



**Spring 2004**

**Guest Editor**

# NEWSLETTER

## **The 2004 Morel Breakfast**



There is always a great feeling of anticipation in the air when the New York Mycological Society meets for its annual Morel Breakfast. Again this year, Howard Goldstein and Mimi Calhoun treated us to a wonderful repast to fuel our morel hunting. The event provided a lovely opportunity to meet our new members and to see old friends again. Thank you Howard and Mimi for a spectacular start to a wonderful day!

### **Chanterelle Weekend**

This year's Vermont Chanterelle weekend headquarters will be the White Pine Inn in Londonderry, VT on the weekend of August 6-8, 2004.

Last year's weekend brought several mealfuls of chanterelles and oops... some boletus edulis and even a volvariella bombycina gathered in the beautiful mountains of Southern Vermont.

If you are new to our group be advised that with these mushrooms in hand we eat well! We cook at the Inn, where there have been many memorable meals over the last forty years that this event has been running.

Please contact Paul Sadowski (212) 348-3092, <pabloski@earthlink.net> for information.

### **Catskill Weekend**

The Society has rented the Crystal Spring House for the weekend of October 1-3 for this year's Catskill Weekend. There are only 18 spaces available for this event, so it makes sense

to make your plans early.

Please contact Paul Sadowski (212) 348-3092, <pabloski@earthlink.net> for information.

### **Foul Weather Friends**

Monday nights will bring the Foul Weather Friends together again this year. We meet to identify fungi, mushrooms permitting, at Maria Reidelbach's loft in Tribeca. Please contact Paul Sadowski, the coordinator, at (212) 348-3092 or <pabloski@earthlink.net> to be contacted about upcoming meetings.

We have microscopes at our disposal this year thanks to Joe Holdner who donated a dissecting microscope to our society and who also facilitated the acquisition of a compound microscope for our use during our deliberations.

Our library is replete with reference books to ease our way through the unknown collections.

So bring your weekend mushroom finds. Beginners are most welcome.

### **New NYMS website...**

We have a new website under construction at <<http://mysite.verizon.net/nycmycology>>. It is a convenient place where you can find our walk list, special events, Foul Weather Friends meetings, photographs and more.

Thank you to Julie Falsetti for so generously designing and hosting this resource for the society. Drop by for a visit to see what we're up to.

### **...and a Bulletin Board**

Leah Faerstein has set up a bulletin board at <[NYMushroomClub@yahoo.com](mailto:NYMushroomClub@yahoo.com)>.

### **Let us have your email address**

Please let us have your email address so that you can receive bulletins about upcoming events. Please also post any changes in your email address to Alice Barner <[abarner@rcn.com](mailto:abarner@rcn.com)>.

## A French Treat aux Champignons

by Paul Sadowski

One evening, during the Catskill weekend, Maggie Vall and I were talking about the coming Winter Lecture Series. We agreed that a cuisine event would be something of great interest to our mycophagous membership. I thought of Arlene Jacobs, a long-time NYMS member who I knew was passionate about food and who might be able to help us stage an evening with mushrooms at the French Culinary Institute.

When I contacted Arlene she asked me: "What should I cook?" I said: "how about a few courses with the techniques of cooking mushrooms in mind?" Arlene responded that she would create a menu around the association of mushrooms and trees.

Et voilà, the first lesson from Chef Jacobs! Start with an interesting concept for a meal that guides the assembly of dishes and ingredients.

And so there followed a three-course meal plan: an herb salad that included, in addition to frisée, chive, basil, chervil,



*Chef Arlene Jacobs*

fennel fronds, a vinegrette with pomegranite molasses and truffle oil; a kataifi (shredded wheat) bird's nest filled with a chestnut-potato filling topped with mushroom ragout and herbs; and seared scallops with black trumpets for the main course. A sylvan theme expressed in food.

In the course of the two-hour demonstration, held in the superb theatre at FCI, Chef Jacobs demonstrated the technique of properly sautéing mushrooms, the virtues of butter (everything in moderation!), the ideal of balancing flavors in a dish to form a complementary whole, and much more. Oh, and a small army of Chef Jacobs' students

## Mushrooms at the Banquet...and Elsewhere



*Maggie Vall, Ira Hennick and other NYMS banqueters at Tatiana's in Decembers*

by Dennis Aita  
<denaita@aol.com>

I hope everyone who showed up at our December banquet at Tatiana's Restaurant in Brighton Beach enjoyed the impressive feast of Ukrainian and Russian specialties.

Although we only had one dish — a soup — using wild mushrooms, I was very impressed with what they did with the common *Agaricus* button mushroom found in all food stores. I never expected that a simple mushroom with potatoes dish could taste that good, while Tatiana's oddly-named mushrooms julienne (I called it Tatiana's Mushroom Creation) was a surprising success. Here mushrooms and onions were sautéed and stewed, then cooked with sour cream and finally topped with mozzarella cheese and baked in the oven. Even better was the mushroom soup made with *Boletus edulis*. Unfortunately the chef, for whatever reason, decided to add some cultivated *Agaricus*, diluting the flavor of the boletes.

Last October Maggie Vall (who helped me with banquet) and I had tasted a "pure" version of their wild

mushroom soup at Tatiana's sister restaurant (Tatiana Café, 3145 Brighton 4th Street) just a couple of blocks down the boardwalk. We sat at an outdoor table on the boardwalk on a bright, warm day and we smelled their wonderful soup well before it was placed down upon the table (Very much like being in Italy when you order a plate of thin noodles topped with just a few small slivers of white truffles; the wonderful aromas reach you before seeing it).

Quite possibly the best mushroom soup that I have ever tasted, it was made with flash frozen *Boletus edulis* from Lithuania, sweated onions, some barley, dill, some beef stock, I think, and not much more. When it comes to mushroom cookery it doesn't get much better than this soup.

Members: Feel free to let me know about great mushroom dishes in other restaurants, mushrooms in the market, or even a great place for our next banquet so that this information can be shared. After all, who knows more about mushrooms, NYMS members or the N.Y. Times?

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### **French Treat aux Campignons from column 1**

prepared appetizer dishes of each course for sampling by the 50 NYMS members in attendance.

Thanks to Arlene Jacobs and the staff of the French Culinary Institute for

a truly resplendent evening. And a big thanks to Lee Urbani of Urbani Truffles and to Amy and Thierry Farges for their contributions of mushrooms and truffle products used during this splendid evening.

Bon appetit!

## What Does a Baseball Player Have to Do with a Mushroom?: A Correspondence Explains

Dear Gary Linkoff,

I am the publisher for a non-profit baseball organization, the Society for American Baseball Research (SABR). SABR publishes three or four journals and books a year, which are distributed to its 7000 members and also sold to stores and libraries through a university press.

In an upcoming journal, we are running a biography of Wally Snell, who played just 5 games in the major leagues (1913). He later returned to Brown, his alma mater, where he was the longtime baseball coach. In calling the university for photos, they mentioned that Snell had a mushroom named after him...

I am hoping that you might provide me some background on Snell mycological exploits: When did he discover this mushroom where, was it named after him, is the naming unusual...

Thanks for your help.  
Jim Charlton, SABR

. . .

Dear Mr. Charlton,

To answer your questions about Wally Snell, he was a superb watercolorist of mushrooms and he wrote many articles about them. His most enduring work is *The Boleti of Northeastern North America* which he wrote with his wife, Esther A. Dick, and illustrated with his watercolors. That book was published by Carmar (in Europe) in 1970. It is still available and still in use today.

Water Snell discovered a number of new mushrooms which he described and named. He also has at least one mushroom named after him: *Leccinum snellii*.

I met Snell and Dick when they attended mushroom conferences. The earliest I remember was 1974 in North Carolina. He was one of the experts who were there to identify all the boletes that were collected. Boletes are a group of mushrooms that are commonly found in our woods in the summer and fall.

Anyway, another expert (Alexander H. Smith) was there, also, and he had al-



*Leccinum snellii* in an illustration from *The Boleti of Northeastern North America*

ready named all the boletes that had been collected and brought in that day. When Snell came by and saw that somebody else had already named these mushrooms, he looked at each name and changed the ones he disagreed with by crossing out Smith's name and putting in his own.

When Smith came by his table later he saw that somebody had crossed out his names and written in others. He was upset and crossed out Snell's names and put back his own. Eventually, the two men encountered each other. (There were over 300 people at this event and it was hard to know who was there.)

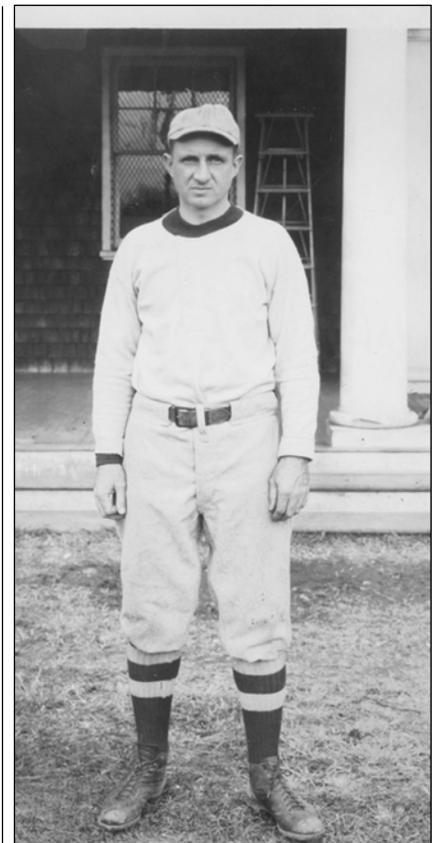
Smith and Snell were friends as well as colleagues. They just disagreed about some of the names that particular mushrooms should be called.

By the way, what major league team did Wally Snell play for and what position did he play? Did he get any hits? (I coach little league so I'm interested.)

Yours,  
Gary Lincoff  
Author, *The Audubon Society Field Guide to North American Mushrooms*

. . .

Snell played for the Boston Red Sox and in 5 games in 1913 he hit .375 (3-for-8). He debuted on August 1 after being out a month with a broken thumb, which apparently bothered him the rest of his life. He then got married



Walter Snell, game ready

and started his master's in the fall of 1913 and played minor league ball in 1914 and 1915 before quitting. He came up to the Red Sox from Providence, which makes sense given his Brown connection, but alas, did not return there in 1914 (he went to Toronto) thus missing the chance to be teammates with the young Babe Ruth..

Best,  
Jim Charlton, SABR

### Wally Snell 1913 Stats

Games	6
At-bats	8
Runs scored	1
Hits	3
Stolen bases	1
Total Bases	3
On-Base %	.250
Fielding %	.923

## **2004 NYMS WALK SCHEDULE RUNS MAY 1 TO OCTOBER 30, SITES KNOWN FOR MUSHROOMS AND MORE**

### **Chanterelles**

August 6-8 – Chanterelle Weekend in Londonderry, Vermont (see p. 1)

### **Swimming**

Sunday, July 11 at Depew Park

Sunday, August 1 at Norvin Green State Park

Sunday, August 15 at Tallman State Park (back on the schedule)

Swimming in a pool at these locations will involve a nominal charge.

### **Chestnut picking**

Sunday, September 26 at Doodletown, Harriman State Park (bring gloves for picking)

### **Berry picking**

Sunday, July 18, at Van Cortlandt Park (bring containers for wine-berry picking)

*For the complete schedule visit [mysite.verizon.net/nycmycology](http://mysite.verizon.net/nycmycology)*

### **Recommendations for mushroom hunts**

To protect from ticks, mosquitos, & thorns: Wear long pants, long sleeved shirts, and a hat

To be prepared for hiking in varied terrains: Wear sturdy shoes, preferably hiking boots

Carry in day-pack: Basket and/or paper bags, knife, bug spray repellent, compass & whistle, water bottle, bag lunch, and (optional) field ID guides, notepad, & pen

### **NAMA '04 Foray, Asheville, NC, July 15-18**

For the first time, NAMA will organize its 2004 Annual Foray in conjunction with the Mycological Society of America (MSA) meeting in Asheville, NC, July 15-18. The foray and meeting will be held at the U. of North Carolina's Asheville campus, in the heart of the city.

After attending NAMA's programs, forays, and workshops, NAMA members will have the opportunity to remain, at their own expense, for the full MSA conference. Approximately 500 members from both groups are expected to participate.

In addition, NAMA and MSA are planning several joint activities. Included is a symposium on southern Appalachian biodiversity, to be jointly hosted by NAMA, MSA, and the Discovering life in America program, operating in the Great

Smoky Mountains National Park.

NAMA speakers for the foray will include Orson Miller, Gary Lincoff, John Plischke III, Tom Volk, and Bart Buyck from Paris who is currently researching and will talk about Russulas of the southeastern U.S..

An interesting array of workshops are being planned including the use of mushrooms in cooking, dyeing, paper-making, photography, toxicology, microscopy, a beginner's workshop and foray, and many others.

North Carolina is known for its large numbers of diverse fungi. More than 500 different species were collected in previous forays. Pisgah National Forest, the Blue Ridge Parkway, and Great Smoky Mountains National Park are close by and available for good hunting.

See <[www.namyc.org](http://www.namyc.org)> for the registration form and sign up early!

### **NEMF Foray, Lake Winnepesaukee, NH September 9-12**

The Northeast Mycological Foray is the single largest event of the Northeast Mycological Federation, which is comprised of over 19 member clubs from Montreal to Western Pennsylvania to Rhode Island. The 2004 gathering will be the third New Hampshire visit in 20 years, and will provide an unprecedented opportunity for mushroom lovers to collect, learn about, taste, and enjoy hundreds of species of fungi.

Hosted by the Monadnock Mushroomers, the Montshire Mushroom Club, the Sandwich Area Mushroom Club and the NH Mycological Society, the 10th Annual Samuel Ristich Foray will be held at the Geneva Point Conference Center on beautiful Lake Winnepesaukee in the heart of the Lakes Region in New Hampshire. See the registration form in this newsletter.

**The 2004 COMA Foray  
Cave Hill Resort, CT  
August 26-29**



The 2004 Clark Rogerson Foray, sponsored by The Connecticut-Westchester Mycological Association (COMA) will be held at the Cave Hill Resort in Moodus, Connecticut from August 26-29.

Gary Lincoff is the Chief Mycologist. Other experts include Dr. Sam Ristich, Dr. Roz Lowen, Sandy Sheine and Leon Shernoff. These great teachers, and other knowledgeable mushroomers make this foray an event where everyone, including novices, can enjoy a constant learning experience. We typically harvest 300 to 350 species, including many choice edibles, from nearby, fungally rich parks, such as the Salmon River State Forest.

See the COMA website <[www.comafungi.org](http://www.comafungi.org)> for further information.

**The Peck Foray  
Brocton, NY  
September 9-12**

The 51st Annual Charles Horton Peck Foray will be held at the College Lodge in Brocton, NY. The College Lodge is located near the shores of Lake Erie midway between Erie, PA and Buffalo, NY.

Accommodations will be dormitory style at the lodge which is located on an old 193-acre farmstead. Dining will be in the Great Hall.

Habitat includes stands of Eastern hemlock, red pine, Norway spruce and mixed hardwoods.

The Peck Foray draws students of mycology from schools throughout New York State as well as amateurs.

Contact Dr. Tom Horton, email: [thorton@esf.edu](mailto:thorton@esf.edu) for more information.

**EXOTIC FORAY TRAVEL EXPERIENCES IN 2004**

Mexican Mushroom Tours, in operation for the 5th year, organizes excursion groups, limited to 20 or less, is offering the following tours this year:

**The 5th Annual Tlaxcala/  
Puebla Mushroom Foray  
September 12-19**

Based at the site of the 1998 NAMA Annual Foray in Mexico's central highlands (50 miles east of Mexico City), this tour takes advantage of the area's wooded and fungi-rich volcanic hills. The group stays in historic haciendas and rustic mountain lodges, and also samples the best of Tlaxcala's cuisine. Fee: US\$1,420 pp dbl.occ.

**The 2004 Veracruz Fungi  
Exploration  
October 10-17**

This vibrant, semi-tropical Gulf coast state is home to more than 2,000 fungi species in habitats ranging from sea-side jungle to citrus and coffee regions to forested mountains 6,000 feet high and in archeological sites. Lodgings include a quaint beach-side resort and lush plantations. Fee: US\$1,480 pp dbl. occ.

All tours includes accommodations, meals, bilingual mycology expert guides, side trips and more. See full details on tours and activities on: [www.mexmush.com](http://www.mexmush.com)

**Mushroom Hunting and  
Cooking in  
Oaxaca, Mexico with  
Susana Trilling:**

**July 7-12 & August 5-11**

Hunt wild mushrooms, hike, and cook in the mountains of the Mexican province of Oaxaca with Susana Trilling and Mark Thomsen. Susana runs a well-known cooking school in Oaxaca, and is the author/producer of a 13-part PBS series and two books on Oaxacan cooking.

Fee: \$950 for room, board, and local transport.

For more information:  
[www.seasonsofmyheart.com](http://www.seasonsofmyheart.com)

**Foray in Bombannes,  
France  
November 11-14**

If you are interested in a gathering mushrooms with the Soci t  Linn enne de Bordeaux in Bombannes, France (in the Gironde), November 11-14 contact Paul Sadowski for information. The area is an oceanside habitat with pines, oaks, birch and alders.

The coordinator for the weekend is Francis Massart, noted mycologist, who has been a magnificent host for American visitors to the Bordeaux area for many years.

Deadline for reservations is September 30th, 2004.

**NYMS Membership Form**

Name(s) \_\_\_\_\_

Address \_\_\_\_\_

Home phone \_\_\_\_\_ Work phone \_\_\_\_\_ E-mail \_\_\_\_\_

NYMS single Membership \$15 NYMS Family membership \$25  
Make a check payable to NYMS

NAMA (Membership in the North American Mycological Assoc. is optional) \$32\*

SEND SEPARATE CHECKS TO:  
Alice Barner, Treasurer, New York Mycological Society, 220 E. 73rd St., #10A, New York, NY 10021

RELEASE  
I hereby release the New York Mycological Society, any officer, or member thereof, from any legal responsibility for injuries or accidents incurred during or as a result of any mushroom identification, field trip, excursion, meeting, or dining, sponsored by the Society.

Your signature(s) \_\_\_\_\_ Date \_\_\_\_\_

# KEYS TO THE KINGDOM OF THE FUNGI

by Gary Lincoff

If you know the name of the genus of the mushroom you collect, but not the species, here's something you can do. Use these simple field keys to the sections of 4 genera of gilled mushrooms that comprise more than 500 recognized "species" in our area. Examples chosen below can be found in *The Audubon Field Guide to North American Mushrooms*.

**AMANITA**...spore print white; gills free to nearly free; universal veil present, leaving either a saclike covering at stem base or easily removable patches on cap; partial veil present on most species, leaving a membranous ring on the stem, terrestrial, associated with trees. [note: Although some are eaten, to be safe, avoid all *Amanita*.]

1. Mushrooms with universal veil leaving a saclike volva (or remnants) about unswollen stem base; cap margin distinctly striate to sulcate (pleated).

a. Partial veil present, leaving ring on stem: *A. caesarea* (= *A. jacksonii*), *A. calyptroderma*, *A. spreata*

b. Partial veil absent: *A. farinosa*, *A. fulva*, *A. inaurata* (= *A. ceciliae*), *A. parvicolvata*, *A. vaginata*, *A. velosa*.

2. Mushrooms with universal veil leaving conspicuous patches on cap surface and often only a marginate cup at base of stem; partial veil present, leaving a ring on stem. *A. cothurnata*, *A. gemmata* (= *A. crenulata*), *A. muscaria*, *A. pantherina*, *A. wellsii*

3. Mushrooms with universal veil leaving a tough, membranous saclike volva at base of stem; partial veil absent; cap margin striate or smooth.  
a. *volvata* complex

4. Mushrooms with universal veil leaving a membranous saclike volva at swollen stem base; partial veil leaving membranous ring on stem; cap margin smooth. [deadly] *A. phalloides*, *A. virosa* (= *A. bisporigera*)

5. Mushrooms with universal veil leaving patches on the cap and remnants about distinctly swollen stem base, partial veil leaving membranous ring on stem; cap margin smooth. *A. aspera* (= *A. franchetii*), *A. brunnescens*, *A. citrina*, *A. flavoconia*, *A. flavorubescens*, *A. porphyria*, *A. rubescens*, *A. novinupta*

6. Mushrooms with universal veil leaving distinctive pyramid-like warts on cap; stem base often rooting; partial veil often leaving ragged remains along cap margin; smell often chlorine-like. *A. cinereopannosa*, *A. cokeri*, *A. silvicola*, *A. smithiana*

**CORTINARIUS**...spore print rusty brown; gills attached; partial veil present as a cobwebby covering over the gills, leaving at most only a ringlike band of brown hairs on upper stem; terrestrial, associated with trees.

1. Mushrooms with slimy (or shiny) cap and slimy stem. *C. collinitus*, *C. iodes*
2. Mushrooms with slimy cap and dry stem; stem often marginate bulbous. *C. glaucopus*, *C. multiformis*
3. Mushrooms dry, with silvery grayblue colors; often strongly aromatic. *C. alboviolaceus*, *C. traganus* (= *C. camphorates*)
4. Mushrooms dry, scaly-capped, dark purple. [only known harmless species] *C. ciolaceus*
5. Mushrooms dry or hygrophanous, often dull brownish, often small. *C. armillatus*
6. Mushrooms dry or hygrophanous, gills typically bright orange-red, or yellow. *C. cinnabarinus*, *C. croceifolius*, *C. sanguineus*, *C. semisanguineus*
7. Mushrooms dry or hygrophanous, often colored greenish-orange. *C. gentiles*

**LACTARIUS**...spore print white; gills attached; no veils present; latex present on cut surfaces; terrestrial, associated with trees.

1. Mushrooms with saffron, orange, red, or indigo latex (cut gills) [edible] *L. deliciosus*, *L. indigo*, *L. paradoxus*, *L. subpurpureus*
2. Mushrooms with abundant white, mild latex; cap & stem typ. Orange; distinctive odor of fish in some species. [edible] *L. corrugis*, *L. hygrophoroides*, *L. luteolus*, *L. volemus*
3. Mushroom with white, sometimes acrid, latex; cap & stem orange, red to grayish; gills often aromatic. *L. aquifluus*, *L. camphorates*, *L. fragilis*, *L. rubidus*, *L. peckii*, *L. rufus*
4. Mushrooms with white, typically acrid latex. Whole mushroom white. *L. deceptivus*, *L. piperatus*
5. Mushrooms with white latex, often staining flesh pinkish; cap brownish. *L. gerardii*, *L. ligniotus*
6. Mushrooms with white latex often becoming yellow or purplish on exposure; cap in some species with lacelike marginal fringe. *L. controversus*, *L. mucidus*, *L. representantus*, *L. scrobiculatus*, *L. sordidus*, *L. torminosus* (= *L. pubescens*), *L. uvidus*, *L. vinaceorufescens*

**RUSSULA**... spore print white to creamy yellow. Gills attached and brittle (easily flaked off); no veils present; no latex present on cut surfaces; terrestrial, associated with trees.

1. Mushrooms hard-fleshed, either white or buff or gray, some species on bruising staining pinkish on gills, or flesh

**continued next page**

## A Truffle-Finding Machine

(from the **Mycophile**, September/October 2003)

According to *European Magazine*, on February 3, 1995, a portable truffle detector has been introduced at the price of \$950.

The machine looks like a metal detector, and its sensor makes a sound when it detects the smell of truffles. However, French farmers did not welcome this efficient new technology. They say that using the machine to pick the mushroom is like removing poetry from our life.

One farmer suggests that the machine is less competitive in the aspect of practicality, noting, "I have a farm and raise some pigs. I paid \$90 for each pig, and it finds 40 to 50 kilograms of truffles. After a year, I eat the pig. The machine cannot do this, am I right?"

## Hallucinogenic Mushrooms – Legal Cash Crop for Sale in England

(as reported in the Fungus Federation of Santa Cruz **Duff**, March 2004)

Ellen Timiney, 29, has set aside a room in her Plymouth, England flat and devoted it to growing magic mushrooms, according to an article published 2/4/04 by the British Broadcasting Corporation. She grows them legally, and distributes her fresh crop to cafes and shops across the South West as part of a retail boom in the psychedelic fungi in Great Britain; only the processing of the mushrooms such as frying or freezing, is prohibited in that country.

The mushrooms are cultivated in clinical conditions and are sold for about 160 pounds a kilogram (\$117/lb.) Says Ms. Timiney: "We have quite a small operation, but we can produce 10 kilos of mushrooms a week...We have had no problem with the police at all and we fully intend to stay within the law as we understand it."

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### Keys to the Kingdom from page 6

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- turning red and then black, or just black. *R. brevipes*, *R. compacta*, *R. dissimulans*
2. Mushrooms yellowish to orange with a striate cap margin and distinctive odor of almond extract or marzipan (when young). *R. laurocerasi*
  3. Mushrooms yellowish becoming ashy gray on bruising or in age. *R. claroflava*
  4. Mushrooms with matte (dull) finish on cap, sometimes with bloom on cap or sometimes tacky to the touch but not slimy, some green-capped, many mild tasting (only group of good edibles in the genus, but not all species are known to be edible) *R. aeruginosa*, *R. crustosa*, *R. mariae*, *R. variata*, *R. xermpelina*
  5. Mushrooms with slimy (or shiny) cap; many re, many acrid tasting. *R. emetica*, *R. fragilis*, *R. krombolzii* (= *R. vineacea*), *R. rosacea*

**Editor's note: This key will be used on the July 11 DePew Park walk during the mushroom identification session.**

## Sweet Lurkers: Cryptic Fungi Protect Chocolate-Tree Leaves

(reprint from **Science News**, 12/13/03)

A hidden world of fungi abounds inside healthy leaves and scientists are beginning to learn what it's doing there. A research team reports that in tree leaves, these fungi, called endophytes, can limit damage from attacking disease agents.

In tests on chocolate trees in Panama, leaves colonized with endophytes that don't cause disease coped better with a vicious pathogen than fungus-free leaves did, report A. Elizabeth Arnold of Duke University in Durham, N.C., and her colleagues...

Arnold and her colleagues surveyed fungi in cacao leaves at five sites in Panama... Different tree species at the same site tend to have different mixes of colonizers. In lab experiments, extracts of leaves from different tree species influenced the growth rates of various fungal types and even altered the outcomes of fungus-versus-fungus growth competitions.

Arnold and her colleagues chose seven kinds of fungi that showed up frequently in leaves of the local trees and won laboratory growth competitions. The researchers introduced these fungi to both young and old leaves on cacao seedlings that had been free of fungi. Then, the scientists inoculated some of the leaves with a strain of *Phytophthora*, one of the three major pathogens in commercial cacao and a relative of the organism behind Irish potato blight. Compared with leaves without endophytes, the leaves housing the friendly colonizers lost about half as much area to invaders and were more likely to survive.

The bonus turned out to be biggest for the older leaves. The fungi may compensate for the waning of defensive

## GOOD MORNING FROM DR. WEIL.COM Tip: Breast Cancer and...Mushrooms?

There are many ways to help lower your risk of breast cancer; one is to incorporate medicinal mushrooms into your diet and health regime. The following four are great choices to add to your meals or supplement with as cancer-preventative measures:

Maitake (*Grifola frondosa*). This delicious, edible mushroom provides anti-cancer, anti-viral and immune-enhancing properties, and may also reduce blood pressure and blood sugar. Find it dried or fresh in Japanese markets, gourmet stores or upscale supermarkets.

Shiitake (*Lentinula edodes*). The shiitake has been found to have immune modulating, anti-viral and cholesterol reducing properties. Certain extracts of shiitake mushrooms are used in Japan as adjunctive therapy to strengthen immunity of cancer patients during chemotherapy and radiation. Find it – fresh or dried – in grocery stores and Asian markets.

Agaricus (*Agaricus blazei*). This medicinal mushroom has anti-tumor and anti-viral activity, and is widely used by cancer patients in Japan and Brazil. You can get it as a culture or in extract form from Fungi Perfecti: visit [www.fungi.com](http://www.fungi.com)

Reishi (*Ganoderma lucidum*). Too woody and bitter to eat as food, reishi mushrooms are available in tea bags, capsules and liquid extracts. Animal studies have shown that reishi improves immune function and inhibits the growth of some malignant tumors. It is also a natural anti-inflammatory agent.

## King of the Oysters

by Dennis Aita

These days if you shop—or look, as I usually do in fancy food emporiums—one finds an ever-growing display of mushrooms. Many are cultivated species and varieties of *Pleurotus* (oyster mushrooms) having gray, brown, pink, blue, yellow, and white caps as well as various shapes.

About a year ago while shopping in Manhattan's Chinatown I spotted a mushroom that looked like nothing I had ever seen. The mushrooms had thick off-white stems 5-7 inches long with light brown caps measuring a couple of inches. Most of the stems were about as thick as the cap with very light brown gills descending a good part of the stem. They had no particular odor. The Chinese vendor was of little help in identifying it as "chicken mushroom." Could he be telling me what to cook with it?

Some time later I spotted the mushroom at my favorite store for wild mushrooms, Garden of Eden. They were labelled there as "King Oyster Mushroom." In the course of some Googleing, I was surprised to learn that four years ago I had actually eaten this mushroom at several dinners in Italy



*Pleurotus eryngii* in cultivation

and had even seen it being cultivated. But what I had seen then didn't look anything like the ones now being sold here!

"King Oyster" is one of the common names for *Pleurotus eryngii*, aka "Royal Trumpet," "Trumpet Royale" or "King Trumpet." *P. eryngii* is actually a complex of approximately twelve mushrooms that grow wild near the Mediterranean and parts of Central Asia. Whereas most *Pleurotus* grow directly on wood, *P. eryngii* grows singly or



*Pleurotus eryngii* in the wild, note the thistles of its associated umbellifer

clustered on the roots of various plants of the carrot/parsley family, the *Umbelliferae* (umbellifers). Years ago these mushrooms were all considered varieties of *P. eryngii* but in the last decade mycologists, using genetic analysis, have been able to split *P. eryngii* into about a half dozen distinct species. It looks like each of these mushrooms probably colonizes the roots of a specific Umbellifer plant and are named after their plant host.

For example, *P. eryngii* grows on the roots of *Eryngium campestre*, a very spiny thistle of small stature. (Just a note, since this plant has been introduced in the U.S., could we also introduce its mushroom?) Italians have several common names for this mushroom: *cardarello* and *cardoncello* (cardo = thistle), while the Spanish call it *seta de cardo*. And Fries actually named this mushroom *Agaricus cardarella*, now one of its synonyms.

The "thistle fungus" is considered to be one of the largest of the *Pleuroti*, measuring up to 15 cm. in the wild. It grows, like many of our oyster mushrooms, predominately in the spring and fall. Photos show that the cap is mottled-brown with long brownish gills deeply descending a small off-white stem, very different from the cultivated "King Oysters." But not very different from what I saw four years ago in an Italian cultivation center while on a mushroom tour of Southern Italy. My research shows that it was first cultivated in Puglia, in southeastern Italy, around 1970.

In Calabria we saw greenhouses with long beds of soil. The Calabrians used large autoclaves to sterilize grain and straw, which was then mixed with the *Pleurotus* spawn. The inoculation took place in plastic bags and some

time later, the material from the bags was placed in the soil beds to fruit. The resulting mushrooms were three "varieties" of *P. eryngii*, now considered species: *P. eryngii*, *P. ferulae*, and *P. nebrodensis*. Each of these mushrooms looked very different from each other and yet each of looked remarkably like the photos that I have seen of their wild cousins.

The second mushroom in the complex, *Pleurotus ferulae*, has a dark gray cap unlike *P. eryngii* which has a brown cap. It also has a different host plant: *Ferula communis*, the giant fennel which is not to be confused with the culinary fennel. Not far from the cultivation center our tour bus came to a sudden stop on a winding road. Many of us rushed out to take pictures of this strange looking giant fennel plant. Each year this perennial plant grows anew, sending up a new central stalk that can grow to 17 feet! It was thought that both *P. ferulae* and *P. eryngii* were saprotrophs growing on non-living materials but also having a weak pathogenic action. As it turns out, the Ferla mushroom (the common name of *P. ferulae*) is more a parasite than a saprophyte, while recent research seems to show that *P. eryngii* may also act as a symbiont with its host, *Eryngium campestre*.

The third of the cultivated species at the center was *Pleurotus nebrodensis*. A mostly white mushroom (which yellows somewhat with age) it grows with another umbellifer, *Cachrys ferulacea* (known in Sicily as *basilisco* after a mythological monstrous rooster) and is called *fungo di basilisco* after the plant. Sicilian mycologists have only found this mushroom in two places: Mt. Etna and in the Madonie Mts. near Palermo where it only grows at high elevations of. It is not a common mushroom in the wild, growing only from the end of April to the beginning of July, but it is highly prized. Top restaurants around Palermo, Sicily pay up to 100,000 lire per kilo (around \$30 per pound) for wild *P. nebrodensis*. Aside from appearing in cooked dishes, it is one of the few choice mushrooms in Italy that is served raw or barely

**continued next page**

## Mushroom Curry

(from Mahur Jaffri **Quick & Easy Indian Cooking**, reprinted in **Spores Illustrated**, Spring 2004 edition)

1 piece fresh ginger, peeled and finely chopped  
1 small onion, peeled and chopped  
3 cloves garlic, peeled and chopped  
1 lb. fresh mushrooms (cut into quarters if large)  
6 T vegetable oil  
3 T plain yogurt  
1 t tomato paste  
2 t ground coriander  
\_ t salt  
1/8 to \_ t cayenne pepper  
2 T chopped fresh cilantro

Blend the ginger, onion, garlic with 3 T water in an electric blender until smooth. Heat 3 T oil in large nonstick frying pan on high heat. Stir-fry the mushrooms for 2-3 minutes. Empty mushrooms into bowl and set aside. Wipe out pan.

Heat remaining oil in frig pan on high heat. Add the ginger-onion mix; stir-fry a couple minutes. Add 1 T yogurt; fry 30 seconds. Repeat twice. Add the tomato paste and fry 30 seconds. Add the ground coriander and stir once or twice. Add 1 \_ cups water, the mushrooms and their juices, salt and cayenne pepper. Stir and bring to a simmer. Turn the heat to low and simmer for 5 minutes. Sprinkle the cilantro over the top before serving. Serves 4

## Mashed Potatoes with Mushrooms

(adapted from **Bon Appetit** & preprinted from **Spores Illustrated**, Spring 2004 edition)

5 lb. russet potatoes, peeled, cut into 1 \_ " cubes  
2/3 C (or more) whole milk (or plain soymilk)  
1 \_ lb. button (ooo! Morels!!) mushrooms, thickly sliced  
8 T (1 stick) butter  
\_ C chopped shallots  
2T chopped fresh chives

## King of the Oysters from page 8



*Pleurotus nebrodensis*

marinated and served in a salad.

Of course, the Sicilians are also

cultivating it. But in the Madonie Mts., as well as in Calabria, they only grow it in the spring. On the other hand, *P. eryngii* and *P. ferulae* are grown during the spring, summer, fall and , if not too cold, in winter.

The Chinese also cultivate *P. nebrodensis*. There are a surprising number of websites of Chinese companies that are selling it as the "White King Oyster." Online one can also see titles of some Chinese research articles that discuss methods of cultivation for this mushroom. In the U.S., Canada, Spain, China, and other places, different cultivation methods are being used (no greenhouses and

Cook potatoes in large pot of boiling salted water until tender, about 25 minutes. Drain potatoes. Return to same pot. Stir over medium heat until excess moisture evaporates, about 1 minute; remove from heat. Add 5 T butter to potatoes; mash well. Add 2/3 C milk and mix, adding more milk by tablespoons to reach desired consistency. Season potatoes to taste with salt and pepper.

Melt 3 T butter in large skillet over medium-high heat. Add half of mushrooms; sauté until beginning to soften, about 3 minutes. Add remaining mushrooms and shallots. Sauté until juices evaporate and mushrooms brown, about 12 minutes; season with salt and pepper.

Mix 2/3 of mushrooms into potatoes. Mount in bowl. Top with remaining mushrooms; sprinkle with chives. Serves 8



## MUSHROOMS STEWED IN WINE

(from a recipe collection of Sami Saad as reprinted in Wisconsin Mycological Society's Newsletter, September, 2003)

2 lb. mushrooms, thinly sliced  
1/3 C olive oil  
2 T chopped chives or 1 T minced onion  
2 T fennel seeds  
1/3 C chopped parsley  
1 t salt  
\_ t white pepper  
\_ C dry white wine

Saute mushrooms in hot olive oil with chives, fennel seeds, and parsley for 5 minutes. Season with salt and pepper. Add wine. Cook. Covered, over low heat for 5 minutes. Makes 4-6 servings.

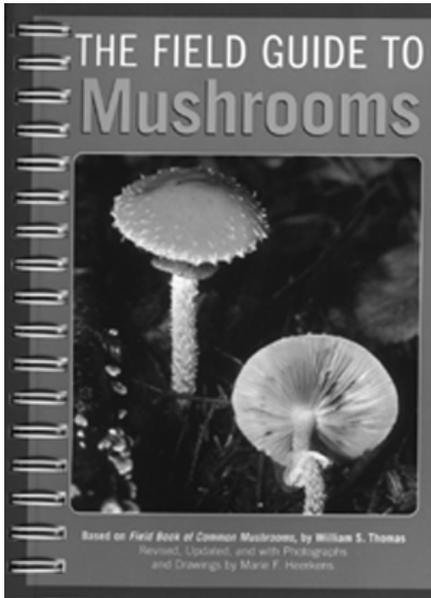
beds of soil, for example) and the mushrooms produced look very different from the Italian products.

Lately, companies like Phillips Mushrooms of Kennett Square, Pennsylvania, are growing trumpet-like forms with newly created names mentioned before. These are prettier mushrooms - smaller, more delicate with thinner stems and funnel-shaped caps. Compared with our lignicolous Pleuroti, the King Oysters have been more expensive to grow. They take longer to inoculate, incubate, are more particular about their substrates, and yield less. So I only hope that with the

**continued page 11**

## THE FIELD GUIDE TO MUSHROOMS

Based on the 1928 edition of "Field Book of Common Mushrooms" by William Sturgis Thomas. Revised, updated, and with illustrations and photographs by Marie F. Heerkens. A Main Street Book. Published by Sterling Publishing Co., 387 Park Avenue South. 221 pages, spiral-bound, \$9.95.



William Sturgis Thomas was the President of the Second Avatar of the New York Mycological Society, back in the 20's. [We are currently in the Third, if you are counting avatars.] Anyway, William Sturgis Thomas wrote an exceptionally fine little book for use in New York. It was a regional field guide, and it was intended for mushroom enthusiasts. It included the most conspicuous mushrooms in our area, and it did not overwhelm the user with the differences between endless "kinds" of things that look alike to most people.

This update of the Thomas guide is for people who do not have the original and want something like it. The new book has a section on collecting and examining mushrooms, one on methods of cooking different wild mushrooms, a glossary, and a section of about 125 different kinds of mushrooms. The mushrooms are described and illustrated. Most are illustrated by photographs, some by drawings. The drawings are better than many of the photographs, which might be great as slides but some are too dark on the printed page. The

descriptions are OK for amateurs, but everyone should know that several books should be consulted before you try to eat a new wild mushroom for the first time.

The strength of this book is that instead of giving you a couple of dozen examples of, say, Amanita or Cortinarius, or Lactarius or Russula, the book just gives you a few. This is one way to learn a "genus" without becoming overwhelmed by the diversity within a particular genus, like Russula.

This book is a good way to begin looking at mushrooms, and at \$10, the price is right. Besides, just because you find a mushroom does not mean you have to identify it — or eat it. Many people are just better at identifying with the mushrooms they find than identifying the mushrooms to name. Chacon a son gout

Marie Heerkens, the author of this new edition, is an artist, and you can see her work on display at forays like the NEMF. If you go to google.com and type in "Marie Heerkens," you can get to her website. There, you can see her mushroom postcards, silkscreen designs, Ganoderma art, watercolors, etc., as well as more about Marie herself.

Marie will be at this year's NEMF (Sept. 9-12) in New Hampshire. She will be offering a mushroom drawing workshop. NEMF will be holding a mushroom drawing contest, in conjunction with Marie's workshop, and there will be prizes for the winners.

## RUSSULA SPECIALIST RAY FATTO REMEMBERED

by Gary Lincoff

Ray Fatto was not only one of the most active members of the New Jersey Mycological Association the past 20 years or so, he was also at every NEMF foray, every COMA foray, and almost every NAMA foray, as well.

He studied Russulas, mostly, but also Inocybes and anything else that needed attention. He was very quiet and unassuming but his identifications carried a lot of weight. He spent most of his time at forays in the lab, with his research papers and microscope. He walked about the display tables helping people understand the often easily missed differences between Russulas that look alike.

He gave talks and workshops on a variety of topics, and he wrote original research papers that were published in professional mycological journals. He named a number of new species.

Amateur mycologists who succeed in the world of professional mycology can be counted on the fingers of one hand, and Ray was one of them. Even more, he studied a genus that few professional mycologists have ever felt the confidence to publish on, and he showed everyone that his kind of collecting, note-taking, measuring, and comparing pays big dividends.

He advanced our knowledge of Russulas and contributed to amateur mycology in a way few others have in the past century.

Ray died earlier this year. We will miss him at our forays.

### NYMS Newsletter



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## **Appetite For Apatite: Rock-Eating Fungi Help “Mine” Minerals**

From an article appearing at the web site ScienceDaily.com. This story was adapted from a news release issued by University Of Michigan.

ANN ARBOR—With the help of rock-eating fungi, some types of trees are able to “mine” calcium, a nutrient essential to their growth, a research team led by University of Michigan geological sciences Prof. Joel D. Blum has found. The finding, published in the June 13 issue of *Nature*, has implications for forest ecology and management and should help scientists better understand the effects of acid rain on forest ecosystems, says Blum.

Until now, scientists thought trees got most of their calcium by root uptake of calcium that is loosely bound to the surfaces of soil particles, known as the “plant-available pool.” A large pool of calcium also exists in silicate minerals in the soil that slowly weather over thousands of years and release calcium to the ecosystem, but scientists have assumed that it is not available directly to plants.

“What we discovered through the experiments that are reported in this paper is that there’s not simply the plant-available pool and the pool of calcium in the silicate minerals, but there’s also an intermediate pool of calcium contained in the common calcium phosphate mineral called apatite, which previously hadn’t been recognized as being available to plants,” says Blum. Trees do not take up calcium directly from this source; in-

stead, they rely on fungi that live symbiotically on tree roots. Previous research had shown that these ectomycorrhizal fungi send out projections (hyphae) that release organic acids and penetrate mineral particles. The acids dissolve the mineral material around the hyphae, releasing essential nutrients such as calcium, phosphorus and potassium. Blum’s study was the first to show that the trees are using calcium that the fungi have obtained in this way.

“The previous view was that all the trees in the forest get their nutrients from the plant-available soil pool. The conclusion we came up with from this study was that, while some trees are only able to use the plant-available soil pool, others can send down fungal hyphae and find the apatite. Instead of drinking their calcium, they mine it.”

The researchers were able to determine where individual trees were getting their calcium by analyzing the calcium-to-strontium ratios in their leaves and needles. Calcium and strontium behave very similarly in living systems, but not during the process of mineral formation in crystalline rocks. Consequently, different minerals have different signature ratios of calcium to strontium. The ratios in the foliage revealed that spruce and fir trees were tapping into apatite—via fungal hyphae—for their calcium, whereas sugar maples, which lack ectomycorrhizal fungi,

could only sip it from the soil solution.

The question of how much calcium is available to trees is crucial in understanding the effects of acid rain on forest ecosystems. Acid deposition leaches calcium from the soil, and because soils take thousands of years to develop, such damage is not easily repaired. Finding that some trees can bypass the soil solution and pump up calcium from deep in the soil is good news, but it does not mean that acid rain is not harming forests.

“We don’t want to suggest that there is no longer a need for concern about acid rain depleting calcium from forests,” says Blum. “Our research shows that some trees have other strategies for getting their calcium, which may be important when the plant-available pool starts running out, but trees that don’t have the ability to go deeper are still in the same dilemma they’ve always been in.” Indeed, sugar maples are declining dramatically across New England, and while no one is entirely sure why that is happening, some researchers believe it is because maples are particularly sensitive to loss of soil calcium from acid rain.

“It’s just one of many theories, but our work strengthens that argument a little by saying that maples in particular don’t have access to this other source of calcium, so they might be more sensitive to the loss of soil calcium from acid rain,” says Blum, who collaborated on the project with researchers from Syracuse University, Yale University, Cornell University, the USDA Forest Service, and the Institute of Ecosystem Studies.

The findings also have implications for forest management. Typically, forest researchers sample soil near the surface and measure the amount of calcium easily removed by shaking the soil in a salt solution, to determine whether there is enough calcium for a forest to re-grow after logging. “But now we realize that’s not as good a measure of what’s available to trees as we thought,” says Blum. Like the trees, researchers may have to go deeper in search of apatite to get a true picture of a forest’s calcium reserves.

The research was funded by the National Science Foundation and was carried out at the Hubbard Brook Experimental Forest in New Hampshire.

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### **King of the Oysters from page 8**

new cultivation methods we don't have to compromise - losing some of the taste of these mushrooms for marketability purposes.

Appearances aside, is the “King Oyster” really something special? Tasting the King Oysters of Italy and those of our local markets, I think that the answer is yes. In Spain, Gary Lincoff got a chance to eat wild *P. eryngii*; his travel group considered it to be the best of the mushrooms tasted during the trip. And the overwhelming consensus from others who have eaten the King Oyster is that it is an excellent edible mushroom. The “King Oyster” has a firm, pleasantly chewy texture and a slightly sweet, rich, almost meaty taste.

When it comes to cooking the King Oyster is quite versatile. For example, in Italy we were served whole young mushrooms deep-fried, which matched the soup of porcini and the Ferla mushroom, which combined the special aroma of the porcini with the meaty texture of the King Oysters. In looking at several dozen recipes from Sicilian restaurants, the only dish missing was stuffed mushrooms—for obvious reasons.

Prices vary widely in the markets; lately, I have seen the thick-stemmed variety being sold in several Chinatown locations for \$4.50 a pound. If you haven’t tried them yet, do go out and buy some.

## Contents

<b>Recent Happenings .....</b>	<b>1</b>	<b>Peck Foray .....</b>	<b>5</b>
<b>Canterelle Weekend .....</b>	<b>1</b>	<b>COMA Foray .....</b>	<b>5</b>
<b>Catskill Weeknd.....</b>	<b>1</b>	<b>Exotic Forays .....</b>	<b>5</b>
<b>New Website .....</b>	<b>1</b>	<b>NYMS Membership form .....</b>	<b>5</b>
<b>Foul Weather Friends.....</b>	<b>1</b>	<b>Keys to the Kingdom .....</b>	<b>6</b>
<b>Mushroom Treat at FCI .....</b>	<b>2</b>	<b>Mushrooms in the News .....</b>	<b>7</b>
<b>Mushroom Banquet .....</b>	<b>2</b>	<b>King of the Oysters .....</b>	<b>8</b>
<b>Walter Snell: Baseball and Boletes .....</b>	<b>3</b>	<b>Recipes .....</b>	<b>9</b>
<b>NYMS Wlk Summary .....</b>	<b>4</b>	<b>Book Review .....</b>	<b>10</b>
<b>NEMF Foray .....</b>	<b>4</b>	<b>Ray Fatto Rembered .....</b>	<b>10</b>
<b>Nama Foray .....</b>	<b>4</b>	<b>Mushroom "Miners" .....</b>	<b>11</b>