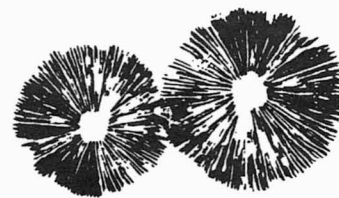


# SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY  
Number 349 February 1999



## ON THE SIGNIFICANCE AND PROBLEMS OF SPORE COLOR

Brandon Matheny

Reliance on spore color alone—or any other single characteristic—is no guarantee of reliable mushroom identification. For accurate identification, a combination of characteristics must be employed, and this is what makes identification of many things a challenge. Since the advent of recent systematic methods that include more emphasis on anatomical detail, pale-spored groups and genera of mushrooms can now be found in traditionally dark-spored families like the Crepidotaceae, Cortinariaceae, Paxillaceae, and boletes.

*Crepidotus epibryus* sensu Senn-Irlet, for example, a fungus uncommon at PSMS mushroom forays but occurring in wet depressions on sticks or herbaceous material, has been placed historically in five different genera largely owing to its pale-colored spores. This species is very likely Peck's *Crepidotus herbarum*. Within the Cortinariaceae, pale-spored genera such as *Hebelomina* (affinities to *Hebeloma*) and *Leucocortinarius* (affinities to *Cortinarius*) can be found in Europe. The genus *Hygrophoropsis* (*H. aurantiaca* does appear at PSMS mushroom forays) is a pale-spored genus that shares a close alliance with the darker-spored genus *Paxillus*. Among the boletes, the genus *Gyroporous*, very uncommon in Washington, is partly distinguished by its pale-colored spore deposits in contrast to the more olive-brown spore prints of *Boletus* and *Suillus*.

Since I am studying the genus *Inocybe*, a collection of mushrooms with much the aspect of an *Inocybe* was brought to my attention at the PSMS exhibit this past November. The combination of overall stature, size, fimbriate gill edges, and marginate bulb on the stipe all pointed to the genus *Inocybe*. The collection, however, was a bit unusual in that it had an overall pallid color and white gills at a late stage of cap expansion.

Just as I encourage beginning mushroom collectors to make spore prints of even the most obvious taxa, I tried to collect a spore print. Now, on occasion *Inocybe*, but more frequently in my experience *Clitocybe*, may fail to yield a sufficient amount of spores to determine the color of the spore deposit. Unfortunately, this white *Inocybe* failed to produce any spore print. However, upon examination of a piece of gill under the microscope, I observed hyaline (clear), nodulose spores indicative of spores devoid of dark pigments. Yet, the remaining microscopic characteristics clearly indicated the genus *Inocybe*.

How was this collection related to *Inocybe* then? Based on traditional Friesian emphasis, it would not be an *Inocybe* on account of the hyaline spores, which certainly would have yielded a pallid spore print at most. As I mentioned earlier, there are several pale-spored genera that have been segregated from their dark-spored relatives. I thought about the genus *Leucoinocybe* created by Singer, but the type (*Mycena lenta* Maire) chosen to represent the genus was reconsidered (at least by Singer in 1986) to be an odd *Mycena*. So, *Leucoinocybe* was out of the question

Could the collection merely be albinistic and not a new species, and certainly not a new genus, at all? I found several reports de-

scribing pale-spored variants of otherwise brown-spored species of *Inocybe* and *Tubaria*. Presumably, in these variants the pathways leading to spore pigment, carpophore (fruit-body) color, and spore wall thickness (in *Inocybe*) are blocked. However, one species, *I. rufolutea* Favre, was described that had colorless spores but a dark red-brown cap and pale yellow stem. Obviously, its fruit body did not undergo the presumed blockage of pigment.

Unlike fruit flies, where F1 and F2 generations can be bred to test the occurrence and frequency of certain traits, *Inocybe* does not lend itself to such genetic experimentation at this time. Thus conclusions regarding the autonomy of pale-spored variants remain speculative. But *I. rufolutea* (and this collection should be re-examined) suggests that albinism may not be an accurate interpretation of the reason for its pale-spored condition. In any case, white-spored variants of several *Inocybe* have been reported previously from Europe, Alaska, Michigan, and Oregon (*I. cystidiosa* (A. H. Smith) Singer).

For those interested in references on the subject, I can provide you with them upon request at matheny@u.washington.edu.

## A CHRISTMAS GIFT FROM DENNY Dick Sieger

PSMS life member Denny Bowman, who lives in Phuket, Thailand, added interest to our holidays once again.

Last year, knowing that I like to grow coprophilous fungi, he sent a package containing fresh dung from Thai elephants, buffaloes, and geckoes. He later told us that he was furtively wrapping a collection of the elephant dung on a lonely road and was interrupted when a truck full of his neighbors suddenly appeared. They watched him curiously but made no comment.

This year another package arrived. It contained a beautiful Thai Christmas card, a bottle of "Essence of Chicken with *Cordyceps*," two video cassette tapes, and an audio tape.

Ignoring the mold on the tapes, we tried playing them but saw only broken distorted edges of a picture with no image and heard what seemed to be voices played at the wrong speed. The audio tapes entertained us with low-fi Art Garfunkel songs. Puzzled, we e-mailed Denny asking what was on the tapes and found out that an accompanying message about them never reached us.

"First off," Denny exhorted, "let me suggest that you DO NOT play any of the tapes you have received. They came your direction for other reasons, fungi ID! If your player ends up destroyed, let me know. There is a general difficulty with tapes here in the tropics, a fungus attacks them and renders them unusable. The garbage cans outside VDO shops are literally full of fungus loaded tapes, or so I hear. Now you have two, and a cassette tape as well. Yikes, I may owe you a boom box as well!"

I replied, "Not to worry Denny, playing the tapes did no harm—the fungi survived! (And our electronic equipment is ok, too.)"



# Spore Prints

is published monthly, September through June by the

## PUGET SOUND MYCOLOGICAL SOCIETY

Center for Urban Horticulture, Box 354115  
University of Washington, Seattle, Washington 98195  
(206) 522-6031 <http://www.psms.org>

OFFICERS: Doug Ward, President  
Joanne Young, Vice President  
Lynn Phillips, Treasurer  
Lorraine Dod, Secretary

TRUSTEES: Steve Bell, D.V. Corey,  
Wayne Elston, Lynn Elwell,  
Russ Kurtz, Henry Lingat,  
Brandon Matheny, Ron Pyeatt,  
Dan Tanabe, Bernice Velategui  
Marshall Palmer (Immed. Past Pres.)

ALTERNATES: Jim Berlstein, Dave Cole

SCI. ADVISOR: Dr. Joseph F. Ammirati

EDITOR: Agnes A. Sieger, 15555 14<sup>th</sup> Ave. N.E.,  
Shoreline, WA 98155

Annual dues \$20; full-time students \$15

## CALENDAR

- Feb. 9 Membership meeting, 7:30 PM, CUH
- Feb. 15 Board meeting, 7:30 PM, CUH Board Room
- Feb. 16 Flower and Garden Show setup, 9 AM-12 PM
- Feb. 17-21 Flower and Garden Show booth
- Feb. 19 *Spore Prints* deadline
- Mar. 13 Survivors' Banquet and Annual Meeting,  
Edmonds Community College

## BOARD NEWS

The PSMS web site (<http://www.psms.org>) is progressing nicely. Doug Ward reports that the site is being seen all over the world. Brandon Matheny reported that the *Boletus* study materials and work are also coming along nicely. Joanne Young is working on getting The Mountaineers' Meany Lodge east of Snoqualmie Pass for the PSMS Spring Foray. Candidates were discussed for the Golden Mushroom award. Lynne Elwell reported on the progress of the election committee. She also reported that plans are coming along well for the PSMS booth at the Flower and Garden Show in February. The Survivors' Banquet will be at Edmonds Community College and will cost \$25. Various schemes were discussed for getting a laptop computer. Irwin Kleinman has volunteered to be the site planner for PSMS field trips. Tentative field trip sites were discussed.

\*\*\*\*\*

*The Shaggy Mane mushroom*, *Coprinus comatus*, was used in medieval times, when it was known as the ink horn fungus. The ink part of its name refers to the fact that when the mushroom deliquesces, or auto-digests itself to disperse its spores, it produces a puddle of black, faintly fishy-smelling ink. The horn part refers to the fact that animal horns were used as inkwells.

—The Arizona Fun-Gi, Winter 1998

## MEMBERSHIP MEETING

Tuesday, February 9, at 7:30 PM at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

Our featured speaker this month is Paul Stamets, founder and owner of the pioneering mushroom cultivator, Fungi Perfecti. His topic is "Medicinal Mushrooms."

Would persons with last names beginning with the letters P-S please bring refreshments for the social hour?

Reminder: If you can donate dried or frozen mushrooms for the Survivors' Banquet March 13, please bring them to the February meeting.

## BACKYARD MUSHROOMS

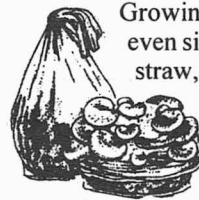
Nereide Ellis

*Potomac Sporophore*, Sept. 1998

Growing shiitake mushrooms, *Lentinus edodes*, in the backyard, along with other summer garden crops, offers a suburban family a tasty treat during the summer.

Thirty hardwood logs, preferably oak, cut from living trees with bark intact, can provide a family with enough mushrooms for a meal, with some left over. The extra mushrooms can be dried and used in the winter. For ease of inoculation use hard wood dowel plugs which have been colonized by the shiitake mycelium. A hole is drilled into the log that is a bit smaller than the plug, and the plug is then hammered into the hole. In a 30-in. log, a row of five holes is drilled in a zigzag fashion (as the diameter of the log increases so does the number of rows). After inoculation, the logs are racked for a year or two, depending on the shiitake strain used for inoculation, to allow time for the mycelium to grow.

Mushrooms will normally appear in the spring and fall for both cool weather and warm weather strains. To manage the time of growth for the warm weather strain, the logs are irrigated or submerged overnight in water. They are then racked in such a way as to allow space to harvest the mushrooms. After production the logs are allowed to rest from 4 to 10 weeks before the process is repeated.



Growing oyster mushrooms, *Pleurotus ostreatus*, is even simpler and quicker. A large plastic garbage bag, straw, and inoculum are all that is necessary for production. Damp straw that has been soaked in hot water is layered in the bag with the inoculum. The bag is loosely closed and allowed to sit for a month or so. One corner of the bottom of the bag is cut to allow excess water to drain off. The oyster mycelium will colonize the straw and it will appear white. When primordia are seen, it is time to open the bag. It may be necessary to mist the straw of developing oyster mushrooms several times a day.

Slugs have proven to be the greatest hindrance to growing mushrooms in a suburban setting. Hand picking the slugs seems to be the only environmentally friendly way to eliminate them. A lightweight cover is effective in stopping woodpeckers from also damaging the logs. There is not much to do about competing fungi but usually enough shiitakes will still grow on the logs.

Enjoy your mushrooms and remember it is very easy to grow them.

\*\*\*\*\*

**Web Site Recommendation:** Taylor Lockwood's page of fantasy mushroom stamps at <http://www.mcn.org/2/tfl/Stmpage.html>

This year we are voting for a Vice-President, Secretary, and five Trustees. Please read the following profiles carefully and mark your choices on the enclosed ballot. Return your ballot to "PSMS Election," c/o Center for Urban Horticulture, Box 354115, University of Washington, Seattle, WA 98195. A ballot box will also be available at the February meeting. Each family membership is entitled to two votes, and each individual membership to one vote.

**Vice-President Joanne Young**

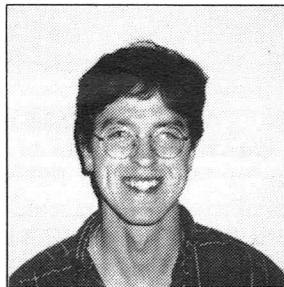
I think vice-president is the best job in PSMS. The VP gets to set up programs for the monthly meetings. It astonishes me how happily speakers agree to come and talk to us. If the next term is anything like the last, I will be very glad to have had your vote.



**Secretary Mary Beth Tyrholm**

I went to the University of Oregon, Eugene, and worked as a jeweler/designer in Seattle for many years. I am now a court reporter. I have met many wonderful people through PSMS, and as secretary I would love to contribute in any small way to the vitality of the mushroom society.

**Board of Trustees**

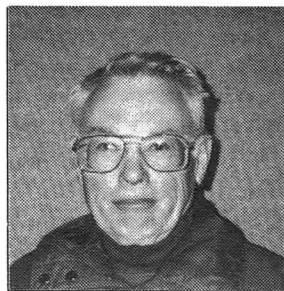
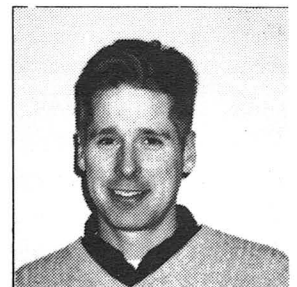


**Brandon Matheny**

I am a graduate student at the UW studying *Inocybe*. I have served on the PSMS board, was PSMS Education Chair for 2 years, and served as Microscopy Chair at the PSMS Exhibit. Fiscally, I would like to invest in additional educational tools, upgrade equipment, and maintain and cultivate our library.

**John Floberg**

I am finishing up graduate school this year in field science and am looking forward to becoming more active in PSMS. I would like to form partnerships between PSMS and the Orienteering Club so we can make it back to our cars easier and with the native Plant Society so we can learn about plants that are symbiotic with fungi.

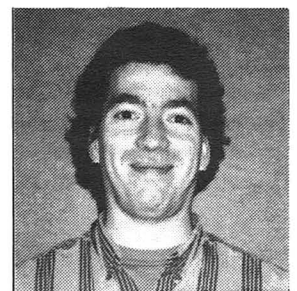


**Jerry Wire**

I joined PSMS 3 years ago and would like to become more involved. Retired for 10 years, my past volunteer activities include an officer of various trade and technical organizations, a community club, and a fly fishing club and a trustee of an acute care hospital. If elected I look forward to helping all I can with PSMS.

**Jim Berlstein**

An alternate trustee for the past year, I have enjoyed the thrill and excitement of board meetings and am now ready to take up the yoke of elected office. My interests in photography, toxicology, and levity continue unabated. I promise not to let excessively jargonistic verbiage obfuscate the ramifications of my rhetoric.

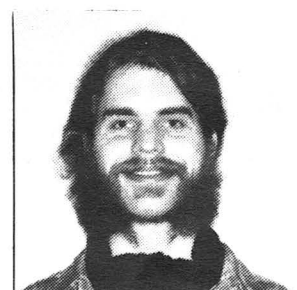


**Patrice Benson**

A member of the Society since 1976, my experience as president, 3 terms as trustee, and 9 years as Mycophagy Chair has provided me with rich experiences and wonderful friendships.

**Colin Meyer**

I joined PSMS at the last Wild Mushroom Show. The knowledge and excitement for mycology shared by PSMS members is contagious; my long time curiosity of mushrooms has become a serious hobby. I would like to expand access to and encourage use of information, especially via the internet.



**Fran Ikeda**

Born and raised in the Midwest, I learned there was such a thing as matsutake from my husband many years ago and joined PSMS in 1992 to learn about other mushrooms. I have been a board member in the past and would like to continue in that position.



## 1997 SURVIVORS' BANQUET

Steven Bell

All of you who attended the Survivors' Banquet in 1997 know what a fabulous dining experience we shared. This year, Chef Andy Juhl and the capable staff and students of the Culinary Arts Program will again amaze us with their gourmet skills. Dinner will be served in the dining facilities of Edmonds Community College at 20000 68th Avenue West in Lynnwood.

Save the date: Saturday, March 13. Doors will open at 6:30 PM, and dinner will be served at 7:30. Cost is \$25 per person. You may bring your own wine, and glassware will be provided. Entree choices are meat or an exotic vegetarian lasagne.

The evening's program will include announcements of new officers and the presentation of the "Golden Mushroom Award" for outstanding service to PSMS.

### Registration Information

Sign up at the February membership meeting or send your registration and payment to

Bernice Velategui  
2929 76<sup>th</sup> Ave. SE #504  
Mercer Island, WA 98040

Please include the name of each person attending and the entree (regular or vegetarian) desired.

Final registration deadline is February 28. Maximum seating is 90, so register right away! This will be the best banquet ever!

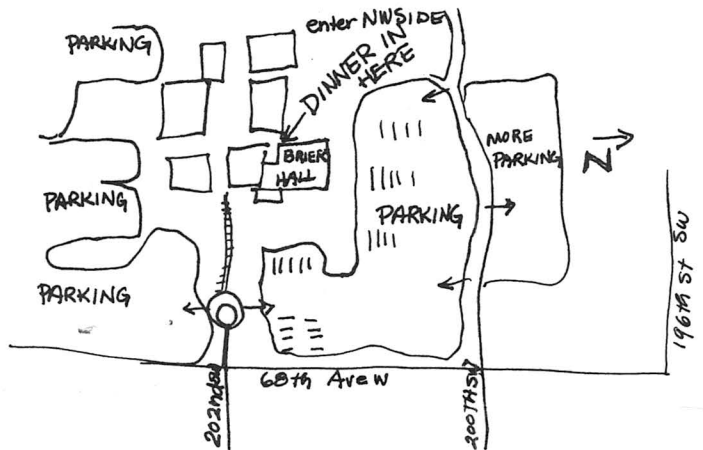
### Directions to the Banquet Site

*From northbound I-5:* Go to Lynnwood exit 181, 44th Ave W. Turn left off the exit onto 44th Ave. W. (go under I-5). Turn left at the next light, 200th SW. Go approx. 1.5 miles (crossing Hwy. 99) to 68th W. See map for parking and dinner site. Enter at the northwest side of Brier Hall.

*From southbound I-5:* Go to Lynnwood exit 181, 196th SW. Turn right off the exit onto 196th. Go approx. 1.75 miles (crossing Hwy. 99) and turn left at the 68th W. traffic light. See map for parking and dinner site. Enter at the northwest side of Brier Hall.

## Mushroom Donations Needed

Dried or frozen mushrooms are needed for the banquet. Please bring any extra boletes, morels, chanterelles, matsutake, or oyster mushrooms to the February meeting for transformation into exotic culinary delights.



## BRYCE KENDRICK'S WEB SITE

Dick Sieger

Dr. Bryce Kendrick is the author of *The Fifth Kingdom*, which is widely used as a mycology textbook, is a valuable addition to a mushroom hobbyist's library, and can be found in the PSMS library. Dr. Kendrick maintains a remarkable web site which includes an illustrated companion to *The Fifth Kingdom*. Visit it at <http://www.pacificcoast.net/~mycolog/index.html> and you'll find an abundance of beautiful photographs of fungi and their microscopic features. You won't need to have his book on hand because the subjects are presented clearly and completely with illustrated text. The site is so rich with information that you may want to load a page and disconnect your modem while you peruse it. Check out the picture of naked asci and the graphic animation of ascospore ejaculation.

page 4



**Puget Sound Mycological Society**  
Center for Urban Horticulture  
Box 354115, University of Washington  
Seattle, Washington 98195

RETURN SERVICE REQUESTED

Matheny, P. Brandon 1999  
3214 S. Byron St.  
Seattle Wa 98144

Non-Profit Org.  
U.S. POSTAGE  
**PAID**  
SEATTLE, WA  
PERMIT NO. 6545

**Notice:** If your mailing label has a **red dot**, your dues are overdue, and this will be your last *Spore Prints*.

35144+6132

