, Nov.13: 32 species, with good amounts of the following edibles: *Tricholoma flavovirens, Hygrophorus hypothejus* & *H. agasthomos, Cantherellula umbonata*, and *Laccaria laccata.* Some *Suillus brevipes.*

Christie, Nov.20 & Wellwyn, Nov.27: Both had only 8 species each, and the expected oysters and blewits failed to make much of an appearance. However, early in December intrepid foragers reported finding good quantities of both in various locations.

Mushroom Poisoning ***(Continued from page 1)***

sumption of a normally edible mushroom can lead to ill effects due to the high levels of indigestible chitin and novel amino acids and other unusual compounds present in mushrooms. Consumption of raw mushrooms, undercooked mushrooms or mushrooms that have been frozen raw and then cooked can lead to adverse effects in otherwise edible species. A surprisingly wide range of mushrooms, including morels, can cause ill effects in some individuals if alcohol is consumed with or reasonably soon after the meal. Also, individuals can become sensitized to a toxin with repeated exposure; thus, after eating a mushroom several times, additional meals of the mushroom can lead to poisoning.

Finally, dogs (and rarely cats) are attracted to mushrooms, presumably by the sometimes fishy odor or odor of rotten meat in some species. Pets may eat as much as a human, but with their small body mass, they can suffer lethal effects from mushrooms that are only very rarely, if ever, deadly with humans. Also, with dogs the mushrooms that contain a-amanitin and similar toxins can be lethal within hours of ingestion; whereas in cases of human toxicity, onset of symptoms is 12 hours or more, and death, if it occurs, takes a week or more. With pets, ingestion of *Amanita muscaria, Amanita pantherina* (and look-alikes), and probably some species of *Inocybe* can sometimes lead to death, while the same species are very rarely lethal in humans (and then only in humans with underlying infirmities).

There are a few general observations that I can now make about mushrooms and mushroom poisonings. Other than children and dogs, people rarely, if ever, eat small, thin-fleshed mushrooms. While many of these small mushrooms contain muscarine and some contain a-amanitin, they simply do not show up in the poisoning statistics (the one exception is *Lepiota josserandii* which has killed both humans and dogs). Even though they are often large and abundant, *Cortinarius* species showed up only once in all of the reports, and then it was in a mixed ingestion of old rotten mushrooms, none of which should have been eaten in the first place. Since a few *Cortinurius* species may be deadly (with a very long onset of symptoms), 1 was surprised at their nearly total absence from the reports. Conversely**, I was struck by the large number of poisonings due to many different species of morels**. Some morel poisonings involved consumption of alcohol, some involved raw or undercooked mushrooms, but some involved fully cooked, choice morels. It appears that a large number of people arc sensitive to this mushroom. However, I was also surprised about the number of people who ate morels raw and were not poisoned.

Nearly all of the choice edible mushrooms appeared at least once in the poisoning lists. These reactions are attributed to food sensitivities. **Boletes, especially Leccinum species, accounted for more than their share of poisonings by mushrooms generally considered to be edible.** Even though I have never been adversely affected by Leccinum species and have eaten them a lot, after noting the number of poisonings, the intensity of the symptoms, and the long period of feeling poorly, I believe my days of eating them may well be over. My colleague Marilyn Shaw has convinced me that we are not dealing with just a food sensitivity here. The questions include 1) are there several toxic Leccinum species, and/or 2) are we dealing with mushrooms that contain variable levels of toxins and so sometimes will cause poisonings and sometimes not? These questions remain to be answered. So far, I am not aware of any voucher specimens of specific *Leccinum* mushrooms that have caused a poisoning, and getting such vouchers in the future will help answer some of these questions. **Of the mushrooms generally considered poisonous, the one far most often consumed is *Chlorophyllum molybdites*.** (See Dom's sidebar on the next page for a related experience. Ed.) It is large and meaty; it resembles a generally choice edible, *Lepiota (Chlorophyllum) rachodes*; it tastes good; and it grows in lawns and parks. *Chlorophyllum molybdites* quickly rewards the unwary with gastric distress, vomiting, and diarrhea lasting several hours.

Chlorophyllum molybdites

Both *Amanita muscaria* and *Amanita pantherina* are large, showy, and delicious, but poisonous mushrooms (unless cooked by boiling them and then discarding the water-but if you don't get rid of all the water, look out!). Though people in Russia frequently parboil and eat *Amanita muscaria*, it is

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Mushroom Poisoning ***(Continued from page 5)***

not a practice I recommend. *Amanita muscaria* and *Amanita pantherina* are frequently eaten intentionally by people seeking to get high and are also frequently eaten by mistake (believe it or not, often by people thinking they had an Agaricus). The "trip" from *Amanita muscaria* and *Amanita pantherina* is generally not pleasant and involves hospitals more predominately than hallucinations.

Speaking of bad trips, the poisoning case reports also contain a steady supply of poisonings of teenagers (and occasionally old hippies) who consume hallucinogenic mushrooms and suffer anxiety and other ill effects from bad trips, contaminated mushrooms, and/ or misidentification.

Compared to going out and randomly eating plants in the woods and in flower beds, eating wild mushrooms is quite safe. Only about 10% of all mushrooms are poisonous and only about 10% of the poisonous species are potentially deadly. Plant toxins are far more common, more often deadly, and generally much faster in their action. The difference is that people usually do not go around randomly sampling plants growing in flower gardens or in the wild, while they do eat mushrooms that they have not identified and may not even have a clue as to

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Subtle Differences: Macrolepiota rachodes or Chlorophyllum molybdites?*

by Dom Laudato

Gloria and I were driving along in E. Northport when I spotted four stately mushrooms growing in the grasses on the street side. I did what any self-respecting mushroomer would do in similar circumstances: I parked and headed directly to the quarry.

Macrolepiota rhacodes

A quick look led me to believe that I had come upon *Macrolepiota rachodes*, a favorite of mine; another of the same type mushroom was on its side, apparently kicked over. The moment I turned it over I discovered its green gills, unmistakenly signaling that this was *Chlorophyllum molybdites*. I carefully picked the other four and discovered that their gills were pure white. (*Chlorophyllum molybdites* was previously known as *Lepiota morgani*, showing the close relationship of the two.) Thus, we are making morphological comparisons between two "Lepiotas". I was elated that I had found *Chlorophyllum molybdites*, a more southerly species that is not too often encountered in our area. But now was quite concerned when I focused on the remaining four mushrooms that too hasty an ID had led to *Macrolepiota rachodes* (a big mistake as you will discover by reading further).

The base of the stems were bulbous, the partial veils formed the defining moveable rings on the stem and the caps' scaling was typically Lepiota-like as per our reliable mushroom guide depictions: brownish-reddish scales on a white background. These characteristics as well as the stem lengths and widths of both species overlap.** Microscopic examination and consultation with various mushroom guides revealed that the spores of both species are similar in size and shape as is their reaction to Meltzer's solution: dextrinoid or brownish Concern for my safety, due in large part to the one specimen that exhibited green gills, got the better of me. Thus, at home, I prepared each of the four specimens for a spore print. The next morning revealed the tell-tale green of their spores as did the color of their gills. The mushrooms were *Chlorophyllum molybdites* This experience was profitable in that it taught good lessons, to list an important few:

1) We should not rely on gill color alone to differentiate the above species (beginners may also mistake *C. molybdites* for *Macrolepiota procera* which also exhibits a bulbous base,etc.) in the field, since the gill color change from white to green could take eight or more hours depending on conditions and, haste in field identification can be dangerous.

2) The practice of making spore prints once again proves invaluable.

3) Perhaps novice mushroomers should not attempt to collect the edible *Macrolepiota rachodes* for consumption when foraging alone.

What is clear is: Be absolutely sure of your ID when consuming any mushroom.

Happy and safe hunting.

** (Editor's note: As implied by Dr. Beug's article, L. rhacodes may soon be known as Chlorophyllum rhacodes, as members of a closely related group.*

*** (Ed's note: Another field characteristic differentiating the two is M. rhacodes red staining reaction to injury. C. molybdites rarely stains, and then only slowly; its favored habitat is grassy meadows, where it grows in groups or rings. Rhacodes favors duff and debris at*

Mushroom Poisoning *(Continued from page 6)*

how to properly identify. They also eat mushrooms that are spoiled, whereas plants in a similar state of decay would be discarded. At the same time, people tend to be more generally terrified of eating mushrooms. Thus when the effects are unpleasant, the consequences arc often modified by feelings of panic, especially among populations of people from Eastern Europe and Asia where, unlike North America, deaths from mushroom poisoning are not uncommon.

My Web site, www.evergreen.edu/mushrooms, which includes a section on poisonous and hallucinogenic mushrooms, and other Web resources are sometimes used by people trying to identify a mushroom implicated in a poisoning. I created my site hoping to assist medical personnel in identifying mushrooms involved in a poisoning case, and to give people some idea of what to expect in specific poisoning cases. The problem is that doing identifications just from a picture is a challenge, especially for someone untrained in mycology. What we need are more people trained in mushroom identification who are willing to help out in mushroom identification for poisoning cases and file reports on mushroom poisonings that come to their attention.

To aid interested mushroomers, forms and information about mushroom toxicology can be found on the NAMA Web site, www.namyco.org. My hope is to get more members of the mycological community involved in identifying and reporting mushrooms involved or suspected in poisonings so that we can have an ever better understanding of any risks associated with mushroom consumption and so that we can better educate the general public.

(Michael W. Beug, Ph.D., the new Chairman of the NAMA Toxicology Committee, is Professor Emeritus at The Evergreen State College in Olympia, Washington. He is an environmental chemist who has taught chemistry, mycology, organic agriculture, and energy studies since 1971.)

WELCOME, NEW MEMBERS!

ALLISON DUNTON & TIMOTHY WILLIAMS
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MEGAN SANTORELLI **NANCY SMITH**
CAROLYN & GARO TEKEYAN
KASIA WITTIE

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while strolling in Cunningham Park, Queens. Of course, no-dyed-in-the wool mushroomer merely strolls. Our gaze is always downcast, peering into the obscurest corners in the hope of serendipitous discovery. On this occasion we were well rewarded. This impressive, handsome, rain-cloud gray mushroom covered with delicate powdery scales was something we had never before seen. We carefully collected the two best specimens, all others being on the road to disintegration.

At home, after subjecting it to some study, consulting Jenkins', "North American Species of Amanita" led to the conclusion that this was probably *Amanita cinereoconia*. Initially, this was Dr. Rod Tulloss's impression as well, when we emailed him the photo and some details of the description. We were very happy with that, as it was a new species for our LI list, and described by Jenkins as occurring in the southern states of N.Carolina, Tennessee, Virginia, and W. Virginia. The story gets better, however. After giving the matter more thought, Dr. Tulloss also considered the possibility of *Amanita tephrea*, a much rarer species; indeed, Jenkins had never collected it himself, relying on Bas' herbarium specimens. After receiving our exsiccatum, Dr. Tulloss jubilantly concluded that it was *A. tephrea,* with these comments: "Thanks for such a prize! The northernmost collection previously recorded in the literature is from North Carolina. New (to) the NJ/LI list!" He comments that *A. tephrea* is differentiated from *A. cinereoconia* by the microscopy of the volval warts. The inflated cells measure 20-60 X 15-50µm, while those of *A. cinereoconia* are much larger, measuring up to 69 X 67µm, with pyriform to clavate cells up to 89 X 39µm.

Heretofore known only from N. Carolina and Tennessee, where Dr. Tulloss had also recently collected it in the Great Smokies, *A. tephrea* had previously been named only provisionally by Bas. With these additional collections, Dr. Tulloss now is almost to the point of naming it formally.

Needless to say, we will be scouring the environs of Cunningham Park next summer in the hope of again encountering this elusive taxon.

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…"I have become convinced that a mushroom collector searching only for provisions for the table would be comparable to a bird watcher looking only for quail, ducks, or pheasant."
Elio Schaecter, "In the Company of Mushrooms", Harvard U. Press, 1997

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