

SPORE PRINTS



BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 401 April 2004

ANNUAL BANQUET, 2004

Patrice Benson

Our 40th annual banquet, known as the Survivor's Banquet only since 1968 or 1969, was celebrated with fun and fabulous detail by 125 members and guests. The banquet took place in our regular meeting room at CUH, which was bedecked with flowers and white tablecloths. Banquet co-chair Michael Blackwell was responsible for planning the menu, which was executed by John Platt and staff of St. Clouds Restaurant. We thank them both for such a fine feast. Michael Blackwell and Peter Gemma were also responsible for the painted eggs found nestled on each table. Peter is to be principally exalted for the hand painted glasses, which graced each place setting and made our 40th anniversary particularly memorable. Both of these members spent hundreds of hours painting and planning. We thank you eternally.

Of course these events are the result of many volunteers' efforts. Decorators Lynn Phillips, Cathy and Don Lennebacker, Russ Kurtz, and half of his garden made the tables special and fragrant. Hostesses Lorraine Dod and Frances Ikeda welcomed all comers at the door. There were lots of impromptu serving and bustling about by many members and their guests! The cleanup crew, too numerous to name, are also responsible for remembering to take down the inflatable moose head.

We were entertained by the classical guitarist Mark Hilliard Wilson, whose music filled our mood with echoes of the ages. The audience was particularly responsive to the piece by the Greek Irish composer, Myke O'Logical. We do hope that we will see more of Mark and his family at our mushroom gatherings.

The door prizes were fabulous, and the delivery was more entertaining than any lottery event that I can remember! Brian Luther, Ben Woo, and Dick Sieger entertained us with their accounts of PSMS history, memories of past banquets, and tributes to survivors of yesteryear.

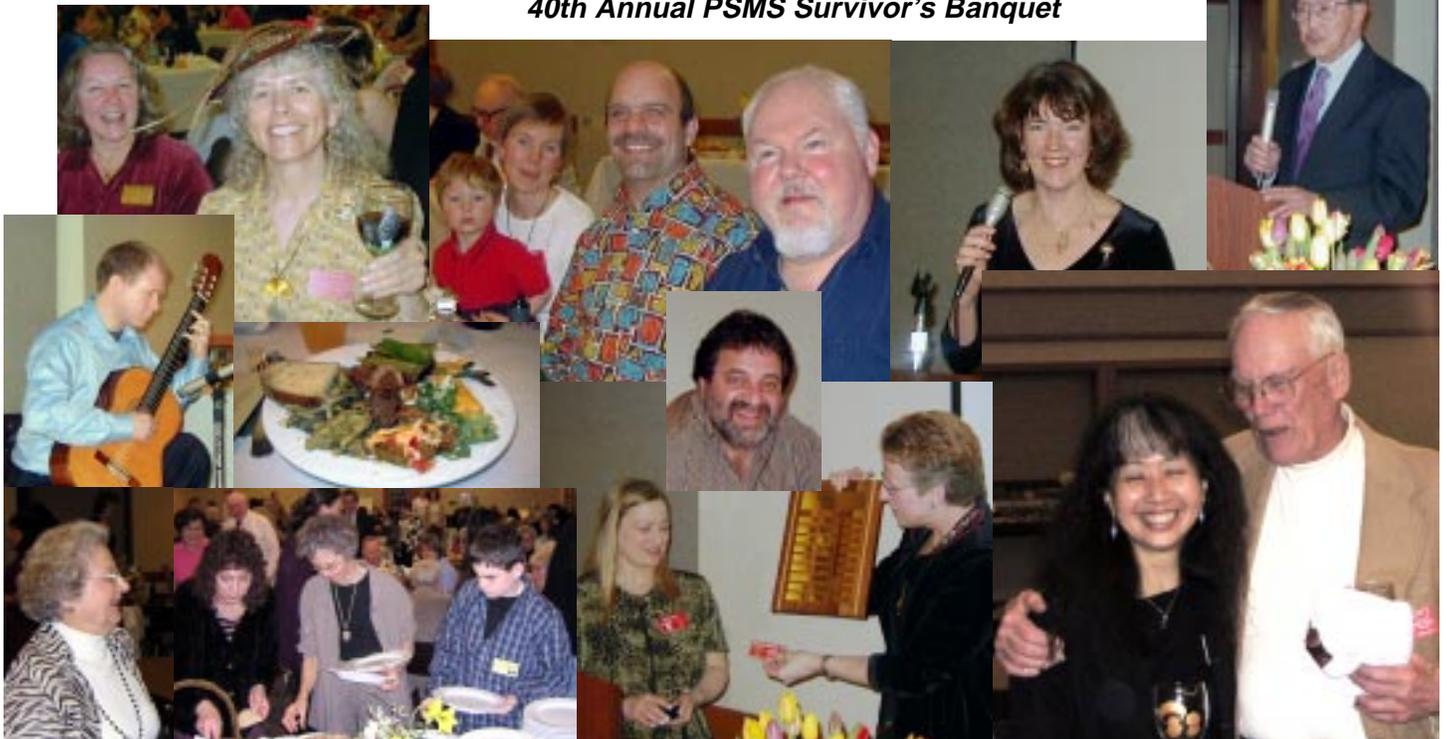
Many thanks to Brian Luther for his presentation of the virtues of our 2004 Golden Mushroom Award winner, Marian Maxwell. Marian's family—husband, Scott, and sons Brandon and Colin—was also recognized and honored as part of Marian's success as a meritus mushroomer. Marian received a golden pin and her name engraved on our illustrious list of previous honorees chosen for their service to PSMS.

Our president Karin Mendell paid tribute to and welcomed and thanked old and new board members and officers at our official annual meeting.

Another big thank-you goes to our lovely mistress of ceremonies and banquet co-chair Joanne Young for her gracious ways with words and her teamwork with co-chair Michael Blackwell. We are all grateful for the many hours of work that it took to put this event together. I'll pat myself on my back for bringing the punch bowls and thinking of pairing up Joanne and Michael as banquet co-chairs!

Present were Ben Woo, the first PSMS president, and Russ Kurtz, both charter members and active participants for these 40 years. We are all blessed to have them as leaders who kept us evolving into the wonderful group that we have become. Thanks to all mentioned and not, present and past.

40th Annual PSMS Survivor's Banquet



Spore Prints

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PUGET SOUND MYCOLOGICAL SOCIETY

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Annual dues \$25; full-time students \$15

CALENDAR

Apr. 13	PSMS Membership Meeting, 7:30 PM, CUH
Apr. 19	PSMS Board Meeting, 7:30 PM, CUH
Apr. 20	<i>Spore Prints</i> deadline
May 8	Field Trip, Circle 8 Ranch
May 11	PSMS Membership Meeting, 7:30 PM, CUH
Oct. 16–17	Annual Wild Mushroom Exhibit, Sand Point

BOARD NEWS

The Board was notified of the PSMS election results by Joanne Young. The Board reviewed various page designs for the PSMS Website. All the spring and fall field trips have been scheduled and the sites reserved; we have hosts for the spring field trips. Patrice Roberts will send postcards to lapsed members encouraging them to renew. The April membership meeting will feature Nancy Smith Weber and Maggie Rogers. The CUH Library will be open from 5:30–7:30 PM prior to the meeting. The Annual Wild Mushroom Exhibit still needs a chair! PSMS Secretary Ramona Owen is resigning, citing personal reasons.

The board approved a \$150 gift certificate for Michael Blackwell (Banquet co-chair) and Peter Gemma (who hand-painted and individually hand-washed the souvenir wine glasses). They also approved granting \$2000 toward the Shadow Lake Bog Research project.

Various ways of promoting kid-oriented cultivation activities were discussed, including holding daytime, hands-on cultivation workshops involving kids and giving away a cultivation kit to kids at an upcoming field trip. The Board also discussed the possibility of donating PSMS library books to the CUH Miller Library. A list of members who have indicated interest in helping with the library was given to president-elect Ron Post.

MEMBERSHIP MEETING

Tuesday, April 13, at 7:30 PM at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle

April's program is entitled "A Printed Mushroom Journey or The Mushroom Leaves" and features Dr. Nancy Smith Weber and Maggie Rogers, who will be teaming up to present a display of mushroom books and other literature. There's sure to be quite a range of rare and current books to help orient the mushroom fancier to the truth and lore about mushrooms.

Nancy comes from a mycological family and spent many summers in the field hunting mushrooms with her father, Alexander Smith, and meeting other mushroomers. She grew up in Michigan and received her Ph.D. from the University of Michigan. At present she is a courtesy Professor in the Department of Forest Science at Oregon State University. Her official research is on the diversity of morels, related cup fungi, and truffles of western North America. Nancy has been foray mycologist and a speaker at many mushroom clubs around the country. She is senior or co-author on several books and papers, including *A Morel Hunter's Companion*. She may reveal the truth about morels, so do not miss this!

Maggie Rogers is a retired library scientist and an avid mycological bibliophile. She markets new and used publications as Fungal Cave Books. Maggie co-edited *Mushroom: The Journal of Wild Mushrooming* for 19 years. Maggie is an expert instructor of fungal arts and crafts, including the art of making paper with mushrooms. She has treasures, and will share them. Maggie has mushroomed in Siberia, Scotland, England, Finland, and many U.S. areas and is still alive!

Please join us for this sure-to-be-informative and entertaining evening about BOOKS, BOOKS, BOOKS. The truth is out there.

Note: *The CUH Miller Library will be open exclusively for our use before the meeting.* Their hours that Tuesday will be 9:00 AM–7:30 PM. Please plan on arriving early to peruse their collection in its temporary home in the room next to the PSMS office. The plan for the new library opening is August 2004.

If your last name begins with the letters N–Z, please bring a treat to share after the meeting.

UPCOMING FIELD TRIPS

Cathy Lennebacker

Remember to dress for the weather and bring something for one of our excellent potlucks.

May 8

Circle 8 Ranch
(elev. 2000 ft, 75 miles east of Seattle)

Go east on I-90 over Snoqualmie Pass. Continue 20 miles and take exit #74, the "West Nelson" exit, from I-90. Go to the right. After ±2 miles you will see a sign to the Circle 8 ranch. You will see two interlocking squares (the square dance symbol). The Circle 8 Ranch is on your right. There is a usage fee of \$2 per person. *Hosts:* Dave Hunt and his new bride, Hobana, who met at Circle 8 this time last spring! *Identifier:* Patrice Benson.

We can camp at Circle 8 Saturday, May 8, for the following charges: \$15 for tents, \$17 for electricity and water, and \$19 for full hookups. Please pay Dave Hunt, the field trip host, on site if you decide to stay overnight. There is a cabin you could rent for \$30 if you so desire. You would still need your own sleeping bag.

INCOMING PRESIDENT'S MESSAGE

Ron Post

Sample any group of nonprofit leaders and they will tell you: The rewards outweigh the headaches. For me, that is a truism. I've held other jobs in PSMS and met wonderful companions, learned a lot. Whether it's sharing a joke with Mike L., lifting a glass with Lynn P., or running up and down big hills in the spring collecting morels or snowbank mushrooms with my son, Sam, I seem to put my best foot forward around this group.



It hasn't always been so. When I was a board member of the Ketchikan Area Arts and Humanities Council in 1986 and 1987, just before moving back to Seattle, I wrote a small grant and put on a series of lectures in the arts and humanities in Ketchikan. It was judged a success, but only 10 people showed up at one of those four lectures. Well, it did rain awfully hard that month. We *should* have gone mushroom hunting.

I also wrote a successful grant to the Seattle School District many years ago, and I've been turned down a few times, too. I think we are lucky to have a "watchdog" board and a few dollars to throw at worthy, fungi-related causes such as the one you will learn about at a short presentation at this month's meeting. My point is, we are not a rich club, but we are one that holds to a very important American tradition begun in the early 17th century: enthusiastic, amateur scientists helping to gather data and move professional disciplines along. When Ben Franklin reorganized the U.S. Postal Service he was motivated partly by the need to share scientific specimens and knowledge with people in Europe and elsewhere on this continent. Was his name really Ben "Woo" Franklin? Did he eat wild mushrooms? I hope he didn't kick over any Russulas!

If you were at the banquet last month, you know we have a new chair of the Conservation and Ecology Committee. Her name is Karen Behm and you'll hear from her in the future. If you have an interest in that group and don't have Karen's number, contact me and I'll put you in touch with her. Mary Lynch is giving her a hand in planning. As the former chair of that committee, I can testify that the number of possible directions is immense. Once, I was told that building a permanent, interactive display on fungal ecology for our annual exhibit would run about \$10,000. We backed off on that idea since it's about half of our annual operating funds. Yet it's still in the back of my mind.

Thanks in advance for any comments you want to send me about our club or any other mushroom activities. I am considering asking our board to get involved in a fund-raiser, either this coming winter or in 2005, to boost the dollars in our education and grant funds. Let me know what you think about this, too. I can be reached at (206) 527-2996 or ronp46@hotmail.com.

CULTIVATION CAN BE FUN

Ron Post

Some of you with children under 18 and over age 5 may want to keep a sharp eye out (and hope for great weather) for the May special event for kids, at a field trip east of the mountains (probably 29 Pines). Not only will there be some (up to 20) free cultivation kits to take home and watch edible fungi sprout, but there will be a fun mushroom cultivating team to lead the kids in an activity. Let one of the board members know at the April meeting if your children plan to attend, so we can judge how many supplies we'll need. The exact date will be announced in next month's newsletter.

ELECTION RESULTS

Joanne Young

Two officers and five trustees (also known as board members) are elected each year to serve a two-year term. Alternate trustees serve a one-year term. If an alternate is appointed to fill a vacancy, that alternate will serve the remainder of the term of the board member they replaced. Alternates are encouraged to attend board meetings, but are not able to vote.

The newly elected officers and trustees of PSMS for 2004–2006 are as follows:

Officers:

Ron Post, President
John Goldman, Treasurer

Trustees:

Colleen Compton
Lynne Elwell
Dennis Oliver
Bret Vielbig
Daniel Winkler
Karin Mendell (Immed. Past Pres.)

Alternate Trustees

Karin Tolgu
Marilyn Droege
Steve Bigelow*

*Alternate trustee Steve Bigelow has been appointed to serve the remainder of Donna Palomaki's term for 2003–2005.

Continuing officers and trustees for 2003–2005 are

Officers:

Patrice Benson, Vice-President
Ramona Owen, Secretary

Trustees:

Alissa Allen
David Hunt
Pacita Roberts
Tony Tchantz

A big thank-you to the following **outgoing officers and trustees** for 2002–2004:

Officers:

Karin Mendell, President

Trustees:

Cathy Lennebacker
Don Lennebacker
Elizabeth Lisaius
Donna Palomaki
Bernice Velategui
Joanne Young (Immed. Past Pres.).

The PSMS board of directors meets at 7:30 PM on the Monday following our Tuesday general membership meeting. The location is the Isaacson Boardroom at the Center for Urban Horticulture, in the same building as the PSMS office. The first meeting for the incoming board members is Monday, April 19.

MUSHROOM MISSIONARIES

Dick Sieger gave a mushroom presentation at the Sequim garden show on March 21. **Patrice Benson** spoke to the Kitsap Peninsula Mycological Society, Bremerton, in January.

SULPHUR-SHELF, AN IDENTITY CRISIS?

Dr. Joseph Ammirati

Sulphur-Shelf or Chicken-of-the-Woods has been surrounded by controversy for many years. All species are currently placed in the genus *Laetiporus*, described by William A. Murrill in 1904. The most familiar species name in books and on-line is *L. sulphureus*, originally described in Europe by Bulliard as *Bolletus sulphureus* in 1789, and later called *Polyporus sulphureus* by Fries, 1821. A few other species names, for example, *L. cincinnatus* and *L. persicinus*, have been used for species in the eastern and southern United States.

Mycologists have argued for decades about the number of species in North America and in Europe but until recently have been confounded by the similarity in morphology, except for habit of growth and some color differences, among the many specimens collected from a variety of host trees. In a recent paper Hal Burdsall and Mark Bank present the latest information on the number of species in North America with some surprising outcomes for those who believed that one name or at most a few names was adequate for the Sulphur-Shelf!

In this latest treatment there are six species and one variety reported from the United States including Alaska and Puerto Rico and British Columbia; certainly some of these species occur in other parts of Canada, Mexico, and elsewhere. In our area there are two species, and, yes, *Laetiporus sulphureus* is not one of them. The different species are recognized on this basis of compatibility group (whether or not they get along) and molecular sequence data (evolutionary history) along with supporting morphological and ecological data. All species are brown rot fungi occurring in roots, butts or heartwood of living trees or on logs or trunks of trees that have died.

On conifers we have *Laetiporus conifericola*, which occurs on conifer from Alaska south to California and east to Nevada and Idaho. Likely its range will be extended once more studies are completed. *Laetiporus gilbertsonii*, the second species we have in our region, occurs on hardwoods in Washington, Oregon, and California. It has been found on *Prunus* (cherry) in our region, and I have seen it north on the University of Washington campus on this host.

Some people regularly eat and enjoy the Sulphur-Shelf, certain individuals cannot tolerate it, and others have tried it and do not consider it a good edible. In my experience the specimen that occurs on living oak trees in southern Ontario, Canada, probably *L. sulphureus*, is an excellent edible, one we regularly ate on week-long class field trips. By way of comparison the specimens we ate in the Upper Peninsula of Michigan that fruited on hemlock were of poorer quality. For those of you who eat our western species of Sulphur-Shelf, *L. conifericola* from conifers and *L. gilbertsonii* from hardwoods, oak, eucalyptus, cherry, etc., how do they rate as edible? Please send comments to J. F. Ammirati, cort@u.washington.edu.

Laetiporus conifericola on western hemlock, Olympic Peninsula (photo E. Haskins).



Laetiporus sulphureus on oak in eastern North America (photo J. Ammirati)

ITEMS OF INTEREST

Higher Fungi of the Sierra Nevada Class. Dr. Dennis Desjardin, mycology professor at San Francisco State University, will lead the course June 6–11 at the Sierra Nevada Field Campus on Highway 49 west of Yuba Pass and northeast of Sierra City. All registration is handled by the camp director (notify Jim Steele at (650) 738-1814 or jsteele@sfsu.edu). The course carries one unit of college credit and may be taken for a letter grade or credit/no credit. Dr. Desjardin's Website is mycena@sfsu.edu.

Telluride Mushroom Festival. Telluride, Colorado, August 21–24. Speakers are Dr. Andrew Weil, author of the bestselling book *Spontaneous Healing*, on “Mushrooms and Health”; Gary Lincoff, past president of the North American Mycological Association, on “Wild Mushroom Identification”; Paul Stamets, president of Fungi Perfecti, on “Medicinal Mushrooms”; Dr. Emanuel Salzman, co-editor of *Mushroom Poisoning*, on “Mushroom Poisoning”; John Corbin, cultivation specialist, on “Growing Mushrooms on Straw,” and others. For information about registration and fees, check out www.shroomfestival.com, phone or fax (303) 296-9359, or contact: Fungophile, Attn. Mushroom Festival, Box 480503, Denver, CO 80248-0503.

Joint NAMA/MSA Meeting, July 13–21, 2004: University of North Carolina, Asheville, in the heart of the Blue Ridge Mountains. Forays, workshops and displays of North Carolina fungi. For information e-mail Phyllis Cole, NAMA President (yamacole@cruzio.com) or Rytas Vilgalys (fungi@duke.edu).

Mexican Mushroom Tours is offering three, one-week mushrooming events for 2004. (1) *The Copper Canyon Mushroom Expedition*, August 15–22, includes a local mushroom festival, idyllic forest lodges, and a journey on the world-renowned Chihuahua–El Pacifico canyon-rim train ride. US \$1540 pp dbl. occ.—this tour is almost fully booked. (2) *The 5th Tlaxcala/Puebla Mushroom Foray*, September 12–19, includes stays at historic haciendas in Mexico's central highlands, collecting with indigenous mushroomers, exposure to the enriching local culture, and enjoying fine regional foods. US \$1,420* pp dbl. occ. (3) *The Veracruz Fungi Exploration*, October 10–17, in a colorful, semi-tropical Gulf coast area, includes beach and plantation accommodations, archeology, and marvelous seafood cuisine in several diverse areas of this beautiful state. \$US 1,480* pp dbl. occ. (*Less a special discount of US \$150 per person for members of a NAMA-affiliated mycology organization.) For details and further information, see www.mexmush.com. [Disclaimer: Sounds nice, but we don't know these folks—Ed.]

BEN WOO'S SPEECH TO THE 40TH ANNUAL SURVIVOR'S BANQUET, MARCH 13, 2004

Fellow Survivors:

I have been asked to make a few remarks on this occasion of our 40th gathering to celebrate our longevity and to remember those who relied on the silver coin test this past year and are no longer able to be with us.

PSMS came about at the behest of Dr. Dixy Lee Ray, who in 1962 had become Director of the Pacific Science Center. Dr. Ray wanted to increase public participation in the Center by forming an academy of amateur science clubs under its auspices. She had contacted persons who were amateur astronomers, rock hounds, marine science buffs, and, through her good friend Dr. Dan Stuntz, mushroom hunters.



A small group of us were asked by Dr. Stuntz to meet in October of 1963 to discuss the formation of a mushroom club. We were given red carpet treatment at the Science Center and promised staff support and meeting facilities for such a club. The temporary board consisted of Ted Clark, Sales Manager with Pittsburgh Plate Glass; Frantz Coe, a representative for Brunswick Corporation; Robin Drake, a political activist; Aki Horita, Professor of Pharmacology at the University; John Kleyn, a microbiologist at Rainier Brewing; Mrs. Albert Lipman, whom I never did know; John Uitti, owner of a frame shop on University Way; Charlie Volz, a biologist with the US Fish and Wildlife Service; and me, who had a small architectural office. I was elected to chair the meetings.

After a few sessions with Dr. Stuntz, we were all charmed into agreeing to work on it. Late in the year, we put a small item in the newspaper announcing a meeting to organize a mushroom club. At the meeting in January 1964, 85 people signed up. We set up a formal structure and, with the pro bono assistance of Francis Hoague, an attorney friend, we filed for incorporation, recorded bylaws with the County, and set our first official meeting for March 16, 1964. We held elections, and I was elected the first President. Charlie Volz was Vice President, Meriel Albright, who had been secretary of the Vashon Chamber of Commerce, became Secretary, and John Uitti was the Treasurer.

We set an ambitious schedule—monthly meetings with lectures and identification sessions, field trips, an *Agaricus* study—and we decided to hold an annual exhibit in the fall. Loe Simon from Portland came to advise us on how to stage a mushroom show and brought pictures of the Oregon Mycological Society show. We were given a small space in the Science Center, which was a curved passageway that had been an exit from the 1961 World's Fair Science Exhibit. There was no lighting and no walls. To create an exhibit space, I built partitions of 4-ft by 7-ft panels, some of which we subsequently covered with burlap and still use. I rented lighting from a theatrical supply company, and we did the wiring ourselves. David Gardner, who headed the Photography Department at Boeing, made large black and white prints of his own photographs, which are still part of our show. John Uitti donated materials and built the mushroom trays. Everyone pitched in to put the show together. Dr. Ray, Dan Stuntz, Elsie Burkman, and I went on TV to publicize the show. People were standing in line when the show opened. Dr. Ray was beaming with delight. I believe we only charged a dollar admission, but at the end of the show, including book sales, we netted \$414. The next year, we cleared \$3,900.

By December of our first year, we published a roster listing over 170 members.

Our first annual banquet was held at Ruby Chow's Restaurant on March 15, 1965. We had a seven course Chinese dinner with mushrooms in every course. Dr. Angelo Pellegrini was our guest speaker. We had a great time.

Now, let's drink a toast to those who have gone before us. To Dr. Dan Stuntz, our founding spirit; to Dixy Lee Ray, who made us a home, who later became Governor of Washington, and whom when she was once our speaker, I introduced as my favorite exotic dancer; and to so many of our past presidents who have gone to the old growth forests in the sky, let us raise our glasses. Happy Fortieth Survivor's Banquet! And happy mushrooming to you all!

WHEN IT COMES TO MUSHROOMS, A PRAGUE COMPOSER KNOWS THE SCORE Katka Krosnar

The Prague Post (December 18, 2003)
via *Mycofile*, Vancouver Myco. Soc., Winter 2004

Deep in a forest on the outskirts of Prague, Vaclav Halek stands above a small cluster of mushrooms, pen poised above a sheet of music paper.

Within seconds he is rapidly scribbling notes, stopping only to chuckle delightedly, his hand waving in the air as if conducting an orchestra. Ten minutes later he has completed a score, "sung" to him by the *Tubaria hiemalis* (Krzatka zimni) below. Half a mile along it's the same refrain, as Halek gently clears leaves and other debris from around his chosen specimen, stands back and calmly waits. This time, the single tiny *Hygrophoropsis aurantiaca* (Listicka pomerancova) inspires a more serious composition.

It's a process the mushroom-mad composer has repeated for two decades, insisting his special gift allows him to tune in to the fungi and pick up their musical signals.

"Each type of mushroom has a different melody; it's their way of expressing themselves," says Halek, 66. "At first the music starts gently but then it grows stronger."

Swinging a large basket containing a German mushroom encyclopedia over one arm and clutching his pen and paper in the other, Halek looks utterly content as he makes his way through the forest. Pausing and standing stock-still above the mushrooms, lost in concentration, he may cut an odd figure and attract bemused stares from passersby, but he is deadly serious about his passion.

A professional composer by trade until his retirement in 1997, Halek estimates that he has collected the melodies of 1,700 different types of wild mushrooms across the country, and says he will manage at least several hundred more of the remaining 1,300.

Halek says he has no particular favorite mushroom or melody. "The great thing is that they are all different," he says.

Back home in his fifth-floor Prague apartment, Halek sits down at his grand piano and bashes out the melodies he has just composed in the forest. The first tune he calls "a wonderful, completely jokey piece of music" suitable for the violin; the second is a melody for flute, "about enjoying freedom but knowing that it will end soon."

His focus on fungi began when he went mushroom picking as a child with his parents and grandmother in Prague Suchdol and in

Sobotka, central Bohemia. But it wasn't until 1980 that he stumbled on his gift.

"A microbiologist friend of mine took me on a field trip to photograph and document mushrooms. He asked me to look through the lens at a *Tarzetta cupularis* (Zvonecek sadni) to see if everything was properly set up, and as I did so, suddenly I heard music, as if a whole symphony orchestra were playing.

"I just couldn't understand what was happening but then I realized it was the mushroom making the noise." Halek rushed for musical paper, noted what he heard, and hasn't looked back since.

Unlike most who share the national passion for combing the forest for mushrooms, Halek does not eat his samples (though he does eat mushrooms obtained elsewhere).

His efforts over the past two decades have culminated in the publication of more than 40 of the compositions in *The Musical Atlas of Mushrooms*, a glossy new book complete with color photographs, full scores, an introduction to each type of fungus featured, and an accompanying CD. One of the spotlighted mushrooms, *Boletus junquilles* (Hrib slamozlutý), is so rare that Halek has seen it only once; another, *Boletus spinari* Hlav (Hrib spinaruv), was discovered so recently that it has not yet been registered internationally.

As well as recording the individual melodies, Halek has composed two symphonies combining music from different fungi. "One musician plays some of my work during his concerts, but the audience doesn't realize it is listening to music that was inspired by mushrooms," he says. That musician, violinist Jan Kvapil, does have his questions about the origin of Halek's music.

"I can understand that Halek is inspired to compose when he stands in the peaceful surroundings of the forest, but that's not the same as hearing music directly from the mushrooms themselves," says Kvapil, a member of the Czech Philharmonic orchestra who plays on Halek's CD and occasionally performs the mushroom pieces with the Mysterium Musicum chamber trio. "But I have to say that Vaclav's music is very powerful and I really like what he writes."

SCIENTISTS MOVE CLOSER TO IDENTIFYING WORLD'S OLDEST ASEQUAL ORGANISM

Kathryn Stelljes

The Sporeprint, Los Angeles Myco. Soc., March 2004

New findings about ancient fungi provide a key to resolving a basic mystery of evolution, according to scientists at the University of California, Berkeley.

Biologists believe that sexual reproduction is essential to long-term survival of species, and only a very few species are thought to have survived for long periods without sex. Arbuscular mycorrhizal (AM) fungi, which colonize roots of most land plants and improve both their ability to obtain nutrients and to tolerate disease, may be the group of organisms that has done so. No one has found any sex organs in these fungi, and their 460-million-year-old fossils, from the Ordovician period, look just like modern species.

If these fungi truly are asexual, the age of the oldest known asexual organism would be pushed back by a factor of 10. A group of rotifers currently is the oldest known asexual organism.

Until now, however, tests for asexuality could not be applied to AM fungi because it was thought that they contained many different nuclei in each cell.

In this week's issue of the journal *Nature*, new evidence by UC Berkeley biologists Teresa Pawlowska and John Taylor shows that the nuclei in AM fungi are identical—information that will allow the tests of asexuality to proceed.

The team used genetics to study inheritance in spores and molecular biology to study genetic variation in individual nuclei to show that each nucleus was just like the others.

SILENT KILLER STALKS BRITISH WOODLANDS

Mark Townsend, *The Observer*, Sunday Feb. 8, 2004, via *The Sporeprint*, Los Angeles Myco. Soc., March 2004

Right from the start, the discovery appeared ominous. A trail of dark red sap had been reported oozing from a Cornish beech tree. Officials ordered an immediate detailed analysis of the plant's decaying tissue.

Buried within the beech was a mysterious new mutation of *Phytophthora ramorum*, a deadly, virulent fungus that has wreaked ecological havoc in parts of the US. Now senior government advisers have confirmed what conservationists had been dreading: Britain's countryside—and its ancient woodlands—is facing its biggest threat in decades.

Phytophthora ramorum, also known as sudden oak disease, can infect oak, beech, horse chestnut, and sweet chestnut—many of Britain's best-loved trees. Up to 350 million trees are thought to be at risk. The fungus could eradicate a twelfth of Britain's depleted stock of trees, dwarfing the destruction caused by Dutch elm disease, which killed around 30 million trees in the 1970s.

Where the new strain of *Phytophthora ramorum* came from is a mystery. Suspicion has fallen upon the Far East, with infected plants entering the UK via the booming trade in international plants.

The first mature British tree found exhibiting the symptoms of the fungus was a southern red oak in East Sussex three months ago. The discovery of a new incurable strain 250 miles away in Cornwall so soon afterwards has deepened concern that the disease is determined to acquire a foothold in Britain.

Detecting the prevalence of sudden oak disease involves methods traditionally associated with a criminal investigation. Plant pathologists have dissected Britain into more than 1,000 10-km parcels deemed at risk. Squads of specially trained tree pathologists are continuing a rapid analysis of hundreds of woodlands. Yet detection is problematic. The symptoms are almost impossible to distinguish by eye, and even specialists admit mistakes. False alarms are frequent.

In Cornwall nine trees, covering five species at three sites, are infected. So are some of Britain's most important country gardens; among these are the Royal Horticultural Society's Wisley estate in Surrey, as well as Cornwall's Lost Gardens of Heligan and Caerhays Castle. More than 300 garden centers and nurseries have reported the fungus.

No fungicide exists to eradicate the disease. The only solution is detection followed by burning. But the image of vast swaths of rural Britain being torched unnerves Ministers who still shudder at the damaging image of burning cattle carcasses during the height of the foot and mouth epidemic.

What is certain is the need for urgent action. In Holland, it took just 2 per cent of woodlands to be infected for the government to abandon its plans to eradicate sudden oak death. In the US, the disease has killed 80 per cent of American oaks in California.

Sweeping measures to thwart the possible spread of sudden oak disease will be discussed this week, with a range of severe foot-and-mouth style initiatives under consideration. Infected sites are likely to be placed under quarantine. Banning all plant movements from such sites and those nearby will be introduced, although initial suggestions aimed at imposing a trade ban on imported suspect plant species have been dropped.

Several hundred officials are to make intensive checks on plant imports. In addition, inspections at nurseries will double from twice a year, with experts warning the fungus appears to be carried by viburnums and rhododendrons. Vast banks of these flowers may be destroyed.

The economic impact could be severe. Thousands of people visit Cornwall alone to see the county's stunning rhododendron displays. The National Trust remains concerned about the threat to its estates. Although the infected trees are not on its land, the disease has affected plants at three of its Cornish properties—Lanhydrock, Trelissick and Glendurgan. How many more will follow remains anybody's guess.

SCIENTISTS FIND GENE THAT PROTECTS AGAINST POTATO BLIGHT

Terry Devitt

The Sporeprint, Los Angeles Myco. Soc., October 2003

Madison, Wisconsin - In other *Phytophthora*-related news, scientists scouring the genome of a wild Mexican potato have discovered a gene that protects potatoes against late blight, the devastating disease that caused the Irish potato famine.

The discovery of the gene and its cloning by scientists at the University of Wisconsin at Madison was reported July 14, 2003, in on-line editions of the *Proceedings of the National Academy of Sciences* (PNAS).

The identification of the gene, found in a species of wild potato known as *Solanum bulbocastanum*, holds significant potential. All of the varieties now cultivated commercially on more than 1.5 million acres in the United States are highly susceptible to potato late blight, a family of fungal pathogens that wreaks havoc in the field, turning tubers to mush and invariably killing any plant it infects.

"We think this could be very useful," says John Helgeson, a UW-Madison professor of plant pathology, a research scientist with the U.S. Department of Agriculture and a senior author of the PNAS paper. "No potato grown in the United States on any scale at all has resistance to this disease."

With the blight-resistant gene in hand, the Wisconsin team, which also includes Jiming Jiang, a UW-Madison professor of horticulture, was able to engineer plants that survived exposure to the many races of *Phytophthora infestans*. The insertion of a single gene, according to Jiang and Helgeson, effectively protects plants from the range of late blight pathogens.

"So far, the plants have been resistant to everything we have thrown at them," says Helgeson.

The world's most serious potato disease, late blight is best known as the cause of the Irish potato famine. Seeming to appear from nowhere in 1845, the fungus wiped out the staple crop of the densely populated island nation, causing mass starvation over five years, killing more than a million people, and sparking a wave of immigration that had worldwide social consequences. More than 150 years later, Ireland's population has yet to return to pre-famine levels.

Prior to the 1990s, chemical fungicides were available in the

United States and effectively held the disease at bay. But new strains of the pathogen have emerged, testing the limits of the technology and requiring American farmers to treat potato fields as many as a dozen times a season at a cost of up to \$250 per acre. In warmer climates such as Mexico, fields may be treated as many as 25 times a year with the costly and toxic chemicals.

"We used to be able to get by, but the new (late-blight) strain just levels things in no time at all," says Helgeson.

The gene that protects potatoes from the fungus comes from a plant that scientists believe co-evolved in Mexico alongside the late-blight pathogen. It was discovered, ironically, as a result of the emergence of a new strain of *P. infestans* that swept through the United States in 1994. At UW-Madison's Hancock Agricultural Research Station, the only plants to survive were the wild Mexican species and its progeny in Helgeson's test plots.

Subsequent to the 1994 outbreak, which required the development of new fungicides for agriculture, Helgeson and his colleagues began the hunt for the genes that conferred resistance on the wild Mexican cousin of the domesticated tubers familiar to consumers.

In 2000, Helgeson's lab reported narrowing the search to one of the 12 chromosomes of the wild plant. Now, with the gene identified, cloned, and successfully tested in engineered varieties in the laboratory, at hand is a new technology that could save farmers hundreds of millions of dollars and benefit the environment by eliminating the use of thousands of tons of toxic chemicals.

But despite the huge economic and environmental gains that could be realized, it is unclear if the technology will be widely utilized. Because of European fears of genetically modified crops, and the control exercised over growers by a few large buyers, there is no engineered potato in commercial production anywhere.

The use of conventional breeding techniques to move the new-found blight-resistance gene into the few dominant commercial varieties popular in the United States is all but impossible, according to Jiang.

"We can do it by conventional breeding, but we can't move it into the standard cultivated varieties without losing them," he says. "It is almost impossible to create another Burbank variety, for example, through conventional breeding. Your odds of getting the one gene in would be like winning the lottery."

Still, the Wisconsin group plans to develop engineered varieties for the garden. The hope, they say, is to develop the technology that will gradually win consumer acceptance and, perhaps someday, go where no genetically modified organism has gone before.

STEAMED SHIITAKE

Naoko Halstead

Mushroomer, Snohomish Co. Myco. Soc., November 1996

Shiitake (as much as you think you will eat)

Salt and pepper

Fresh lemon juice

Virgin olive oil

Thinly slice the shiitake caps and stems and place them in a large pile on top of aluminum foil. Season with salt and pepper and enclose the foil. Bake at 350°F for about 15 minutes or until cooked. Open foil and squeeze lemon juice on top of mushrooms. Also, lightly coat the mushrooms with virgin olive oil. Mix the mushrooms, making sure lemon juice and olive oil have been evenly spread. Serve as a side dish or as topping.

MYCOLOGICAL SISTER CITY

Ron Post

When Bernice Velategui received a letter from Claude Berger in Nantes, France, asking for one of the PSMS pins, it included the Nantes pin shown here. Nantes just happens to be one of Seattle's sister cities! Therefore we will explore presenting their pin to our mayor or sister city representatives at some point in the future. Claude asked for other pins for his collection, so if you know of any, you can write to him at 7 rue de General Buat, F-44000 Nantes, France.



LIBRARY BUSINESS

Patrice Benson

There are a couple of library-related communiqués to pass along to the membership.

First, *please return all library materials to the PSMS library by the next membership meeting*, so that a proper inventory may be updated for insurance and other purposes.

Second, *the board is again considering the idea of donating our reference library to the CUH Miller Library*, where it can be used and cared for. The first copy of any book is a reference copy that may only be used on site. Any subsequent copies of the book may be checked out. The Miller Library can also archive hard copies of our *Spore Prints* and journals.

Giving the library to CUH would free up space in our overcrowded office. We would not need to maintain and insure our library, and the books would be more accessible to members and others than they are at present.

The CUH Miller Library is considering being open during more evening hours owing to the demand by researchers and community members. The CUH library will remain open on April 13 until 7:30 PM, so PSMS members attending the April meeting can experience what it may be like.

Let a board member know what you think about this idea.

SPRING MUSHROOM CLASSES Patrice Benson

Good News! We will be having 3–4 Spring mushroom classes. The classes will be geared toward beginning mushroom hunters, but we will be stressing identification so any level will work. Save the dates of April 18, April 25, and May 2 and possibly May 9.

Classes will be \$25 for the series and will be from 6–8 PM at the Douglas Classroom (that's the big classroom attached to the greenhouse) at CUH, 3501 N.E. 41st Street.

There is limited space (40), so sign up now by sending your check made out to PSMS to:

Patrice Benson
3818 Cascadia Ave. S
Seattle, WA 98118

Questions? Call (206) 722-0691.

McGee, MS



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