

# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 500 March 2014



## 50th Anniversary Issue

### PSMS Golden Jubilee

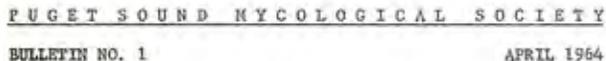
Welcome to the 500th edition of *Spore Prints*, the newsletter of the Puget Sound Mycological Society. Inside you will find a four-page insert on the origins of the Society and its traditions along with reminiscences of some notable charter members, all of whom, alas, have now passed on.

Also included is a short history of the newsletter from the first issue published in 1964 by PSMS President Ben Woo to the present. The information was taken from a much longer article on the same subject written by Brian Luther, to be published later on the PSMS website.

We hope you will enjoy these commentaries and perhaps learn something about the Society that you didn't know.

### 500 ISSUES: A Short History of the PSMS Newsletter and a Tribute to the Editors

Brian S. Luther



March 2014 marks the 50th anniversary of PSMS and the 500th issue of the PSMS newsletter. The first issue of the newsletter came out in April 1964 and was called simply *Puget Sound Mycological Society* (Bulletin No. 1). With issue 13, it officially became the *Puget Sound Mycological Society Bulletin*. Starting with issue #32 "Bulletin" was removed from the title, leaving again simply *Puget Sound Mycological Society*. The first newsletter called *Spore Prints* was #51, in March 1969. The name was suggested by outgoing President Ralph Nolan. It's stayed that ever since.



The first double sided pages came out with Bulletin #48, (Dec. 1968). At first the pages were the same color, then slowly they started changing color from month to month, even different colored pages within the same issue. (The printer gave a discount if we used a color they already had in stock.)

Studying these early issues I discovered an ongoing error in numbering. Ralph & Hildah Nolan numbered both the November and December 1969 issues #57. For some reason they then started the numbering all over again, and the January to June 1970 issues were numbered 1-6 (see following table). Then we got a new editor who produced an August issue (in lieu of the Sept. issue), which he erroneously numbered #64, not realizing the current numbering was based on an earlier error. In reality, then, this current issue of *Spore Prints* should be #501 and last month's issue (Feb. 2014) should have been the 500th issue.

## SPORE PRINTS

### Editors

The following table documents the various issues and editors over the years.

Date	Issue No.	Editor
4/64-11/64	1-6	Ben Woo, John Uitti & Charlie Volz
12/64-3/66	7-20	Ben Woo
4/66-9/66	21-25	Charlie Volz
10/66-4/68	26-42	Connie Young
5/68	43	Joe Deyling
6/68 & 10/68	44-46	Connie Young
11/68-3/69	47-51	Joe & Peg Deyling
4/69-12/69	52-58	Ralph & Hildah Nolan
1/70-6/70	1-6	" " " " (see text)
8/70-4/71	64-71	Lyle Mercer
5/71-10/71	72-75	Ben Woo
11/71-5/72	76-82	Connie Calvert
6/72-8/74	83-103	Auriel Harris
9/74-6/85	104-213	Hildegard Hendrickson
9/85-present	214-500	Agnes Sieger

As you can see, the editorship of the newsletter changed fairly regularly until 1974. Then Hildegard Hendrickson (assisted by her husband, Monte) took charge and put together the *Spore Prints* for the next 11 years, halfway into 1985. The last issue Hildegard and Monte edited was #213 for June 1985. Their farewell message on the front page was "ARRIVEDERCI" and at the end of the last page they wrote "Th-th-th-that's all folks!"

Since September 1985, Agnes & Dick Sieger have been responsible for editorial oversight of the newsletter. So far, the Siegers have been at the helm for 28½ years, although Agnes also assisted Hildegard prior to this as associate editor. All of this is a remarkable accomplishment and certainly deserves an outstanding mention.

## SPORE PRINTS

### Newsletter Production

The first newsletter was very basic—hand-typed, with one-sided pages. Gradually it evolved into four pages back-to-back. In 2005 Agnes described their early years of producing *Spore Prints* as follows:

*Twenty years ago [1985] we hand typed everything on an old IBM "Executive" typewriter (the letters came in different size units, from two for "t" to four or five for "M," so correcting a typo was murder) and made screened prints of all the graphics on a giant copy camera at my office (ahh, 10 pm Sunday night in the darkroom struggling for the right exposure). The type and graphics were then hand-pasted onto an oversized copy board, hand carried to the printer, and reduced 20% (those rubber cement fumes might explain a lot).*

cont. on page 11



## LISTEN TO THE PURRING ELECTROMAGNETIC WEIRDNESS OF MUSHROOMS **Geoff Manaugh**

*Gizmodo*, Australia, Feb. 2, 2014

I was blown away when I first heard about a project that tried to tap into the electromagnetic communication potential of mushrooms. Using wires, radio waves, and circuits—not psychedelics—the project’s off-kilter quest to find (and listen to) “electromagnetic fungi” was nonetheless more art than science. But who says mushrooms have the right to remain silent?

The overall idea was that we could use technology to extract sounds embedded in the biological world—or *compressed* there, we might say, to use the language of MP3s—tapping into living systems that would not normally be thought of as sonic resources.

But—hey—it’s a fair question: why not tune into the sounds of mushrooms or listen to mold the way you might listen to a radio? It’s weird as hell but surely there’s only something to be gained. Think of it as Fungal FM: a grotesque, scientifically unnecessary, but utterly mind-bending way to eavesdrop on nature’s silent signals, tunes sparking and firing through the organisms of the world around you.

A more recent project—by a group calling itself Mycophone—sought to tap into the sounds of mold spores and mushrooms in an equally artistic but somewhat more technically applied way.

Mycophone used an utterly nutso-looking custom music box, signal processors, and what appear to be contact microphones, all woven and wired up into a mixing board for sonic spores.

The result is what they describe as “a new kind of biotech organism,” a kind of acoustic creature “that makes sounds like many biological organisms do.” Except this one *purrs*.

That’s right: “If you pet it on its hairy mycelia fur,” they add, “its voice changes . . . it could be said that it starts to purr.”

So, sure, we’re basically talking about people—grown adults—standing around and touching mold, jacking headphones into myco-electrical mixing boards, and making music from the experience, grooving out as mushrooms purr into their headphones, turning living fungi into a personal hi-fi set.

But it’s delirious and awesome—a technological experience so eccentric it is indistinguishable from drugs—as if we’ve somehow now found a way to zoom down into the deep world of life only to find a humming soundtrack there, living and evolving amidst the splitting of cells and the roots of trees, a radio dreaming biological songs for those of us who know how to tune in.



## DEADLIEST MUSHROOM IS SPREADING WORLDWIDE

**Sheila M. Eldred**

<http://news.discovery.com/>, Feb 10, 2014

It’s big, meaty, looks innocuous, grows near edible mushrooms, and smells delicious, but the name reveals its toxicity: the Death Cap. Native to Europe, the Death Cap is now an invasive species on every continent except Antarctica, Cat Adams, a Harvard graduate student, writes in *Slate*.

The spores spread “like glitter at a kids’ glitter party,” writes Adams, who is working on a literature review of the mushroom. In the United States, it’s adapted to grow on live oak trees and native pines, has spread along the East and West Coasts, and appears to be moving south into Mexico.

The good news? An ongoing clinical trial may have found an antidote: S. Todd Mitchell of Dominican Hospital in Santa Cruz and colleagues have treated more than 60 patients with a drug derived from milk thistle. The patients who have started the drug on time (within 96 hours of ingesting the mushroom) and who have still had kidney function intact have all survived.

“When administered intravenously, the compound sits on and blocks the receptors that bring amatoxin into the liver, thus corraling the amatoxins into the blood stream so the kidneys can expel them faster,” Adams wrote. “Only a few patients sought treatment later and did not survive.”

Although Mitchell needs more patients before publishing the research, he says there are virtually no downsides to the drug.

“When we present to FDA, it will be a slam dunk for approval,” he told *Slate*. “The drug has virtually no side effects, it’s very well tolerated, and if used correctly it’s awesomely effective.”



Justin Pierce

*Amanita phalloides*, the Death Cap.

## SCIENTISTS FIND BROAD-LEAF TREES CAN HOST MATSUTAKE MUSHROOMS

**Tomoyuki Yamamoto**

*The Asahi Shimbun*, Jan. 21, 2014

Scientists said they have produced a symbiosis between “matsutake” mushrooms and the roots of broad-leaf trees, a potential breakthrough in artificially cultivating the fragrant fungi.

The team at the Forestry and Forest Products Research Institute in Tsukuba, Ibaraki Prefecture, said the successful experiment involved the mushroom’s hyphae (the long filamentous structure of fungi) and the roots of the *Cedrela odorata*, a broad-leaved tree also known as the cedro, which is native to dry subtropical to tropical areas in Central and South America.

“We were surprised. We didn’t think we could grow matsutake hyphae so well with broad-leaved trees,” said Hitoshi Murata, a senior researcher at the institute.

Prized for their aromatic odor, matsutake mushrooms normally grow in a symbiotic relationship with the roots of conifers.

*cont. on page 4*

## Broadleaf Matsutake, cont. from page 3

Prices for the mushrooms are high because they are difficult to find in the wild. Until now, researchers had not come up with a practical method to increase the mushroom harvest.

Much of the matsutake mushroom supply in Japan is imported.

Unlike “shiitake” mushrooms, the matsutake cannot break down rotted wood for nutrition. Instead, it grows in a symbiotic relationship with the roots of living conifers, such as the Japanese red pine.

The forestry institute’s research team has been on a quest to find out whether trees other than the Japanese red pine can serve as hosts for the matsutake.

In their experiments, the researchers planted the hyphae of matsutake mushrooms grown in Japan in the roots of cedro seedlings with a height of around 10 centimeters. Masses of hyphae, called “shiro,” which wrap around a tree root and its periphery to grow, formed and grew to a diameter of 5 centimeters.

The researchers also confirmed that the hyphae produce the distinctive scent of matsutake that grow wild in the mountains. The shiro is the structure from which a matsutake mushroom grows.

The cedro has no apparent relation to the matsutake in the wild, and the reason for the successful symbiosis is not well understood. Despite their affinity, the two species’ areas of distribution are far removed from each other. The researchers believe this is the first time the two species have ever had contact.

The scientists plan to expand the scope of their experiments to include the use of larger saplings. They also want to proceed with further research to pair matsutake mushrooms with tree species native to Japan.

“In the future, we’ll move forward toward realizing our dream of growing matsutake from broad-leaved trees,” Murata said.

## BRICK STRUCTURE GROWN FROM MUSHROOMS CAN KEEP ITSELF COOL ALL SUMMER

<http://www.fastcoexist.com/>, Feb. 10, 2014

Made from organic material that can be turned into fertilizer, this installation will show off a radical, zero-waste building technology that could help chill down sweltering city streets.

This summer, a new kind of building will sprout amid New York City’s garden of glass and steel. Using bricks biologically engineered to grow themselves from plant waste and fungal cells, David Benjamin’s “Hy-Fi” will rise as a giant circular tower that creates a cool microclimate for pedestrians in searing city heat. Bet you’ve never seen a brownstone do that before.

“Hy-Fi” was selected by the art museum MoMA PS1 as the winner of its Young Architects Program for 2014. The prize: Constructing the building in the museum courtyard, starting this June. But “Hy-Fi” is more than just an art piece. It could also present a radical alternative to building up our city’s future—one that’s inspired by biology, stretched even further by human technology, and part of a zero-waste, cradle-to-grave cycle.

Instead of mining sandstone or carting in metal by truck, all of “Hy-Fi”’s prep work will take place on-site, explains Benjamin, principal architect at The Living and director of Columbia Uni-

versity’s Living Architecture Lab. The bricks, produced by the startup Ecovative, are grown from mycelia, or mushroom cells that grow upwards and outwards like a branch. Combined with agricultural waste like corn stalks, the materials fuse and shape into a solid brick—or into whatever shape the architect wants.

“It’s really inexpensive, almost cheaper than anything,” Benjamin says. “It emits no carbon, it requires almost zero energy, and it doesn’t create any waste—in fact it almost absorbs waste. We think that’s a pretty new and pretty revolutionary way of making building materials.”

It’s our interest and our belief that a single building, a single piece of architecture, can’t and shouldn’t be considered alone,” Benjamin says. “When that building comes down, those materials need to go somewhere. The building interacts with the forces of wind and water. The building consumes energy. The building interacts with people and culture and society.”

But the building’s a hybrid—it’s part-synthetic, too. “Hy-Fi” will also feature a material designed by 3M, the manufacturer of Post-Its and Scotch Tape, to make some of the bricks at the top of the structure reflective. Some of the brick molds, or plastic trays, will also act like mirrors that grab sunlight from the top of the structure and bounce it down into the low, cool, dark spaces at the bottom.

“Hy-Fi” also inverts the way typical brick buildings work. Instead of having heavier materials at the bottom, “Hy-Fi” draws in cool air at the base, which is more porous, then pushes hot air out the top, similar to how a heart muscle pumps blood.

At the end of the installation, the local nonprofit Build It Green will help compost the building and put the materials to use as fertilizer.

To Benjamin, the building represents a fusion of natural systems and human ingenuity, though wherever you draw the line between the two is an ongoing debate. “We’re using some of the most fascinating properties of biological systems, but also extending them, using human technologies to enable new possibilities with them,” Benjamin says. “This is not just a return to nature, but a hyper nature.”

If “Hy-Fi” is the way of the future, it looks very different from many of the stark, Jetsons-like visions we often see. But Benjamin is convinced that biology can teach us how to build structures that are more than just resilient—he believes nature can show us how to make materials that actually perform better under stress. Buildings, he believes, are just as much a part of the larger ecosystem as flora and fauna.



Artist's conception of cooling towers made of fungi-grown bricks to be displayed in the courtyard of MoMA PS1. MoMA PS1 is one of the largest art institutions in the United States dedicated solely to contemporary art. It is located in the Long Island City neighborhood of Queens in New York City, New York.



# 50th Anniversary 1964 – 2014

## Amateurs Plan Study of Mushrooms

An amateur society to study mushrooms and their culture will be formed Friday at the Pacific Science Center.

The first meeting will begin at 8 o'clock in the Little Sci-

ence Theater of the science pavilion.

Dr. Daniel E. Stuntz, professor of botany at the University of Washington, will speak.

Formation of the society marks the beginning of a program sponsored by the Science Center to encourage participation by the community in amateur scientific studies. Dr.

Dixy Lee Ray, Science Center director, said.

Technically, the organization will be a mycological society. Mycology is the branch of botany dealing with fungi.

### IN THE BEGINNING

On October 16, 1963, the above notice appeared in the *Seattle Times* and *P.I.* seeking persons interested in forming a mycological society.

The notice was the outgrowth of a suggestion by Dixy Lee Ray, newly appointed head of the Pacific Science Center, to long-time friend and fellow professor Daniel Stuntz at the University of Washington. Dr. Ray wanted to start a group of amateur science societies under sponsorship of the Science Center. Dr. Stuntz was an outstanding mycology teacher who always had time for amateurs. Stuntz sought the help of Seattle architect Ben Woo, an amateur mycologist with experience setting up non-profit organizations in the International District. Charlie Volz, with the help of Dr. Stuntz, was identifying mushrooms for friends, coworkers, church groups, and the poison center. Ben asked Charlie if he thought they could get 15 or 20 people by putting a notice in the press. Charlie said he thought he could get that many by himself.

About 85 people attended the resulting meeting at the Pacific Science Center. Ten persons were selected to organize a society, and a follow-up meeting was held on December 13 to set one up.

The first official meeting of the Puget Sound Mycological Society was held March 16, 1964, in the Pacific Science Center auditorium. Memberships cost \$5.00 for adults and 2.50 for persons under 18 without family affiliations. The certificates of membership were signed in *Coprinus comatus* ink. The new society, which had 108 members, elected five trustees and the following officers:

- President - Ben Woo
- Vice-President - Charlie Volz
- Secretary - Meriel Albright
- Treasurer - John Uitti.

That summer, Albright moved to Montana and was replaced by Kay Ladue, who was killed in an airplane crash in the Cascades with City Councilman Wing Luke the following spring.

### FIRST SHOW

The first show was held Saturday and Sunday, October 24 and 25, 1964, in the Pacific Science Center, and a madcap time it was. Elsie Burkman remembered: "We were like a bunch of busy bees. There was lots of hammering and arranging. Dr. Dixie Lee Ray was running about taking pictures in her Lederhosen." Dr. Stuntz was in charge of identification, Al Crosetti, George Tokuda, and Art Kaku were in charge of collecting, and Elsie Burkman and Mrs. David Gardner were in charge of the exhibit staff. Ben Woo was in charge of posters and clean-up and co-chair of publicity. John Uitti made the mushroom-display trays, which we are still using today.



President Ben Woo (left) and helper setting up for the first PSMS mushroom show, at the Pacific Science Center, 1964.

They needn't have worried about whether anyone was interested in mushrooms. Two thousand attended the show. It was so successful that Dixie, who had co-chaired publicity, held some of it over for a couple of weeks. PSMS cleared \$570 and picked up 28 new members.

### FIRST BANQUET

The first survivor's banquet was held March 15, 1965, at Ruby Chow's restaurant on Jefferson Street. The speaker was Angelo Pelligrini, and the menu featured six mushroom species in eight courses. The price? \$4.00.

PUGET SOUND MYCOLOGICAL SOCIETY		FIRST ANNIVERSARY DINNER	
ANNUAL MEETING			
Social Hour	6:00 p m	Chicken-Mushroom Consomme with Tofu	(Coprinus comatus)
Dinner	7:30 p m	Egg Rolls Boletus	(Boletus aurantiacus)
Introduction of Guests	8:30 p m	Mandarin Duck	
Guest Speaker:		Mushroom Caps Abalone	(Lentinus edodes = Shiitake)
Dr. Angelo Pellegrini		Golden Lily Chicken	(Auricularia auriculata)
Annual Meeting		Beef Sirloin with Chinese Greens	(Peziza sp.)
President's Report		Pineapple Spare Ribs Cantonese	
Election Committee Report		Tea	Fortune Cookies
Introduction of new Officers and Trustees			
Adjournment			

## INFLUENTIAL ADVISORS

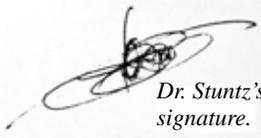
Three advisors were instrumental in founding and inspiring the early Society:

Dr. Daniel E. Stuntz, Ms. Margaret McKenny, and Dr. Dixy Lee Ray.



Dr. Daniel Elliot Stuntz (1909–1983) was born in Milford, Ohio, but his family soon moved to Seattle. A graduate of Queen Anne High School and the University of Washington, he obtained his Ph.D. from Yale, and began teaching botany at the University of Washington in 1940. Dr. Stuntz never married. His students and PSMS were his children, to whom he gave unstintingly of his time. Poor as a student and often hungry, he provided a free smörgåsbord of gourmet goodies for his classes to munch on. Because of his presence, the University of Washington became a major center for mycological training and research. Scientific advisor to the Society from its founding until his death in 1983, Dr. Stuntz's warmth, friendliness, patience, technical expertise, and devotion to the interests of the membership permeated the entire Society.

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Margaret McKenny (1885–1969) was a well-known author, lecturer, and nature photographer who introduced many a person to the fascinating hobby of mushroom study, both personally and through her book *The Savory Wild Mushroom*, published in 1962. She willed her mushroom slides and photographs to Dr. Stuntz, along with the rights to the book. Long before ecology came in vogue, McKenny was fighting, and winning, key conservation battles. She formed the forerunner of the Nisqually Delta Association and launched the Olympia Audubon Society. Known as the little old lady in the black hat, which she wore everywhere, she was long on friends but short on funds. Rumor has it that one time the government threatened to confiscate her land for back taxes. Her friends came up with the perfect solution—they held a massive mushroom hunt and sold enough to a fancy Eastern restaurant to bail her out.



Dr. Dixy Lee Ray (1914–1994), graduated from Mills College in Ohio and obtained a Ph.D. from Stanford University. Dr. Ray joined the University of Washington in 1945, where she became part of a group of young biological-science teachers that included Dr. Stuntz. Like Stuntz she was dedicated to her students; if deserving graduate students were in danger of dropping out for lack of money, she would pitch in and help split the bill. In the spring of 1963, Dr. Ray was appointed Director of the Pacific Science Center, where she sponsored a number of amateur science societies as part of her job of communicating science to the lay public. Dr. Ray went on to become chairman of the Atomic Energy Commission and eventually Governor of Washington, but she never lost her enthusiasm for teaching others about nature and science.

## FIELD TRIPS

The first field trips were pretty disorganized. It took a year or two to shake out the format.

The first thought was to divide the city into five groups, each under the coordination of an officer or trustee. Each group would be accompanied by a technical advisor, either Dr. Stuntz or a grad student. Awards would be given at the end of the year to the group with the most finds.

Not enough technical advisors could be found to implement this scheme, however, so it was decided to establish a roster of experienced mushroom collectors and a corresponding list of members who wished to join conducted parties on field trips. The idea was to form parties of five or six people who could travel in one vehicle and cover a fairly wide area on one trip if not successful at the first stop. The guides would commit themselves to taking out a group in the spring and one in the fall and report their finds to the Society to gain information on the distribution and growing times of mushrooms in various parts of the Puget Sound area.

Only one field trip was reported that year, but it was a rousing success, setting the tone for many to follow over the years. In the words of Ben Woo:

“Our late fall trip to the Tenino mounds area, courtesy of Margaret McKenny, produced a turnout of some 160 people, according to an unofficial head count. The weather was fine, and as far as we have been able to determine no one got lost. We won't be sure until membership renewal time next spring. Miss McKenny manned a lone identification outpost, while Dr. Stuntz and Darryl Grund were working specimens at another location. Edible species collected were *Lepista nuda*, *Boletus zelleri*, and *Helvella lacunosa*. *Amanita muscaria*, *Stropharia ambigua*, *Leucopaxillus amarus* and *Tricholoma saponaceum* were common. Many other species were found by the enthusiastic hunters who kept our experts hopping throughout the day. Many thanks to Margaret for sharing her happy hunting grounds with us.”

Margaret McKenny and Dr. Stuntz take a break. (1965)



Margaret McKenny presides at an early PSMS field trip. (1965)



Bill and Pauline Pollard show off their VW “camper.” Beverly Bourgeois is at left. (1977)



Once upon a time, PSMS had a mushroom sign which went to all the field trips. Posing with it are (left to right) Bill Pollard, Beverly Bourgeois, Pauline Pollard, Frank Rentz, Evelyne Rentz, Howard Melsen, Joe Hendrickson, Monte Hendrickson, Hildegard Hendrickson, Andy Hendrickson, Ed Cantelon, Ella Cantelon, and Togie. (1977)



# SPORE PRINTS

PUGET SOUND MYCOLOGICAL SOCIETY

200 Second Avenue North - Seattle, Washington 98109



## IN SUMMARY

As President Ben Woo summed up in the January 1965 bulletin:

“Finishing our first year as a Society, we can look back on some pretty respectable gains. Starting from scratch, we have become organized, built membership to over 170, held meetings, gone on field trips, issued certificates, got out bulletins (some of them on time), and put on a pretty fair mushroom exhibit. All of us have made new friends, learned new things, and few of us have been poisoned in the process. For these things, we are grateful for the staunch support of Dr. Ray and the Pacific Science Center, for the good humor and generous light shed by Dr. Stuntz, for Miss McKenny’s gracious assistance, and for the enthusiasm and hard work of you the members. You are all therefore awarded laurels, on which some of you may rest while others remember that composted laurel leaves are an excellent medium for growing *Agaricus augustus* and *Lepiota rachodes*.”

## CHARTER MEMBER MEMORIES

*Agnes Sieger*

Over 170 people joined the Puget Sound Mycological Society during its first year, an astonishing number considering how esoteric fungi were at the time. Sadly none of these original members are still with us today. Following are quotes by a few charter members, as given in the 25th anniversary issue of *Spore Prints* in 1989, along with some brief recollections about these amazing old-timers, who still brighten the memory of many of us.

## JUST ALOOKIN’ FOR A HOME ....

The Society was conceived and sponsored by Dr. Dixie Lee Ray of the Pacific Science Center and was associated with the Center for many years. Succeeding directors were not always as accommodating as Dixie, however, and the facilities gradually became less and less adequate while the charges became steeper and steeper. The meetings were shuttled from room to room, and remodeling eliminated the open area used for the show. Smoldering discontent erupted into open rebellion in the fall of '79, when the Center demanded a 50% cut of the show gate.

The Society decided to sever its traditional affiliation with the Science Center and find some place cheaper and more suitable. Other criteria were that it had to be more or less centrally located, with plenty of parking; ideally, it would have room for the monthly meetings, a boardroom and office, storage, a mail drop, and a place for the show. Almost all of these criteria were met by the Museum of History and Industry on Union Bay in the Montlake district. The Society stayed at the Museum for 3 years. Then they, too, began increasing their charges and giving less service. The criteria were dusted off, and the search committee was resurrected to find a new home.

They found it in the Monroe Center in Ballard, a closed school that had been turned into a community center. In many ways, it was perfect. The rent was fair; the school cafeteria provided plenty of room for meetings and the show; the gymnasium provided an indoor staging area for sorting mushrooms and arranging trays; there was a large boardroom/office, a separate storage room, and the whole playground for parking. This utopia lasted for 5 years. Then the school board decided to re-commission the Center as a school.

In January 1987, the meetings were switched to the Center for Urban Horticulture, just east of the University of Washington campus, where we have been for the past 25 years.

### Elsie Burkman



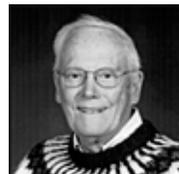
*In 1964 I gave a show of paintings done with mushroom ink, and Dr. Stuntz and Margaret McKenny were two of my patrons. Ben Woo contacted me in February, and I joined*

*March 15, 1964. I have been active ever since. The comradeship counts for a lot, and having common interests is good. I am sure the society will keep growing for many fruitful years.*

Elsie Burkman (1912–2003) was an artist and a mountaineer as well as an amateur mycologist. She was happiest in the company of chanterelles, boletes, and shaggy manes and was good at finding them. She was also an expert gardener. She is perhaps best remembered in PSMS for her paintings of mushrooms done in *Coprinus comatus* ink.

When she was a kid, Else used to take the streetcar out to Woodland Park from Seattle to hunt matsutake. Times have changed.

### Russ Kurtz



*A small news item in the newspaper announcing a meeting for people interested in learning about wild mushrooms was my invitation to what became the Puget Sound Mycological Society. I was on the board of PSMS for six years and treasurer for two years. At that time the Board meetings were held at the Science Center. After the meetings most members of the Board usually ended up at the local tavern talking informally with Dr. Stuntz and each other on a multitude of subjects, from mycology, gourmet foods, wines, and the educational system to forest practices, to*

name a few. Dr. Stuntz was indeed a special person, I feel privileged to have known him.

*Tromping through the forest floor deep in dark green moss with the sun streaking through the trees makes life worth living. Of course many times you are going through the same forest in a pouring rain, many times it is so dark that it is hard to distinguish fungi. Dressed properly and with a little RED WINE, still a memorable experience. Mushrooming—I love it!. Collecting for the exhibit is always a highlight of the year.*

Thomas Russell Kurtz (1921–2011) taught x-ray physics during WWII in Denver, Colorado. He graduated from WSU with a doctorate in veterinary medicine and moved to Seattle in 1952 where he practiced until 1986. As well as a charter member of PSMS, he was a life-long mountaineer, a past president of the Seattle Zoological Society, served on the Carkeek Park Advisory Council, volunteered for the Washington Park Arboretum, was a life member of The Nature Conservancy and a member of the Audubon Society.

Russ hosted dozens of weekend field trips for the society and volunteered in many capacities, taking over as exhibit collections chair from charter member George Rafanelli in the mid 1990s.

### George Rafanelli



*In the early 60s, I was interested in learning something about mushroom identification so I checked out the local libraries for information. There was not too much available. I happened across an announcement in the P.I. that a group was interested in organizing a mycological society. The meeting was at the Pacific Science Center. Dr. Dan Stuntz was there to brief us about the intentions of the organization. Around 80 people signed up. I am not sure who suggested the name for our organization, but that became the first meeting of the Puget Sound Mycological Society.*

*Hunting and consumption of fungi became my primary recreational interest. I became a board member for several years, became vice-president, then president, also had a four or five years' stint as field trip chairman and education chairman. I have along the way helped out on the banquet, publicity, nomination, and the annual exhibit committees.*

*I am very grateful for the knowledge and experience that were gained by participa-*

*tion in the activities of this Society. Some of our sincerest and most enduring friendships originated here.*

George Rafanelli (1916–2001) was a prominent and well-loved member of the Society since its inception. Besides the activities mentioned above, he was the recipient of the PSMS Golden Mushroom Award for 1998. A proficient mushroom hunter, he was well known for his hunting advice: To be successful, you have to take along some red wine; white wine won't work. George was a member of the Rafanelli wine-making family in California and could always be counted on to supply wine crates to gather mushrooms in for the Annual Exhibit.

When his health declined and he could no longer get out in the field, he devoted a membership meeting to bequeathing his prime mushroom spots. He regaled members about his finds and sprouted detailed instructions to dozens of his favorite sites. When PSMS members later tried to find them, however, the spots turned out to be covered with housing developments, logged off, or supermarket parking lots.

### Joy Spurr



*Every activity of the PSMS has been fun, but for us the field trips and the Morel Committee were the highlights. There are endless memories of many wonderful people, each contributing talents that make PSMS a very special organization. While faces have come and gone over the years, the spirit of fun, the friendships, the sharing of mutual interests, and the dedication to our purpose are still there.*

Joy Spurr (1919–2009) was a nature photographer with special emphasis on plants and animals. Her husband, Roger, was good at finding the prettiest fungi for Joy to photograph. Over the years, they amassed a large accumulation of slides for PSMS education programs and the "Introduction to Mushrooms" slide program at the annual exhibit.

Joy wrote articles about mushrooms, published in *Pacific Search*, a regional magazine, and gave programs on fungi to other organizations. Besides photography and mushroom collecting, her interests included hiking; snow skiing; rock-hounding; wildlife, plant, and animal identification; gardening, and reading. As a self-employed professional photographer, her adventures included worldwide traveling to exotic and sometimes dangerous places.

### Charlie Volz



*In 1963 Ben Woo asked me if I thought we could get 15 or 20 people together to start a mycological group. I thought I could get that many myself, since I'd been active in identifying mushrooms for several groups.*

*I served as president in 1966 and as a board member several times. I worked on the ID committee many times, several times as chairman, on shows, forays, etc. I cannot say which I enjoyed the most—actually just what I was doing at the time. The most important thing I have received from the Society is the association with the many people I have met and worked with. What is equally important to me is the opportunity to help spread mushroom lore to a wider public and assisting friends in their efforts to do the same.*

Charlie Volz (1913–1992) worked as a fisheries biologist with the Fish & Wildlife Service. Although inactive in later years because of ill health, he never lost his abiding interest in mushrooms and PSMS.

After he married his wife, Mary, of Greek extraction, he became more Greek than Zorba. He would play Greek music continuously on field trips until everyone begged him to stop. My husband, Dick, used to be field trip chair, back when field trips lasted all weekend and the chair was expected to attend them all. Dick bolstered his identification skills with a bottle of wine, until he noticed that the level of the bottle kept mysteriously dropping. He switched to retsina, and after that had only Charlie to worry about.

When Charlie died unexpectedly in 1992, Dick was PSMS president. Charlie's wife called him and asked that PSMS supply eight pall bearers for an all-day funeral in the middle of that week. Dick soon found out who his friends were. He claims he spent more time with Charlie that day than he had all the time he'd known him.



Now let us drink a toast to those who have gone before us:



*to Dr. Dan Stuntz, our founding spirit;  
to Dixie Lee Ray, who made us a home;  
to so many of our past presidents and  
charter members, who have gone to the  
old-growth forests in the sky,*

**Let us raise our glasses.**

*Ben Woo, PSMS  
40th anniversary banquet*

## MORE THAN PEANUTS: GEORGE WASHINGTON CARVER'S FUNGI FASCINATION

Barbara M. Thiers

<http://www.nybg.org/science-talk>, Feb. 2014



George Washington Carver may be best remembered for his domestication and promotion of the peanut, but the William and Lynda Steere Herbarium contains evidence of another of his contributions—documenting fungal diseases of plants, which, among other things, is an important cause of crop loss on farms.

Carver was born to slave parents on a farm near Diamond Grove, Missouri, around 1864. Although his boyhood was full of struggle against poverty, racism, and illness, his powerful intellect and insatiable curiosity helped him to persevere with his studies. He entered Simpson College in Iowa and then transferred to Iowa State University, becoming the first African-American student to be enrolled there.

After graduation, Carver was appointed assistant botanist at the Iowa State University Experiment Station. His research program in crop diseases brought him to the attention of Booker T. Washington, head of the Tuskegee Institute in Alabama. In 1896, Washington became head of the agricultural and dairy department at Tuskegee, where he remained for the rest of his long career. He died in 1943.

Carver, who became one of the best known American scientists of his day, developed hundreds of products from peanuts, sweet potatoes, and mineral clays; promoted home canning and the addition of natural fertilizers to improve soil fertility; and developed new varieties of cotton and amaryllis. But often overlooked in accounts of Carver's accomplishments is his deep and abiding interest in mycology, the study of fungi. During his years at Iowa State, Carver developed a talent for collecting fungal specimens, and almost immediately after arriving at Tuskegee, he began to collaborate with Franklin Sumner Earle, who was then the chair of biology and horticulture at the Alabama Polytechnic Institute at Auburn. Together, the two worked to compile a preliminary list of the fungi of Alabama.

In 1901, Earle left Auburn to become the first mycologist at The New York Botanical Garden. It may have been Earle who brought Carver's ability as a fungal collector to the attention of Job Bicknell Ellis, a prominent, independent mycologist who built the first major herbarium of fungi in the United States and described more than 4,000 new species. Although Ellis was nearing the end of his career when he and Carver began their collaboration, Carver sent him many valuable specimens for identification. In 1902, Ellis published an article with Benjamin M. Everhart titled "New Alabama Fungi," which included 60 species received from Carver. The article listed two new species named for the Tuskegee scientist.

The fungus herbarium at the Botanical Garden has at least 70 specimens collected by Carver, which came to us either from Earle or as part of the Ellis Herbarium, which was transferred to the Garden near the end of his life. The Carver specimens that have been electronically cataloged so far can be viewed here in the C. V. Starr Virtual Herbarium.

*"To dream of mushrooms denotes fleeting happiness, to dream you are gathering them, fickleness in a lover or consort."*

—Richard Folkard in *Plant Lore* (1884)

## FUNGI GOVERN SOIL'S CARBON CONTENT

Tim Radford

*Living Green Magazine*, Feb. 13, 2014

Most of the planet's carbon is in neither the forests nor the atmosphere. It is in the soil under your feet. US scientists think that they have identified the mechanism that keeps most of this awesome treasury of carbon locked away in the soil—or surrenders much more of it back to the atmosphere. The answer is: a fungus.

This answer matters because what happens to soil carbon is critical to predicting the planet's future climate, according to Colin Averill of the University of Texas at Austin.

He and colleagues from the Smithsonian Tropical Research Institute in Panama and Boston University in Massachusetts report in *Nature* that the storage of carbon in soils is influenced by the mycorrhizal fungi that live in symbiotic relationships with plants.

In a symbiotic relationship, creatures benefit from each other, and in this case the fungi extract nitrogen from the soil and make it available to the roots of the growing plant. Plants take carbon from the air to make their tissues; when a tree falls, or a branch breaks, or a shrub dies, most of the carbon gets back into the atmosphere through decomposition. But some gets buried, and stays in the soil.

Averill and colleagues decided to look at the respective roles of two kinds of mycorrhizal fungi: one group known as ecto- and ericoid mycorrhiza (EEM), and another called arbuscular mycorrhiza (AM). The first produce enzymes that degrade nitrogen.

### Out-Competing Microbes

That means that whenever there is organic nitrogen in the soil, the fungi take the greater share: they compete with soil microbes for the soil nutrients. So the scientists predicted that if the EEM type was dominant, then there would be greater proportions of carbon conserved in the soil.

They then looked at all the known data about soil carbon and nitrogen in various ecosystems: the boreal forests of the north, the temperate woodlands, the tropical forests, and the grasslands.

Where the proportions of arbuscular mycorrhiza were highest, the levels of soil carbon tended to be lower. In an EEM world, there could be 70 percent more carbon stored in the soil. Unexpectedly, they found that the relationship was independent of, and mattered far more than, the effects of net primary production, temperature, rainfall, and levels of soil clay. What mattered most was the type of fungus dwelling in the roots of the forest trees or the savannah grasses.

"Natural fluxes of carbon between the land and atmosphere are enormous and play a crucial role in regulating the concentration of carbon dioxide in the atmosphere and, in turn, the Earth's climate," said Averill.

"This analysis clearly establishes that the different kinds of symbiotic fungi exert major control on the global carbon cycle, which has not been fully appreciated or demonstrated until now."

### Complex Relationships

The research, once again, is a reminder that climate models depend on an understanding of how the world works, and that there is still much more to understand about planetary workings. Fungi are mostly invisible. Ceps, morels, chanterelles, truffles, and field mushrooms are edible prizes that pop up from the soil, but most of the fungal action is below the soil.

*cont. on page 10*

## Soil Nitrogen, cont. from page 9

The biggest single creature on the planet is not the blue whale but a fungus that covers 10 square kilometers of soil in the Blue Mountains of Oregon, in the US.

The research is a reminder of a secret kingdom buried in the first meter or so of the world's soils, a kingdom with profound influence on the machinery of the planetary carbon cycle.

“The research is not only relevant to models and predictions of future concentrations of atmospheric greenhouse gases, but also challenges the core foundation in modern biogeochemistry that climate exerts major control over soil carbon pools,” said Adrien Finzi, of Boston University, one of the authors.

—*Climate News Network*

### The Best Things in Life are Free

*Fungi belong to everyone,  
The best things in life are free.  
Blewits belong to everyone,  
They're put here for you and me.  
Morels in the spring,  
Boletes in the fall,  
Amanitas that sting,  
They're here for all!  
Agarics are for everyone.  
The best things in life are free.*

—George Rafanelli

### MUSHROOM SUPPLEMENTS: FRIEND OR FOE?

Wendy Vogel

<http://www.timesnews.net/>, Feb. 20, 2014

Mushrooms have been used for hundreds of years as a food source and as a medication. Mushrooms are rich in copper, niacin, selenium, and potassium. In fact, one medium portabella mushroom has as much potassium as a banana or a glass of orange juice. Mushrooms are 80 to 90 percent water, low in calories, and a good source of fiber.

Now many manufacturers are capitalizing on the purported health benefits of mushrooms. You can see advertisements for many different combinations of mushrooms, vitamins, and other ingredients with claims that these will enhance your immune system, decrease your cholesterol, lower your blood pressure, decrease chemotherapy side effects, fight infection, decrease blood sugar levels, prevent cancer, and help you lose weight! Sounds perfect, right? But what is the truth? Can a mushroom supplement do all these things?

First of all, it is important to note that it is illegal to promote a vitamin, herb, or other “food” supplement as a treatment or preventative measure for a disease or illness without FDA approval following vigorous testing for effectiveness and safety. At that point, it would be then listed as a “drug” and would have an “approved indication” for treating a certain disease or diseases.

This is how we are protected from charlatans who will promise us a miracle and rob us blind (think snake oil salesman). So if you see a manufacturer of a mushroom supplement advertising this as a treatment—this is breaking the law.

It is also important to note that any vitamin, herb, or food supplement is not subject to quality control or standardization of the

product as required by the FDA for drugs. This makes it difficult to compare between brands or even different lot numbers from the same manufacturer. Studies have shown great variation between the stated quantity of the product on the label and what actually is in the product. So what you see may not be what you are actually getting.

Be wary of advertisements that state that a product is “proven” in clinical trials. Look for the following—was it done *in vitro*? In other words, in a lab? Or was this studied in animals? In humans? If so, how many humans? Is it a true clinical trial (such as this supplement compared to a placebo or proven medication) or is it a “testimonial” or anecdotal information (someone reports they got benefit)? If it was in a true scientific clinical trial—what phase trial was it (I, II, or III)? A phase I or II trial is a trial that looks to characterize side effects and doses in humans. Phases II and III begin to characterize the effectiveness in various diseases and illnesses.

Good and reliable scientific data require lots of participants to obtain true statistical significance. There are various supplements in clinical trials for various diseases—you can see these at [www.clinicaltrials.gov](http://www.clinicaltrials.gov). However, just because something is in a clinical trial, does not mean that it should be recommended to the public yet. Some clinical trials have found beneficial results from mushroom supplements and some have found harmful effects. So as of now, we don't have any proof of true effectiveness for any of the purported uses. And think about this—if any product was truly effective for whatever the claim is, then why haven't the data been presented to the FDA for approval for treatment of that disease? The manufacturers and scientists would make a lot more money and be hailed as heroes in the medical and scientific communities.

So even if we do not know for sure that a mushroom supplement is beneficial, it couldn't hurt to try it, right? One such website advertising “Immune-Assist” (a proprietary blend of six different mushroom species) stated that “this product has not exhibited side effects and is completely non-toxic.” However, reputable, scientific resources have found that mushroom supplements can indeed have side effects and can be toxic to certain people. Run from any seller of any product that says it is completely safe! Nothing is without a potential for side effects!

For example, the Reishi and the *Agaricus* mushrooms, purported to stimulate the immune system, are CYP3A4 inhibitors. This means that they can increase the side effects and toxicities of prescribed medications such as oral chemotherapy, Alzheimer's medications, and anticoagulants, among others. Some studies have shown increased antioxidant response—which can interfere with the effectiveness of chemotherapy. Another potential risk of mushroom supplements is increased bleeding tendencies, dangerous for those on anticoagulants (blood thinners). For diabetics, these products could be especially dangerous, causing lowered blood sugar (hypoglycemia). Certain mushroom products, like those in *Agaricus* mushrooms, may elevate liver enzymes.

So what is the bottom line? Be a smart consumer! Don't believe everything you read. Research from reputable sources like the FDA website ([www.fda.gov](http://www.fda.gov)) or the Memorial Sloane Kettering Cancer website database “About Herbs, Botanical and Other Products” or Medline Plus's Herbs and Supplements Database. These are all reliable and widely used by health-care professionals. Make sure your health-care provider knows if you are taking any supplements like a mushroom. Remember that *nothing* is completely safe and nontoxic.

## 500 Issues, cont. from page 1

After pick-up at the printer's, the newsletters went to the PSMS mailing committee which folded them into envelopes, stuck on postage stamps and address labels, and dropped them off at the post office.

Compare this process with today's system using a computer, modern word-processing and layout technology, email delivery of articles to the editor and the finished copy to the printer, and automatic labeling and mailing by the printer—not to mention website posting in color. What a change!

### Hendrickson

J. Young



Hildegard came to the US from Austria and received her PhD. in business from the University of Washington. She was instrumental in starting the School of Business at Seattle University. She taught finance at Seattle U. and had been Professor

Emeritus for a number of years. Early on after arriving in Seattle she met her future husband, Monte. He was a City of Seattle employee and helped to oversee the building of the 1961 World's Fair. Hildegard and Monte came to the 1971 PSMS Annual Exhibit at the Pacific Science Center and promptly joined. Monte had recently retired and wanted to get more involved, so he ran for the PSMS Board in March 1974. This was the same year that Hildegard volunteered to become editor of *Spore Prints*.

For those of you who are new members, Hildegard went missing on a mushroom hunting trip near Lake Wenatchee last June and hasn't been seen since. Her disappearance is a puzzle with few clues, making for a very unsettling situation. Hildegard would have been 80 now. Please keep her in your thoughts.

### Sieger

R. Sieger



Dick and Agnes Sieger joined PSMS in fall of 1972. They immediately got involved in the club and started studying (and taking classes offered by Dr. Stuntz).

Agnes was well suited for taking on the newsletter because her full time job was editing scientific reports and articles at the UW Applied Physics Laboratory. Her professional editing brought about significant changes in the layout, content, and organization of *Spore Prints*. Dick was always on top of the latest computer techie stuff, so along with Agnes' expertise, we had a winning team. Computers were the first big innovation for the *Spore Prints* editors, in the mid to late 1990s. The advent of the Internet not only provided greater access to interesting information and stories, but eventually opened the newsletter to a worldwide readership via [www.psms.org](http://www.psms.org). Now, to quote Agnes, "the touch of a button speeds the copy to the printer." In 2000, after being editor for 15 years, Agnes received the highest PSMS honor we offer, the Golden Mushroom Award for her years of devoted service.

Dick Sieger served on the board several times, was Field Trip chair from 1977–81, co-chaired the NAMA Foray in 1983 and was PSMS President from 1992–1994. One of the projects he worked on as President was to actually define particular volunteer jobs within the club (this had never been done before) by itemizing and documenting what their specific duties should be as PSMS volunteers. Thus, as ID Chairman it was my job to eat donuts at the field trips and let new members identify their own mushrooms,

which I believe I do admirably. Wait, I might have that wrong?

To conclude, as you casually read through your next *Spore Prints*, you might consider the amount of work required over the years and the advances made. For all they've done, let's raise our glasses to toast Agnes & Dick on this occasion, and remember Hildegard as well, for they certainly deserve a big Thank You.

### Acknowledgments

Jennie Schmitt (PSMS President 1978–80) compiled six huge scrapbooks of PSMS activities over the years, which her husband, Dave, gave to me in 2002. Dave & Jennie were fixtures and consistent volunteers at all early PSMS events from the 1960s into the 1980s. I also express my warmest gratitude to Margaret Dilly, for

## A SUCCESSFUL PROJECT

Brian S. Luther

On Saturday, February 15, some of us got together at Reba & Milt Tam's house to re-file last year's Exhibit ID tags, as we've been doing the past few years. Reba, Milt, their daughter Lisa, Danny Miller, Larry Lee, Sarah Richards, son Adrian and I got the job done swiftly. Even after I did an initial major renovation of these labels in 2010, replacing many of the old paper backings and tags with totally waterproof labels, there are still many that need attention and we'll work on these piecemeal. Special thanks to Milt and Reba for again hosting this event and providing delicious hors d'oeuvres.

Remember, PSMS operates only because of member participation. Please volunteer to help at events. No matter if you're an old or a new member, we can always use help. With the spring field trips coming up, now's the time to raise your hand to pitch in and volunteer as a field trip host or co-host. My complete spring field trip schedule will come out with the April *Spore Prints* (a hard copy of the field trip insert is sent to members and will also be available on the member's page online at [psms.org](http://psms.org)).

We welcome Jon Hall as our new chair of the Field Trip Hosting Committee, taking over from Debra Lehrberger. If you'd like to help at the field trips by hosting, then please let us know. Contact Jon Hall at [jonhsuel@hotmail.com](mailto:jonhsuel@hotmail.com) for help with hosting or let me know you'd like to contribute or bring firewood.

## CITY OF LONDON PROSECUTES MUSHROOM PICKERS

*Horticulture Week*, Feb. 21, 2014

Eleven people have been fined up to £300 each after being caught illegally "hoovering up" mushrooms in Epping Forest.

Fines of £200 plus costs were handed down to two defendants found guilty of fungi picking against a local by-law. Eight pleaded guilty and were fined £130 plus costs and one was fined £35 plus costs. Another four cases were adjourned after the defendants failed to attend court. They were brought to book in October by forest rangers who have powers of arrest.

Epping Forest superintendent Paul Thomson said: "These people were caught picking mushrooms in prodigious quantities with large double bags full of them. Most people listen to us and stop but some of the people we met were clearly picking commercially. When they got back to their vehicles their whole boot was full."

## HISTORICAL MUSHROOM POISONINGS

Denis Benjamin

Although novelists have frequently featured mushrooms in stories, few people have actually used mushrooms in a criminal sense. But among the most interesting was the Frenchman Henri Girard in 1918.

Girard had a wife and a mistress, and they liked the good life. He knew a little bit about chemistry. He also knew quite a bit about life insurance. He would make friends with wealthy couples, about the same age as himself, on whom he would take out life insurance policies. He and his wife or mistress would then go to the insurance company's physician and take the physical exam. After a couple of months, Girard would get one of the local peasants to pick some *Amanita phalloides* for him in the woods, using a book to show the peasant what he wanted. He would serve them up in an elaborate meal, and in due course make a claim on the insurance.

He did this quite successfully for a number of years—to the point that he got a little too greedy, and he took out four life insurance policies. Three of the companies paid up. The physician for the fourth was curious why the healthy young woman he had examined earlier would die. He decided to go to the morgue and look at the body. When he arrived, he found a totally different individual.

Girard was convicted and sentenced to death, but died from tuberculosis before he could be executed. His wife and mistress were sentenced to life imprisonment.

## MUSHROOM POWDERS

*MushRumors*, Ore. Myco. Soc., Nov./Dec. 2013

*A Cook's Initiation Into the Gorgeous World of Fungi* (Philippe Emanuelli, Chronicle Books, 2011), a guide to buying, storing, and cooking wild and cultivated mushrooms includes eye-popping photographs and 125 tempting—and often unusual—recipes.

The section on grinding your own mushroom powders has some interesting and unique mixtures.

*For beef braised in red wine or a roast chicken:*

¾ oz. dried black trumpets, 1 whole clove, 4 black peppercorns.

*For a sauce, stew, or steamed clams:*

¾ oz. dried morels, 1 big pinch oolong tea leaves

*To season white-fleshed fish, sea scallops, or fresh porcini slices:*

¾ oz. dried porcini, ¾ oz. preserved lemon rind, 1 large pinch coarse salt

*To season rice or a salad:*

¾ oz. dried porcini, ½ oz. gomasio (sesame salt), 1 large pinch dried shrimp

*To season a veal chop or potatoes:*

¾ oz. dried fairy rings, ¾ oz. hazelnuts, ½ tsp coarse salt

*To make a broth, for soba noodles, seafood, or fingerling potatoes:*

¾ oz. dried shiitake, 2 TBs wakame seaweed

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Happy Birthday, PSM!S

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