

# SPORE PRINTS



BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 411 April 2005

## 2005 SURVIVOR'S BANQUET

Patrice Benson

Our Survivor's Banquet for 2005 celebrated the memory of George Rafanelli, both with reminiscences and with toasts to his mushrooming skills and his Italian heritage. In honor of George, PSMS members baked and stirred, basted and constructed an incredible array of foods with Italian and mushroom themes. The abundance of food was overwhelming, with leftovers taken home for the first time in my memory. Our first toast of the evening included the memory of Golden Mushroomers, both absent and present. Hear, Hear.

Our entertainment included tenor Tony Kibbie and accordion player Bonnie Birch. Their popular and classic numbers with an Italian theme provided light hearted and fun sing-alongs for all.

Ever popular and fast becoming traditional, Marian Maxwell's famous raffle baskets were indeed a hit and provided additional entertainment as folks eagerly awaited the next number and the revealing of the treasures contained in them.

The new board members and re-elected officers were introduced, and then the evening progressed toward the final business of the presentation of the 13th PSMS Golden Mushroom Award. This year's recipient, Jocelyn Phillips (Lynn to most of us), was present with her husband, Warren Bakken. It was my honor to present the award along with a few slides of Lynn with her mushrooms and mushrooming friends and activities. Her contributions to PSMS have been too numerous to count but include Vice President, Treasurer, Board member, Exhibit Chair, Field Trip Chair, mushroom donor, and helper of any kind as needed. Our hats off to Lynn Phillips for her contributions to PSMS.

## LYNN PHILLIPS

Inga Wilcox

The winner of this year's Golden Mushroom Award is Jocelyn (Lynn) Phillips. A PSMS member for almost 20 years, Lynn has served the Society as Vice President, Treasurer, Board member (several times), Exhibit Chair, and Field Trip Chair. She is always there when help is needed—and always with an enthusiastic gleam in her eye.



Lynn joined PSMS in 1986, after seeing a poster for the annual exhibit, and took classes in identification. She thinks the classes were so popular that about 100 persons participated. Classes were taught by members who talked about their specialty. She remembers Ben Woo and Milt Grout, among others.

On a more personal note, Lynn Phillips spent her early childhood in Massachusetts, where her father, of Lithuanian background, enjoyed searching for fungi. When he brought the family to Seattle, they continued to explore the fungi of our state. Later on, Lynn remembers looking for mushrooms with a girlfriend who also worked at the University of Washington. Monday mornings they would take their finds to the laboratory where she worked as a research assistant—she has a degree in zoology—and had their mushrooms identified. The identifier was none other than George Rafanelli, who also worked at the UW. For lunch they would then sauté the edible ones on a lab burner and have a delicious meal.

Lynn's husband is not a fungophile, but is a good sport about her bringing mushrooms home and tolerating the aroma of drying fungi. She is a dedicated skier and enjoys bicycling, gardening, cooking, and doing things around the house. And, yes, she does collect hats and loves to wear them.

## Survivor's Banquet 2005



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### PUGET SOUND MYCOLOGICAL SOCIETY

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## CALENDAR

Apr. 12 Membership Meeting, 7:30 PM, CUH  
Apr. 18 Board Meeting, 7:30 PM, CUH  
Apr. 19 *Spore Prints* Deadline  
April 30 Field Trip, Circle 8 Range  
May 13–15 Spring Foray, Cispus

## BOARD NEWS

Dennis Oliver

The board met still entranced by the tastes and sounds of Italy: the food, the wine, the songs. Ah, this year we had a simply marvelous Survivors Banquet. Kudos and thanks go to Marian Maxwell and her team of helpers, who put on a great event. Bravo to the cooks, whose countless wonderful dishes were enjoyed by all. *Mille grazie*.

The board's life is not all discussion of Italian food and drink. John Goldman reported on finances, which are fine. On John's recommendation, the board approved switching our accounts from Pioneer to Fidelity. The spring class schedule has been set, with the classes beginning on April 4 and running for four weeks. The Washington Parks Department is considering formulating regulations for picking wild mushrooms in the parks and has solicited input from PSMS. The board is discussing possible proposals. Any comments the membership might have, please e-mail them to Ron Post or Karen Behm. The PSMS library will be open soon for use by the membership. The hours would be 5:00–7:15 PM before each membership meeting. If you are interested in helping with the library, please contact Ron Post. The spring foray at Cispus is planned; the rains have finally come, so come take advantage of a wonderful opportunity to learn about morels, lichens, and natural dyeing.

## MEMBERSHIP MEETING

Tuesday, April 12, 2005, at the Center for Urban Horticulture, 3501 41st Street, Seattle

Our April meeting features Dr. Dean Glawe. A native of Minnesota (like many other Seattleites), Dr. Glawe received his Ph.D. in Plant Pathology in 1982 from Washington State University. He then taught mycology and did research on fungal taxonomy at the University of Illinois, Urbana-Champaign, from 1982–1993. In 1991 he received the Alexopoulos Prize from the Mycological Society of America for his research on the biology and taxonomy of Pyrenomycetes and Deuteromycetes. Based at WSU's Puyallup Research and Extension Center, he and Joe Ammirati co-founded the Pacific Northwest Fungi Project, a group of mycologists working to produce a complete catalog of the fungi of the Pacific Northwest. He also manages the Pacific Northwest Fungi Database ([www.pnwfungi.wsu.edu](http://www.pnwfungi.wsu.edu)). His research focuses on the taxonomy and biology of Erysiphales (powdery mildew fungi).

Dr. Glawe will talk on "The Natural History of Powdery Mildew Fungi." Powdery mildews are some of the world's most devastating plant diseases. They are caused by members of the Erysiphales, microscopic Ascomycetes that parasitize plant leaves, stems, and flowers. About 700 species of powdery mildew fungi have been described throughout the world, and nearly 200 of them occur in the Pacific Northwest. They are commonly found attacking roses, rhododendrons, zucchini, and many other garden plants in the Seattle area, as well as native plants such as willows and cottonwoods. The talk will illustrate key features of powdery mildew disease and life cycles, morphological and physiological features, and interactions with their hosts. Examples will be drawn from species ranging from some of the most common backyard fungi in Seattle to newly found species from interior Alaska.

If your last name begins with M to Z, please bring a powdery treat to share.

## THE PACIFIC NORTHWEST FUNGI DATABASE: A NEW TOOL FOR MUSHROOM RESEARCHERS

<http://www.pnwfungi.wsu.edu/>

Those interested in Northwest fungi now have a new and useful tool—The Pacific Northwest Fungi Database, Managed by Dr. Dean Glawe (see PSMS Membership Meeting program for April, 2005), this database contains information on fungi that occur on plants except grasses in Alaska, British Columbia, Idaho, Montana, Oregon, and Washington and is intended primarily as a tool for researchers, teachers, and students. As part of the Pacific Northwest Fungi Project, a consortium of cooperating scientists throughout the region, the database is being continually updated, expanded, and corrected. It currently contains nearly 5,000 species out of the estimated 15,000–20,000 species in the region. The ultimate goal of the project is to develop a complete inventory of the region's fungi, including information on non-plant-associated fungi such as terricolous mushrooms, timber-decaying fungi, medically significant fungi, etc., and fungi on grass hosts.

The database can be searched in a number of ways and contains the following information:

- name of fungus (genus and species)
- host plant or plants (genus and species)
- state or province from which the fungus was reported
- taxonomic authority
- whether the record is based on a herbarium specimen or a literature citation.



## UPCOMING FIELD TRIPS

Cathy Lennebacker

Attention all you people chomping at the bit to get out there and pick. The first official morel trip is scheduled on April 30 at Circle 8 Ranch on the east side of Snoqualmie Pass. They did some logging last fall, but it was probably too late to produce a crop of last-gasp morels this spring—maybe next year. Even mushrooms have a “reproduce before ya die” instinct. My very own daughter is working on a baby due in May, so the box of foray supplies will be in the club office at CUH unless you hear differently when I call to check that you still have a pulse and can therefore host a field trip.

Some of you have been lobbying for a Sunday field trip. It would be nice if you called my home and volunteered, but since my phone is quiet there will be a few trips you could go to on a Sunday. There always have been but anyway.... An asterisk by the date means you can arrive on a Sunday and find other devotees drinking coffee and getting up the energy to hit the woods. We will try to have an identifier for you.

All field trips start at 9 AM. **Hosts are needed.** I can be contacted at (425) 742-3163 or crazyquilterxyz@hotmail.com. (I hope. Hotmail somehow ate my address of 11 years. They are having “server problems.” That means they can send me ads, but I can’t send or receive. Go figure.)

The following schedule shows just the trips before the next meeting as it is a crazy spring and my crystal ball isn’t reliable. It looked like an early and brief season until the rain started and the nights got cold again. If you are out and about in April I’m interested in how you did. If it’s great, we might announce another trip or two on the Website, at the April meeting, or on the CUH office phone, (206) 522-6031.

**Note:** It’s really bad form to go pick somewhere a week or two before the club has a trip scheduled, so don’t. You know who you are.

### April 30

### Circle 8 Ranch

(elev. 200 ft, 75 miles east of Seattle)

Twenty miles east of Snoqualmie Pass on I-90 take exit #74 West Nelson Siding Road. Turn right. After 2 miles look for the sign to Circle 8. It’s two interlocking squares, which is the symbol for square dancing as that is what this place really does between Memorial Day and Labor Day. Turn right, follow the road through the woods, and look for the PSMS signs. There will be a usage fee of \$3 per person payable to the host.



“N-i-i-i-i-i-ce Doggie”

## MUSHROOM OF THE MONTH

Dick Sieger

How did they know? The cone collector had been warned to avoid the cones in squirrel caches, but she took them anyway, tempted by their abundance. Now, many months later, she was being reprimanded. They knew because when her seeds were planted in a nursery, up came cup fungi instead of the expected conifer seedlings.

Like 5,000 other Ascomycetes, this month’s mushroom has two forms, each with its own name. The teleomorph (sexual phase) is a lovely cup fungus, *Caloscypha fulgens*. The anamorph (asexual phase) is a mold, *Geniculodendron pyriforme*.



The anamorph is a parasite on conifer seeds. It is also a symbiotic partner of squirrels. Squirrels provide the mold with an abundance of seeds on which to grow. In return, the mold inhibits germination of the seeds, keeping the squirrels’ food from turning into trees.

*Caloscypha fulgens* is a springtime mushroom that likes moist forest floors and snow melt. In some years, morel hunters see it everywhere. Its bright orange cups are hard to overlook. The largest ones are more than 2 inches across. Young cups are deep with edges that curl in and may be split. With age and when bruised, the outside of the cup stains a blue that, on the orange ground color, appears green. None of our other cups have this color combination, so this is an easy mushroom to identify. Pot hunters should stick with morels because *C. fulgens* has poisoned people.

We regret to report that John D. Parker, 96, died at his home in Port Ludlow, WA. An avid wild mushroom hunter and PSMS member since 1969, he was instrumental in setting up the Jefferson County Mycological Society which evolved into the Olympic Peninsula Mushroom Society.

## SPRING FORAY 2005

Patrice Benson

The deadline for the George Rafanelli Memorial Foray sponsored by PSMS is April 30, less than a month away. If you haven't already done so, sign up as soon as possible. Members of other mushroom clubs in the Puget Sound area are welcome.

**When:** Dinner on Friday, May 13, through lunch on Sunday, May 15, 2005

**Where:** Cispus Environmental Center, 2142 Cispus Road, Randle, WA 98377 <http://www.cispus.org>

**Cost:** \$90 for adults for two nights lodging (dorm style), five meals, and all programs.

**Activities:** Field trips for mushrooms, workshops on microscopy and dyeing with fungi, sessions on lichenology, guided walks, lectures, socializing, mushroom cooking, and, of course, mushroom identification.

**To register:** Sign up at the meeting on April 12 or download an application form from the registration field on our Website at <http://www.psms.org/cispus.html> and mail it with a check for the full amount to

Patrice Benson, Cispus Foray  
3818 Cascadia Ave. S.  
Seattle, WA 98118

For more information, e-mail [patrice.benson@comcast.net](mailto:patrice.benson@comcast.net) or call (206) 722-0691.

## ABOUT THE PSMS LIBRARY

Ron Post

"Thank you" to all the PSMS donors who have added to our library, which reopens this month. (See user guidelines available at membership meetings and at the PSMS library itself.)

While preparing the PSMS office for its grand reopening, I again became aware of the solid legacy of our founding members and their students. I am so happy at the library's reopening after several years that I plan to be there to share some special stories (and treats) on Saturday mornings from 11 AM until 1 PM. the final two weeks of April and possibly through May. I am seeking volunteers to help open the office at those hours in May and June. Please stop by if you are not attending the PSMS weekend field trip. (I have to work on Saturdays around 3 PM. and cannot attend most field trips.) You can browse, discuss the library's needs, and just talk. And yes, special hours of access can be arranged!

I want all of you to know how much I have benefited from the use of this resource, and that preserving and upgrading the collection are two of my highest priorities. My gratitude to Lorraine Dod and others who have worked so hard to maintain the library. I am proud to be one of its stewards, and I will continue to address the needs of this valuable collection.

It would be too burdensome to name every donor who has built up this collection of books, journals, monographs, tapes, photographs, and microscopes. Our entire society and the public continue to benefit from those members' foresight and generosity.

There are many books, historic photographs, and interesting journals: please do stop by. And may I suggest that you volunteer to help out with our library collections? We need to maintain files, catalog books, have journals bound, update and remake our scrapbooks, compile a list of donors, keep the library open (potentially) for more hours, and many other potential tasks. You can e-mail me at [ronp46@hotmail.com](mailto:ronp46@hotmail.com).

## CRAWLING AFTER THE CATERPILLAR FUNGUS: PART 2, SPINNING A THREAD

Daniel Winkler

I was crawling on all fours over the slightly moist ground inhaling the aromatic smell of the small-leaved rhododendron and the fungal breath of soil awoken by spring. The pleasant warmth radiating from the strong subtropical sun was cancelled out by a cold wind blowing down from the snow-covered jagged peaks surrounding us. However, the sunlight was supposed to be a major help spotting the tiny stromata, the fruiting bodies of *Cordyceps sinensis*, the caterpillar fungus (called Yartsa Gunbu in Tibetan), which emerge with the first green sprouts of sedges in an otherwise brownish landscape. Sonam Doden, a Tibetan butter dealer from Dardsemdo, who agreed to take my friend Sherab Gyaltzen and me on a Yartsa Gunbu hunt, told me that the shadow of the tiny fungus will help me to tell the stroma apart from all the other little brown objects that carpet the ground in early spring, such as



rhody twigs and withered stems of edelweiss and asters. Finding the elusive stroma by its shadow sounded a bit better than the Tibetan folklore that the caterpillar fungus can be best spotted on a windless day, since only a plant with an insect as its root would tremble slightly.

We had been crawling around for over an hour now at 14,000 ft and had not found a single "bu" as Sonam called it for short. At least this mode of movement did not cause any altitude-induced shortage of breath. Scanning the ground so closely, I was reminded of the vegetation studies I had done in the early 90s in East Tibet, and in the absence of the fungus my mind kept itself busy by babbling names of plants I thought I recognized, such as *Kobresia pygmaea*, *Notholirion bulbiferum*, and *Meconopsis horridula*. Luckily, not far above us a Tibetan family had interrupted their beautiful singing, breaking out a few times into excited screaming. Apparently they were sharing their joy when finding some "bu." Their success told me it should be only a question of time until we stumbled upon the elusive Yartsa Gunbu too.



I marvelled at all the small azaleas that blanketed the slopes. All were about half a meter tall, kept in check by browsing livestock. I recalled the beauty of these shrubs in late May. Once I drove by when all the surrounding slopes were ablaze in bluish purple from their tiny flowers. Set on fire, my chain of thoughts went on, probably all these slopes had been burned before to create good pastures. Uncountable slopes where dark spruce-fir forests or evergreen oak-spruce forests had grown were replaced by pastures and shrub lands owing to centuries of grazing and slope burning. This must have substantially extended the habitat of the caterpillar fungus in Tibet. The yak and its herders as the best friends of *Cordyceps sinensis*? Interesting idea.

I awoke from my thoughts when suddenly I realized I was looking at a minuscule brown something between tufts of grey grass. And it had its own shadow! But it did not move. Can this be it? Is



this the needle in the haystack? Sonam and Sherab were sure it was Yartsa Gunbu. I got out my Swiss knife and was ready to dig it up. Wait a minute, Daniel, I told myself; first you have to document it. Get out the camera. I had come half way around the world to find some *Cordyceps sinensis* growing in the wild after years of collecting info and data, especially on its importance for Tibetan nomads and farmers. Seven years after I first encountered it in Bachen, I was finally looking at a stroma pushing its way up from the soil.

Digging out the caterpillar fungus I first used my knife to cut the turf. *Kobresia* sedges have very dense root systems. Often Tibetans cut the turf into bricks and build walls out of it, definitely ancient green construction. Actually, most of the biomass of *Kobresia* is concentrated underground, a great strategy to protect itself from extreme weather and widespread intense grazing. Luckily the victim of *Cordyceps*, the ghost moth larva, feeds off these sedges, which make up most of the grasslands all over the Tibetan Plateau, I was crawling over like a larva myself. Once I had carefully removed the humus-rich topsoil and tough roots of the sedges from the front side of the fungally transformed worm, I started carefully to peel back a thin layer of mycelium that encapsulated the insect part of the whole Yartsa Gunbu. Finally, the larva showed its yellowish body so I could take a photo of the whole organism *in situ*. We continued our search but found only two more “bu” within the next hours.



Around noon, in typical Tibetan hospitality, the fungus foraging family invited us to join their picnic. They had brewed a pot of tea, although to my tongue its taste does not invoke any memories of tea. It is better described as a kind of broth, since lots of salt and butter, most of the time rancid, is added. But a cup of soup is just the right thing on a cool spring day up in the mountains, even if it tastes rancid. This is the unique taste one has to accept to find culinary happiness in Tibet.

Fortunately I had my teacup with me. Every Tibetan always brings his own bowl with him wherever he goes, since it is also needed for eating “tsampa,” roasted barley flour mixed into the tea, a Tibetan’s daily staple.

Mixing tsampa into tea is a challenging exercise that takes practice and refined finger coordination. First, one has to guess the right amount of flour and, second, the flour gets mixed into the greasy tea with your index and middle fingers. Watching a Tibetan mixing tsampa in seems very simple, even gracious and clean. Actually, clean was a misnomer for two reasons—first, I



was using my dirty fingers after digging larvae and, second, the procedure is rather messy for the underskilled. Luckily, I have developed an approach to minimize the mess. I do the first mixing with my knife. Yes, the blade I just used to cut the turf.

In the end the batter is supposed to turn into a kneadable mass. A Tibetan friend told me how he was being admonished as a child for not cleaning his bowl properly with the words “every dog is able to keep its bowl cleaner than you,” which makes perfect sense when considering that the bowl is licked clean after use before shining it with your coat. Along with the tea we were offered bread and a tasty string cheese. I felt regret that I only had some roasted almonds to share.

Chatting about our Yartsa hunt, we found out that the family was also disappointed with their meagre harvest. Sherab speculated that there might be so few specimens because the area was well searched. This was a plausible explanation as evidenced by the multitude of colorful dots in the brown landscape moving steadily, but trancelike in slow motion searching all over on this Saturday in late April. Also, it was the very first week of the season. When I looked closely at the dug specimen, it was apparent that the

spore producing asci had not fully developed yet. This is bad news for *Cordyceps*. In an ideal world *Cordyceps* sporocarps should not be picked the first week or two until they start to release their spores to guarantee sustainability of collection. However, no such regulations are formulated anywhere yet, and so far *Cordyceps* seems not seriously endangered, a promising fact for a very precious organism collected intensely for centuries in Tibet.



*Cordyceps sinensis* with and without asci

At this point it might be time to explain what all this fuss is about. This funky fungus, besides its larva-fixated feeding fancy, is a highly sought-after medicinal mushroom in the two ancient systems of medicine in Tibet and China. While there are plenty of fungi to go around for the 6 million Tibetans living right among them, the demand of 1.5 billion Han Chinese is a market force of a completely different dimension. The western market so far is relying on artificially grown mycelia, since most westerners don’t encounter enough social pressure to eat larvae.

In Tibet, the use of *Cordyceps sinensis* was traced back by Dr. Yonten Gyatso to documents of the 14th century, where it is mentioned in the Tibetan medicine text “Instructions on a Myriad of Medicines” by Nyamnyi Dorje. Some Tibetan doctors want to recognize *Cordyceps* under a different name in an 11th century text, but other Tibetan doctors and scholars insist it is clearly a lizard, not a fungus that the ancient “Blue Berry!” folio is referring to. In Tibetan Medicine Yartsa Gunbu is used as a tonic for general strengthening, boosting the immune system, and increasing virility and is prescribed for kidney and heart problems. It is also used for treatment of hepatitis B. Unlike in China, where patients consume the whole fungus, in Tibetan medicine it is mostly prescribed in formulated composite remedies, which con-

*cont. on page 6*

tain a variety of ingredients to balance each other, thus optimizing their efficiency and minimizing side effects. Tibetan medicine was formalized between the 8th and 11th Centuries. It absorbed a lot of knowledge from the Indian Ayurvedic system, but also integrated classical Greek elements, which arrived in Tibet via pre-Islamic Persia.

In Traditional Chinese Medicine *Cordyceps sinensis* is regarded as a powerful remedy for asthma and TB, and thus was rumored to help against SARS. However, its main lure is its tonic function, to speed up convalescence, prevent sickness, and boost the immune system and vitality. Of course, anything that boosts vitality will boost libido as well, which in turn is attracting the segment of consumers with the most disposable income, men over forty. Many Tibetans perceive the *Cordyceps*' Viagra-like function as the main reason why the Chinese are paying a fortune for these caterpillars. When I asked some Tibetan men in Litang if they use some of the "bu" they gather, I was answered with laughter. "We don't need to take that."

Regardless of how the Tibetological discussion plays out regarding the first written reference to Yartsa Gunbu, currently the oldest Chinese reference to "dong chong xia cao"—the Chinese translation of the Tibetan name "winter worm-summer grass"—is from 1757 by Wu Yiluo, but it was clearly used before that date in China. In 1736 the French Jesuit Du Halde, residing at the imperial palace, described how the court physician treated him successfully with the precious "Hia Tsao Tong Tchong." There are other species used in Traditional Chinese Medicine, such as the brightly orange fruiting *Cordyceps militaris*. This entomogenous fungus grows all over North America and Eurasia and is also widely cultivated. I came across a Ziploc bag full of it in the office of a Chinese ecology professor, who swore that it had helped him to overcome his late afternoon exhaustion.

There are a multitude of studies demonstrating the medicinal potential of Cordycepin and other active components in *Cordyceps sinensis*. Results include lower bad HDL cholesterol, improved blood circulation, and better utilization of oxygen in the body. In 1993, the latter was brought to the attention of the western world during the track and field world championships in Stuttgart, Germany, when to everyone's surprise Chinese runners won several long-distance races. This success raised eyebrows, and the coach partially attributed it to the fact that he had integrated *Cordyceps sinensis* in the athletes' diet, which is not restricted as a performance-enhancing substance. This success, which was not repeated at the next world championships, is still being used to advertise *Cordyceps*' capacity to enhance stamina, a scientifically substantiated claim. If I had true myco-vision I would insist that it is no coincidence that a stamina-enhancing mushroom—our term "stamina" referring to the threads of life spun by the divine Fates—is made of thread-like hyphae spun by the fungus, but I don't really need to spin this thread too much, since the story of the fungus itself suffices.

**Daniel Winkler**, a PSMS member since 1996, lives in Kirkland, WA. Trained a geographer and ecologist, he works as researcher and non-governmental organization consultant on environmental issues of the Tibetan Plateau and Himalayas. He has published on forest ecology, forestry, traditional land-use practices, and medicinal plants and mushrooms. His photo essays and articles are also published on his webpages at [www.danielwinkler.com](http://www.danielwinkler.com).

Two thousand years ago, Martial wrote about aphrodisiacs.

*If envious age relax the nuptial knot,  
Thy food be mushroom, and thy feast shallot.*

## MORELS

<i>Bert Bender has grown too old To track down mushrooms.</i>	<i>And talk about snake heads! One steamy morning in May He found thirty or more In a swampy stretch of woods.</i>
<i>One spring he found 58 grays, First of the season, Surrounding a dying elm. Moist and trembling, not more Than half an hour old.</i>	<i>And how about the time he was climbing down a creekbank Below the railroad trestle And discovered 29 huge Yellows in the fall grass?</i>
<i>Forty odd years ago Cutting through the orchard He heaped his bait bucket And straw hat with sponges As big as your fist. Some bigger.</i>	<i>Bert Bender can sit by the hour Gathering mushrooms And never move from his chair.</i>

## BOG BLOG 6: A DIAMOND IN THE ROUGH

**Leesa Wright**

*Neohypodiscus cerebrinus* is an easy specimen to overlook in the field. It looks not unlike a piece of charred wood. In fact, on the day it was found, the members of Team Bog who were out collecting didn't think much of it. What proved to be a near obscenely bountiful day in terms of new species to the survey and sheer fungal biomass meant a long day in the field that included the copious taking of notes and photographs for many, many, many specimens.

The collection container was full to overflowing, and it was getting late. Stomachs were grumbling, dogs were barking. And then, it happened. On their way out of the bog they saw it. But instead of placing it carefully in the sturdy tackle box with the rest of the day's collections, the fungus that looked like a chunk of coal was unceremoniously shoved into the coat pocket of weary Bogger Colin Meyer.

The following night at Bog Lab, after all of the previous day's haul had been examined and as jackets were donned in preparation of heading out into that cold, good night, Colin felt the forgotten chunk of coal in his pocket. He pulled it out and placed it on the table. Joe Ammirati was immediately intrigued, and after exhausting our options, it was sent to Washington State University in Pullman, Washington, for identification by Professor Jack Rogers.

The almost forgotten fungus turned out to be *Neohypodiscus cerebrinus* and became affectionately known in the Bog Lab as the "Pocket Fungus."

*Neohypodiscus cerebrinus* is one of three species in the genus *Neohypodiscus* in the order Xylariales in the Amphisphaeriaceae family. Its taxonomic position in the past was in flux, having been moved in and out of the genus *Hypoxylon* several times.

*Neohypodiscus cerebrinus* has only been recorded at one place in Washington State, and that place is Shadow Lake Bog.

The moral of the story is, of course: sometimes a seemingly worthless hunk of coal is really a diamond in the rough.

*Neohypodiscus cerebrinus*  
(aka The Pocket Fungus)



## THE HISTORY OF MYCOLOGY IN THE UNITED STATES

Kelly Ivors

*Mycena News* via *Mycolog*, Humboldt Bay Myco. Soc.  
January 2004

When the Mycological Society of America (MSA) presented me with a research award named after a prominent 20th century U.S. mycologist, I realized how little I knew about my professional ancestors. I decided to find out more about the founding fathers of mycology in the United States and thought that many of you would enjoy this synopsis.

The term “mycology” is derived from the Latin *mykes* (mushroom) and *-logia* (study). Surprisingly, the systematic study of fungi is only about 275 years old, and predates the study of bacteria.

From the beginning of the 19th century many contributions to American mycology, but not all, were the work of resident botanists. Rev. Lewis David von Schweinitz (1780–1834) is commonly recognized as the founder of American mycology. Although born in Bethlehem, PA, von Schweinitz entered a theological seminary in Germany where he concentrated on botany and mycology. In 1805 he co-authored the most comprehensive book on fungi at the time, entitled *Conspectus Fungorum in Lusitiae Superioris (Presentation of Fungi in Northern Lusatia)*. In 1812 he returned to the U.S., where he continued his clerical work as well as developing a parallel career in botany and mycology. His work consisted of extensive catalogues and systematic descriptions of fungi, mosses, ferns, lichens, and flowering plants—for which he was recognized as the foremost authority on cryptogamia of his time. (In case you are wondering, the term “cryptogamia” was commonly used during this time, and is a general name for plants and plant-like organisms that lack flowers and are not reproduced by seeds, such as ferns, mosses, algae, and fungi). In his 1832 *Synopsis Fungorum in America Borealis (Summary of Fungi that Grow in, North America)*, he described over 3,000 species of fungi, more than half of which were species new to science. After he died in 1834, his personal herbarium of nearly 23,000 specimens was given to the Academy of Natural Sciences in Philadelphia.

Rev. Moses Ashley Curtis (1808–1872) can be considered the next notable U.S. mycologist. He was known for his collections and is remembered for his conviction of the importance of wild fungi as a food source, particularly during the devastation following the Civil War, during which “he turned his knowledge of them (fungi) to useful account for his family and neighborhood; and he declared that he could have supported a regiment upon excellent and delicious food which was wasting in the fields and woods around him.” Currently most of his collections are in British museums, although some are at the Farlow Herbarium at Harvard University.

Another leading authority on fungi of the U.S. was Henry W. Ravenel (1814–1887). As an educated planter operating a South Carolina plantation, Ravenel turned to botany and mycology as avocations. Between 1853 and 1860 he published five volumes of *Fungi Caroliniani Exsiccati*—the first published series of named American fungi. In collaboration with English botanist M. C. Cooke, Ravenel later published a second series, *Fungi Americani Exsiccati*. He collected and classified an extensive herbarium of fungi, mosses, and lichens; his summary of specimens covered a total of some 11,000 species.

Perhaps one of my favorite U.S. mycologists is Charles Horton Peck (1833–1917). He was considered a leading American mycologist from 1868 until 1913, a period referred to as the

“professionalization of American mycology” during which intense work in descriptive taxonomy of fungi took place. Peck was self-taught in the identification of fungi and was appointed State Botanist of New York in 1868. His earliest interest was in bryophytes, but he later turned to mycology and described more than 2,700 new species and varieties of North American fungi with monographs of boletes, tooth fungi, and gilled fungi for all of North America. My favorite fact about Peck was that he carried a portable microscope into the field!

William Gilson Farlow (1844–1919) is remembered as a pioneer investigator in plant pathology, who helped establish a systematic nomenclature for fungi, and directed many of America’s leading botanists. He received his M.D. from Harvard Medical School in 1870 and then spent several years in Europe studying under the well-known plant pathologist Heinrich Anton de Bary. In 1874 he was appointed Assistant Professor of Cryptogamic Botany at Harvard University, where his research focused on plant diseases. He published many papers on rusts, fungi, and algae. Some of his larger publications include the *Bibliography of Articles on American Fungi* (1887–1888) and the *Host Index to Fungi in the United States* (1888). During his lifetime Farlow founded and endowed the Harvard Cryptogamic Laboratories and Herbarium.

William Alphonso Murrill (1869–1957) was a mycologist, taxonomist, writer, and authority on the fleshy fungi (Basidiomycetes). He received his Ph.D. from Cornell University in 1897 and started his career with the New York Botanical Garden in 1904 as Assistant Curator. He became Curator and Supervisor of Public Instruction from 1919 to 1924. During this time he collected over 70,000 specimens of fungi from North and South America, Mexico, and the Caribbean, of which the New York Botanical Garden Cryptogamic Herbarium holds about 14,000 specimens. Murrill published important monographs on hymenomycetes during his career. He founded and served as editor of the journal *Mycologia*, as well as contributing to parts of North American Flora (1907–1916). Perhaps he is most remembered as the first scientist to identify and classify *Diaporthe (Cryphonectria) parasitica*, the Chestnut blight fungus. There are many professional successors to Murrill who have shaped the history of American mycology but have not been mentioned owing to space. Surely the history of American mycology did not end in the early 1900s; in fact, the list gets lengthy as mycology was just starting to mushroom at this time.

## CALLING ALL WASHINGTON STATE PARKS FANS Karen Behm

The stewardship group within Washington State Parks would like to implement a new rule (Washington Administrative Code - WAC) outlining personal picking limits for mushroom picking. Some parks have had problems with resource damage due to commercial picking and they would like to protect our resources.

The time to comment is now, since the final language for the rule needs to be submitted by April 4.

Parks website for general park information:

<http://www.parks.wa.gov/>

Washington State Parks contact:

Kelli Burke  
kelli.burke@parks.wa.gov  
(360) 902-8844



½ pound mushrooms, cut into 1/2 inch cubes  
1 onion (½ lb. total)  
1 pound red bell peppers  
2 cloves garlic  
1 pound mild Italian sausages, casing removed  
1 jar (27 oz.) marinara sauce (or spaghetti sauce)  
Dash of salt and pepper, to taste  
1 package (11 oz.) refrigerated soft breadsticks  
1 TBs olive oil  
2 TBs grated Parmesan cheese

1. Rinse mushrooms, trim and discard discolored edges or stem end, and cut in cubes. Peel onion and thinly slice. Rinse, stem, seed, and thinly slice bell peppers. Peel and mince garlic.
2. Crumble sausages into a 5 to 6 quart pan over high heat; stir until no longer pink, 4 to 6 minutes. Add mushrooms, onion, bell peppers, and garlic; stir until vegetables begin to brown, about 15 minutes. Remove from heat, stir in marinara sauce; and add salt and pepper to taste. Scrape into a shallow, round 1½ quart casserole or 9 to 10 inch pie pan that holds at least 6 cups. Sprinkle evenly with mozzarella.
3. Separate breadstick dough into individual strips. Gently twist each strip and stretch it to fit from rim to rim over filling (if necessary, pinch ends of strips together to make longer or cut to fit), laying half the strips about 1 inch apart over pie in 1 direction and half at right angles on top of the first. If desired, weave strips over and under each other in lattice pattern. Fold excess under and press ends against rim.
4. Brush dough strips lightly with oil. Sprinkle pie evenly with Parmesan cheese. Set pie on a foil-lined 12 by 15 inch baking sheet.
5. Bake in a 400°F regular oven or a 375°F convection oven until crust is browned and filling is bubbling, 20 to 30 minutes.

If edges brown too rapidly, fold foil from baking sheet up to cover pie rim loosely. Enjoy.

*Note: Steps 1–2 can be prepared up to 1 day ahead. Cover and chill.*

## HOW MANY SPORES ARE THERE?

**Bryce Kendrick**

*Fungifama*, So. Vancouver Island Myco. Soc., Feb. 1998

One specimen of the common bracket fungus *Ganoderma applanatum*, can discharge 30,000,000,000 spores a day from May to September, for a total of 4,500,000,000,000 spores.

One fructification of the wood-inhabiting ascomycete *Daldinia concentrica* can shoot 100,000,000 ascospores a day.

A single wheat grain infected with stinking smut (*Tilletia caries*) contains 12,000,000 spores.

One 2.5 cm-diam. colony of the green mold *Penicillium*, can produce 400,000,000 spores.

And I have just done a rough calculation showing that a large specimen of the giant puffball, *Langermannia gigantea*, may contain about 1,000,000,000,000 spores, give or take a decimal place or two.

So you will not be surprised to learn that the air we breathe sometimes contains as many as 10,000 spores per cubic meter!

We are sad to report that Charlotte Turner Zilla, 80, a long-time member of PSMS and winner of the Golden Mushroom Award in 2001, passed away Friday, March 11, 2005.

