

SPORE PRINTS

BULLETIN OF THE PUGET SOUND MYCOLOGICAL SOCIETY
Number 442 May 2008



PRESIDENT'S MESSAGE

Patrice Benson

Welcome Spring???? As I am writing this, it is snowing and hailing and some form of frozen water is descending on the garden.

Despite this, I am hearing about true city morels poking their way up and defying the elements. Spring may be late, but hopefully the mushrooms will have popped up in time for Mushroom Maynia!, the multifaceted display of mushroom information put on by PSMS and the Daniel E. Stuntz Memorial Foundation at the University of Washington Burke Museum on May 4.

In other mushroom-related events, the City of Lacey will sponsor a Mushroom Festival on June 28–29 with lots of eating festivities. I'll be doing something with Chef Kathy Casey and Ciscoe Morris.

The North American Mycological Association (NAMA) foray will be held in McCall, Idaho, September 4–7. It will honor the memory of Dr. Orson Miller, who studied and taught many summers there. You can register by going to the NAMA page of the website http://www.bayareamushrooms.org/forays/nama_2008.html. The PSMS website will have some information as well. You need to be a member of NAMA to attend, but you can join when you register. Our club is an affiliate, so your membership is discounted a few dollars. I am the PNW regional representative for NAMA, so if you have anything for me to pass along, that's my job!

The Breitenbush Mushroom Conference near Detroit, Oregon, will be held October 23–26. Speakers this year will include Daniel Winkler, Dr. Tom Volk, and Paul Stamets. And maybe Dorothy Beebee with either a dyeing or illustrating workshop. Their website is www.breitenbush.com. The conference may not be posted there until June, but you can check out the facility online. The cost is \$159 plus food and lodging.

Please note our spring and early summer field trip dates on your calendar. The events have been very well attended so far! Many thanks to Cathy and Don Lennebacker and Colleen Compton for their planning skills and to Brian Luther and his team of merry identifiers.

Speaking of identifiers, we have begun the Monday 4–7 PM mushroom identifying clinics at CUH alongside the Master Gardeners, who use these hours to ID plants and plant pathogens. Those who have taken the beginning and intermediate mushroom ID classes are welcome to come sit and learn with one of our experienced identifiers. Contact Cynthia Nuzzi at izzuncy@gmail.com.

We have received more donations in memory of Ben Woo. A list will appear in the June *Spore Prints*.

Happy Spring????!!!

FUNGUS WAS NOT CLEAR FOR TAKE-OFF

Tracy Neal, *The Nelson Mail*, Nelson, New Zealand,
April 12, 2008

A turf war erupted over the autumn mushroom crop popping up on the Nelson, NZ, airfield. In an internal memo to Air Nelson ground staff, Nelson airport manager Kaye McNabb requested they stop nabbing the mushrooms because they belonged to airport company staff and were “the only perk our staff get.”

McNabb told the *Nelson Mail* that the airfield was a restricted area and the only people allowed out there to pick mushrooms were the rescue firemen. “They generally pick what's there and distribute them among the workers, being themselves, airport security, and other staff including, of course, myself.”

Other airport workers occasionally venture out, but unfortunately “this year someone got greedy and persistently picked the lot.

“Not only did that mean that someone was breaching the airfield rules, but it also meant that no one else got any, and as you can imagine that wasn't a particularly popular result,” McNabb added.

The staff member who alerted the *Mail* to the memo thought it was a joke. Mrs. McNabb said it was an internal memo and not meant to be made public. She was concerned that any publicity over the mushroom crop would entice members of the public to jump the fence and pick mushrooms, which would be a serious breach of aviation security.

ROOF OF 2010 OLYMPICS SKATING OVAL NEEDS MOLD FIX

Damian Inwood

The Province, April 20, 2008

Olympic critics are blaming the \$2.2 million bill for fixing the moldy roof on the Richmond, B.C., speed-skating oval on the rush to get the facility finished by fall.

“Is this as a result of pushing timelines?” Olympic critic Harry Bain asked. “The premier made a huge issue about telling the world that the wooden roof would highlight the B.C. forest industry and B.C. wood products. Now, with the fungi situation, that will damage our reputation,” he said.

According to Greg Scott, Richmond's director of major projects, officials are mystified by algae and fungi on the paper facer of the roofing insulation.

Scott said contractors will know more when they pull the PVC membrane back off the roof of the \$178-million Olympic show-piece. “Right now, all we know is that we have an algae and fungi growth on the paper facer of the lower layer of insulation—and we're going to correct that,” he said.

Scott said that 70% of the roof on the 32,000-square-meter building will need to be “investigated.” Workers will start checking the

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PUGET SOUND MYCOLOGICAL SOCIETY

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CALENDAR

- May 12 Master Gardener's ID Clinic, 4-7 PM, CUH
- May 13 Membership Meeting, 7:30 PM, CUH
- May 17 Spring Wild Mushroom and Native Plant Botanical Walk by Brian Luther, 9 AM-2 PM, Twanoh State Park
- May 19 Board Meeting, CUH Board Room
Master Gardener's ID Clinic, 4-7 PM, CUH
- May 20 *Spore Prints* Deadline
- May 24-26 Field Trip, Eagle Creek
- May 26 Master Gardener's ID Clinic, 4-7 PM, CUH
- May 31 Field Trip, 29 Pines
- June 2 Master Gardener's ID Clinic, 4-7 PM, CUH

BOARD NEWS

Dennis Oliver

The April meeting saw the arrival of the new board members. Much of the meeting involved a review of current projects. The planning for Mushroom Maynia! is continuing with a final meeting this Friday, April 18th. Volunteers are still needed to help with the event. It should be great fun. The spring field trips and classes have been scheduled and with the arrival of spring weather we should be blessed with abundant fungi. The need for a display poster to be used at fairs and festivals was noted, and a committee consisting of Ron Post, Molly Bernstein, and Kim Traverse will design and develop one for the club. Membership e-mails should have been sent to those members who have been slow in renewing their memberships. See everyone at Mushroom Maynia! at the Burke Museum.

MEMBERSHIP MEETING

Tuesday, May 13, 2008, at 7:30 PM at the Center for Urban Horticulture, 3501 NE 41st Street, Seattle.

What happens when there aren't many wild edible mushrooms available for picking? Well, lots of things! Come to the May meeting to find out how learning mushroom identification can open doors to other interests using fungi. Patrice Benson, our very own PSMS President, will give a digital presentation and a "show and tell" of arts and crafts using mushrooms. She recently traveled to Mendocino to attend the 14th Fungus and Fiber Symposium and will report on the many interesting uses of fungi for color in the fiber and graphic arts. Did you know that the full spectrum of colors can be extracted from different fungi? Come to the meeting to stir up the dye pot and find out why you shouldn't pass by those colorful *Cortinarius* and Phabulous *Phaeolus*.

Would all those whose names begin with the letters A-K please bring an edible treat for sharing after the meeting.

SPRING FIELD TRIPS

Colleen Compton



Spring looks like it's almost here—and that means field trips for us eager mushroomers. So far this spring, PSMS members have enjoyed a well-attended field trip to MacDonald Park led by Hildegard Hendrickson and a visit to Ostrom's in Lacey, WA, arranged by Milton Tam. Next on the schedule will be a Memorial Day weekend field trip to Eagle Creek, near Leavenworth on May 24, 25, and 26. We are always thankful to Coleman Leuthy and to Brian Luther for sharing this spot and their knowledge so freely. There will be a field trip to 29 Pines east of Snoqualmie Pass on May 31 and a field trip to Swauk Creek June 7. Put these dates on your calendar. These trips will have identifiers and hosts and we'll have potlucks. Camping is free at Eagle Creek and at 29 Pines. A reasonable fee is charged to camp at Swauk Creek. PSMS members are urged to attend and enjoy these field trips and bring their family or a friend. We do request that you join PSMS to attend field trips if you are on your own.



May 24-26

Eagle Creek
(elev. 1800 ft)

Coleman Leuthy is again making his property on Eagle Creek available this year for free camping and RV space. Bathrooms are available in the barn, there is power, and a couple of refrigerators will be available for members use as well; however, there are *no* sewer hookups for big rigs. Coleman will assign different places for parking, depending on the type of vehicle, so *we need to know who, and how many RVs to expect and how large they are*. If you're coming with an RV, contact Brian Luther (206 522-1051 or a2zluther@comcast.net) with details.

Brian Luther will again lead a caravan of members up the Entiat Mountains to collect fungi, see the views, and talk about the geology and native plants. They will leave about 10:00 AM and return before the potluck at 5:00 PM.

As in previous years, we request that you do not attempt to make your own campfire. There will be one large central campfire for everyone.

Directions: Take your favorite route to Leavenworth: (1) Hwy. 2 over Stevens Pass or (2) 1-90 east to Cle Elum, then Hwy 97 north over Blewett Pass to Hwy. 2. Proceed west to Leavenworth. Coming from Stevens Pass, continue through town toward the east end. Before the Safeway, turn left (north) at the traffic light onto Chumstick Road (also called Chumstick Hwy.). Coming from Blewett Pass, drive past the Safeway and continue another ¼ mile or so to Chumstick Road on your right. Turn right and proceed another 2 miles (¼ mile past the railroad trestle), and turn right onto Eagle Creek Road. Follow the road for approximately 4½ miles. Look for an old barn with a dark red metal roof and several other buildings. Turn right at the PSMS signs.

May 31

29 Pines
(elev. 2500 ft)

Directions: Take I-90 over Snoqualmie Pass to exit # 85. Follow signs to Hwy. 970 and continue 4.5 miles. Turn left on Teanaway River Road. Proceed about 6 miles, bearing right at the fork onto the Teanaway North Fork Road. Continue another 6 miles just past the new fish hatchery on the left and Jack Creek. Twenty-Nine Pines is located on the left. There is no shelter or water, but there are outhouses.

June 7

Swauk Creek Campground
(elev. 3200 ft, 110 mi. east of Seattle)

Swauk Creek Campground is 4 miles south of Swauk Pass between east-west routes I-90 and Hwy. 2.

Driving directions: Take I-5 over Snoqualmie Pass to exit #85. Follow Hwy. 10 east of Cle Elum for 2½ miles. Turn left onto Hwy. 970. After 7 miles bear left onto US Hwy. 97 (north) and continue another 16 miles. The campground is on the right.

CARNATION FIELD TRIP

Hildegard Hendrickson

Saturday, March 29, started cool and drizzly. During the previous week the night temperatures were freezing, and on Friday it snowed. Yet 50 persons showed up for this, the first (learning) field trip of the spring season.

After Brian Luther and I had taken a load of goodies and books across the swinging foot bridge, we discovered that there was a tight fence around the shelter, which is being remodeled. The only structure with a roof was the small empty woodshed. When we returned to the parking lot, the camp host met us and offered us (free) the use of the big barn across from the parking lot. We retrieved the goodies and books, and set up in the barn.

Brian and I gave short lectures about what mushrooms we might find and do's and don't's about mushrooming. Afterward there were guided tours, on which many participants spotted their first *Verpa(Ptychoverpa) bohemica*. They were hard to see, since only the caps were visible in the brown cottonwood duff. Brian then identified all the mushrooms found.

Eighteen species of fungi were collected. Besides *Verpa bohemica*, edible fungi found included one large clump of Oyster Mushrooms (*Pleurotus ostreatus*), which unfortunately was overmature and somewhat buggy, and one solitary specimen of The Shiny Cap (*Coprinus micaceus*). The surprise of the day was a handful of true morels (*Morchella* sp.) brought in from someone's yard. For morels to fruit that early is highly uncommon, especially considering the much cooler than usual temperatures we'd been experiencing. As a result it offered an excellent educational opportunity to compare

and contrast to the whole group the differences between *Verpa bohemica* and true morels, a luxury we normally don't have on this, the earliest of our field trips.

Rare or unusual species found included a small clump of the polypore *Bjerkandera adusta*, a very peculiar pinkish staining *Omphalina* growing directly on last year's cottonwood leaves, and an extraordinary collection of two perfect little specimens of *Sclerotinia tuberosa* still attached to their subterranean black sclerotia. Normally when this species is brought in on field trips, the long-stemmed cup is pulled out of the substrate by the unknowing collector, leaving the sclerotium in the ground. This last species is known for its association with spring flowering members of the Buttercup family (Ranunculaceae) and was most likely collected from the roots of our native *Anemone oregana* which was common in the woods where we were hunting.

A big "Thank You" to our host, Tony Tschanz, who stayed at the shelter and assisted the (mostly) new members.

OSTROM'S FIELD TRIP

Hildegard Hendrickson

Chris Street, the son of one of the founders, greeted us at the gate of Ostrom Mushroom Farms in Lacey on April 7. After telling us about the origin of the company, he promptly took us to the growing buildings. Except for the harvesting, which is done manually, all other steps of their operation are done by machines, which has allowed them to offer their mushrooms competitively priced. Ostrom's grows only *Agaricus bisporus*, both white capped (button mushrooms) and brown capped (crimini).

A big revelation to me was how Portobellos are grown. They start as "regular" brown *Agaricus bisporus*, and when the fruiting bodies are about the size of a penny, workers go through the tray pulling the small buttons and leaving only the strongest ones. The remaining fruiting bodies receive a special "diet" which includes by-products of sugar beets, and some Portobellos grow to a cap size of 8 or more inches. One growth cycle for Ostrom's is 12 weeks. After picking three flushes, the substrate is sterilized and sold for use as mushroom compost.

At the end of the tour, every participant received some mushrooms to take home, as well as a button and literature advertising the Lacey Mushroom Festival on June 28th and 29th, from 10AM-6 PM, which is co-sponsored by Ostrom's and features a cooking demo by our very own Patrice Benson.

MASTER GARDENER ID CLINICS

Mushroom ID clinics for this spring are starting again. The dates are

April 28
May 5, 12, 19, 26
June 2, 9, 16, 23

The clinics are held from 4 to 7 PM, usually in the atrium of CUH together with the Master Gardener's clinics. Master Gardeners are there for all gardening inquiries, while the PSMS identifiers will be available for people to drop in with their mushroom finds and ask questions. There will be books for consultation. PSMS members that have taken the mushroom ID classes are encouraged to drop in or sign up to sit alongside a veteran identifier. For more information and to sign up call Cynthia Nuzzi at (206) 232-1320 or e-mail iclincs@psms.org.



DON'T FEAR THE BLOB

Laura Christman
redding.com, March 29, 2008

Slime molds are not minerals, animals, plants, or fungi. It's difficult to get a grip on just what these slippery blobs are.

Some aren't visible without a microscope; others stretch a couple of feet—or more. They come clear or pale, but also can be neon-orange, bright yellow, and other flashy hues. They can take on beautiful, intricate forms, like a strange plant from the pages of a science-fiction story. But they also can look like a wad of chewed gum or something the dog urped up.

The most unifying characteristic of slime molds, it seems, is weirdness.

"They are weirdo organisms," said Susan Libonati, a botany instructor at Shasta College in Redding who has a Ph.D in mycology. "I think they are great. They are beautiful and fascinating."

Slime molds were long glopped in with fungi. But on closer inspection, scientists realized they were not the same. They were re-assigned to the Kingdom Protista which includes algae, protozoa, and other odd organisms.

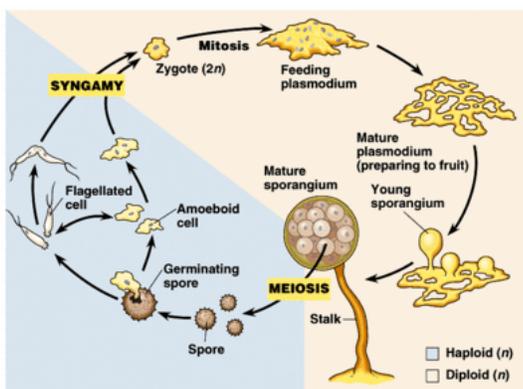
"It's sort of a junk drawer," said Steven Stephenson, who has studied slime molds for some 30 years. Things that don't fit neatly into a category end up there.

True slime molds are known as myxomycetes or plasmodial slime mold, Stephenson, author of *Myxomycetes: A Handbook of Slime Molds*, said in a phone interview from Fayetteville, Ark., where he is a research professor at the University of Arkansas. They are surprisingly common, but easily overlooked, he said.

A slime mold begins life as a spore. "They live in the soil and wood and look like little amoebae," Stephenson said. The tiny organism grows into a mass of slime, remaining a single cell but having multiple nuclei. In this plasmodial stage, the goo is on the move, searching for food. "You can get really big slime molds that crawl across your lawn," Libonati said. They lack speed, however. Stephenson said slime molds move only a few millimeters in an hour.

Despite the "mold" moniker, these mobile organisms are not like mold in the shower or mold on cheese. They aren't dangerous. "It's an unfortunate name," Stephenson said.

"They don't hurt anything. They eat bacteria," Libonati said. Some also feed on fungi. There are many insects that eat slime mold.



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Slime molds transform from their blobbish bacteria-eating phase into fruiting bodies, similar to the way fungi give rise to mushrooms. "They can transform in just a few hours into some of the most exquisitely beautiful objects you'll ever find in nature," Stephenson said. The fruiting bodies release spores to begin the life cycle again.

You don't have to travel to some exotic location to witness this weirdness. Slime molds are here among us. Maybe even in your yard. "If you add water to a mulch bed, you'll get slime molds, no matter where you live," Stephenson said.

The Internet is filled with questions from bewildered gardeners about dog vomit slime mold (*Fuligo septica*) on bark mulch.

"Yes, it does look like dog vomit," Libonati said.



Fuligo septica, the dog vomit or scrambled egg slime mold.

Stephenson noted that a blast of water will wash away the slime, but the spores will still be there.

Libonati has found *Fuligo* along the Sacramento River in Redding. Another slime mold she's seen near the river is *Lycogala epidendrum*, made up of tiny salmon-pink spheres that turn a silvery gray as the slime mold matures.

Participants in a Shasta chapter of the California Native Plant Society outing recently came across a bright-orange slime mold along the Sacramento River Trail in Redding.

"It was an orange, slimy thing on a stick about the size of a pencil," said Jay Thesken, who was on the hike. The slime mold was so bright that he at first thought it was spray paint.

Prime places to see slime molds are damp, shady areas where there are downed logs, pine cones, or old branches on the ground, he said.

"They are difficult to find ... You have to look very, very closely. When I go seriously looking for them, I never find them. It's always by accident," he said.

Stephenson said the best time to find most slime molds is late spring through mid-fall.

Stephenson, who has given talks and workshops on slime molds for years, says they are something most people are completely unaware of. "The average person does not know that they exist."

"It's a little on the esoteric side," Libonati said. "... It's another part of the wild, weird, wonderful world of biology. The more you look, the more you see."



MUSHROOM WRITING CONTEST

Ex-PSMS Treasurer Mary Taylor is sponsoring a mushroom writing contest. The prize is \$100, and the deadline is July 15, 2008. All entries must be original and unpublished material, and must include a reference to mushrooms. Entries can be a serious piece of research, a verse, an ode, a rhyme, a limerick, a sonnet, a short story, comic piece, or whatever form strikes the fancy of the writer. For details, visit www.MadAboutMushrooms.com.

MIND CONTROL, FUNGUS STYLE David Herlocker *Marin Independent-Journal, CA - March 26, 2008*

So you're out for a walk, experiencing one of the spectacular spring days we're enjoying, when you notice a millipede perched at the top of a fallen tree branch. When you see another one, it strikes you as odd: Millipedes usually spend their time crawling around on the ground, in the moist, dark world where last year's plants are slowly being passed back into the earth.

Upon closer inspection, you see that this millipede is quite dead, a bit bloated, but still clinging tenaciously to the wood on which it rests.

What's going on here?

This millipede is a victim of a fungal infection known as summit disease. One day, when the young millipede was going about its merry way, munching on just about anything soft enough to chew, it swallowed a spore. When that spore found itself inside the appropriate host, it germinated into a fungal thread and attached itself inside the host's body.

Living inside the host, the fungus can tell (from the chemistry of the fluids swirling around its body) how old the host is. If it is a young millipede, the fungus just waits. If the host is old, the fungus will begin to grow, slowly consuming the "nonessential" tissues. The fungus will only eat enough to ensure that it will be able to produce a lot of spores when it reaches maturity. It doesn't kill the host outright—no, the millipede must remain alive to serve the needs of the fungus.

When the fungus senses that spring is about to arrive, it sends a signal to the host's brain: "Go to the top of something that reaches into the dry air, and when you get to the summit, hang on as tightly as you can." The millipede dutifully follows this directive, and once it is at the top of whatever object it has climbed, it holds on tight, and then it dies.

If the millipede were to die in its typical habitat (down among the leaf litter), the spores would settle in a small area; by getting the host up into the moving air and letting it die there, the fungus can release its spores into a situation where they might cover a much larger area.

Within a few days, the bloated millipede begins to split open as the joints between its armor-like plates break, exposing a white powdery substance that fills the millipede's body. Each time a breeze passes, a tiny white puff of spores is cast out into the air to settle elsewhere and wait for another unfortunate millipede to pass by.

Millipedes aren't the only critters that host these fungi; there are crickets that get summit disease, too. You can see them dead and bloated on the top of twigs and stumps now. Certain flies get it, too; they ingest the spores when they are immature (maggots) feeding

in manure. They spend the summer and winter underground as pupae and emerge in spring, climb to the top of a blade of grass, cling, and die. In places where lots of cattle graze on moist spring grass, you sometimes come upon places where dozens of these dead flies are clinging to blades of grass.

Marin County Open Space District



So, go out and enjoy the fine spring air. Don't worry that with each breath you are probably inhaling a multitude of spores and other microorganisms. As far as we know, humans don't suffer from any "climb and cling" infections ... yet.

This millipede is a victim of a fungal infection known as summit disease.

SOUTH AFRICAN MUSHROOM CAUSES A STIR

East Coast Radio, South Africa, April 15, 2008

A giant mushroom discovered in the iSimangaliso Wetland Park near St. Lucia in KwaZulu-Natal, South Africa, has made history in the world of science. It's believed that the 5 kilogram fungus is the biggest mushroom ever found in South Africa.

The Park's Pontso Pakkies says the mushroom—discovered by local tour guide Kian Barker—has created quite a stir in the science community as it's the first of its kind to be recorded in South Africa.

Andrew Zaloumis, iSimangaliso CEO, said on making the announcement, "Our ever-vigilant local tour guide Kian Barker noticed what he thought was a piece of plastic lying in the bush while on a night drive in January, and stopped to retrieve it. To the delight of Kian and his guests, the offending piece of litter turned out to be the uncommonly large mushroom. Kian forwarded his picture to me. I forwarded it to Durban's natural historian, Geoff Nichols."

From there, the picture passed through cyberspace to the computer screen of Dr. Marieka Gryzenhout of the Forestry and Agricultural Biotechnology Institute at the University of Pretoria. The identification and classification of fungi is both difficult and in a state of ongoing flux, and very few scientists in South Africa are currently doing research in this field. Thus, Kian's picture journeyed from Marieka's computer to the National Herbarium of Victoria, Australia, and onto the desk of senior mycologist Dr. Tom May, curator of fungi, who identified iSimangaliso's mushroom as

Macrocybe lobayensis.

By this stage the picture had been circulated via the internet to amateur fungus lovers all over southern Africa, and has caused rather a stir.

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From left to right, Alexandra and Camilla Barker admire the mushroom found by their father, Kian, just outside St. Lucia Town in the iSimangaliso Wetland Park. The giant mushroom measured about 45 cm across the top, was 40 cm high, and weighed 5 kg.

Giant Mushroom, cont. from page 5

This is because it is one of the species of fungi with the largest mushrooms known (a mushroom is the common name given to the fruiting body of a fungus). The genus *Macrocybe* has a pantropical distribution, i.e., it occurs in tropical areas around the world, and is usually found in grasslands. It is highly unlikely, however, that this species has been previously recorded in iSimangaliso, and its occurrence here, a mere 4 km from St. Lucia town, may also establish a new distribution record for South Africa as a whole.

Zaloumis concluded that “it is almost certain that iSimangaliso holds many more fungal treasures, as approximately only 4% of South Africa’s fungi are known to science!”

WHY FUNGUS IS THE NEW FAT *Birmingham Post* Birmingham (UK), 22 March 2008

There is something about low-fat mayonnaise that doesn’t quite cut the mustard.

And it is not only in matters of taste where diet mayo falls down; it’s also what it feels like in the mouth. Dress it up whatever way you like, but the essential truth is that low-fat mayonnaise tastes thin. It’s not the sort of thing you want to slap on top of a burger, not if you really want to enjoy lunch.

Dr Phil Cox doesn’t need any convincing.

Low-fat foods, he explains, are packed with starch and gels, and the mouth knows it is being conned.

“The mouth is very effective at determining what you put into it. It can detect the minutest changes very, very easily,” says Phil. “The mouth responds to flavor and texture, and how you move things around the mouth with your tongue. With starch, you get a wallpaper, pasty taste, almost a drying sensation, rather than the smooth taste that you get with fat.”

The choice then seems to be between eating traditional, tasty fat-saturated mayonnaise and waiting for a coronary, or eating a dull low-fat substitute, which may prolong your life but dampen your enjoyment of food.

There is, however, a new alternative, according to Phil, who is a research fellow in chemical engineering at the University of Birmingham.

He believes it is possible to create a half-fat mayonnaise that is indistinguishable in looks and, most importantly, taste from its full-fat counterpart. And the secret? Like many discoveries in science, it is an odd one, and one that specifically likes lying in a dank, dark corner. Put simply, fungi are the new fat.

Phil and fellow members of his microstructural engineering group have discovered a protein in mushrooms that resembles the physical properties of fat. The protein, hydrophobin, is used to coat an air-filled emulsion and mimics the texture of fat. The mouth cannot tell the difference between normal fat and the mushroom-derived microstructure.

Significantly, this allows half of the fat to be removed from a product and replaced with the microstructure. The texture is the same as a full-fat product, and the remaining fat, which has not been extracted, provides the fatty flavors and aromas. Without sounding too much like an advertising slogan, the mushroom protein produces half the fat, and all of the flavor.

What’s more, the same process can be used in a host of food products such as salad dressings, sauces, spreads, and margarines. It was just that mayonnaise was picked as the trial product for the testing because it is the oldest, and most widely used, condiment in the world.

Food manufacturers are under huge pressure to reduce the amount of fat in their products, but the drive for healthy, balanced eating is clouded by consumer demands, cultural perceptions, and the commercial interests of corporations who slash food prices in the chase for huge profits.

While My Bathroom Floor Gently Rots

*I look at my bath,
See the fungus that’s growing
While my wife Jill gently weeps.*

*It’s just a rehab
That I keep on foregoing,
Still my wife Jill gently weeps.*

*I don’t know why
nobody told me
How to avoid this mess.*

*I’m so upset,
won’t someone hold me?
These memories I’ll suppress.*

*I look at the floor
and I notice it’s moving
While my wife Jill gently weeps*

*The subfloor and tile
I’ll soon be removing,
Still my wife Jill gently weeps.*

(with apologies to George Harrison)
— Matt Cantor, Berkeleydaily.org,
21 December 2007



THE SUCCESSFUL LIFESTYLE OF LOCAL FUNGUS-ROBBING PLANTS Joann Olson

Mycologist, Humboldt Bay Myco. Soc., April 2008

This was the topic of Tony laBanca’s talk at the March meeting of the HBMS and it refers to a group of plants called mycoheterotrophs which are parasitic on mycorrhizal fungi. Tony defined a mycoheterotroph as a plant that obtains carbon from fungi.



Some of these plants are Pinedrops (*Pterospora andromedea*), Candy Stick or Sugar Stick (*Allotropa virgata*), Indian Pipe (*Monotropa uniflora*), Pine-sap (*Monotropa hypopitys*), Snow Plant (*Sarcodes sanguinea*), Gnome Plant (*Hemitomes congestum*), California Pinefoot (*Pityopus californicus*), White Leaved Wintergreen (*F. aphylla*), and Spotted Coralroot (*Corallorhiza maculata*).

Indian pipe We learned that there are 400 species of mycoheterotrophs in 87 genera and 10 families. These include bryophytes (mosses and allies), pteridophytes (ferns), and lycophytes (club mosses), Ericaceae, Gentianaceae and Orchida-

ceae of which all 17,500 taxa are mycoheterotrophs at some point in their life cycle, including approximately 300 species (including vanilla) throughout life.

Although most of us were taught in biology/botany courses that these plants were saprophytes, a chronology of the literature shows that as far back as 1881 Kamienski published that “Monotropas are nourished by a fungus linked to tree roots” and in 1960, Bjorkman published that “monotropas are epiparasites on the ectomycorrhizas of trees.”

It has been shown that the seeds of these plants are primarily dust-like with few species adapted for animal dispersal. The seeds only germinate in the presence of the appropriate fungus, and few seedlings are produced, requiring a minimum of 2 years from germination to develop shoots.

The roots of these plants are shallow and from dense clumps of brittle, branched roots entirely ensheathed by fungus. This relationship is called “epiparasitism,” a tripartite relationship between a parasite, an intermediate, and an ultimate host.

Mycoheterotrophic epiparasitism occurs in dense moist forests with surface accumulation of organic litter and limited resources (light). The epiparasite receives carbon from neighboring trees via the shared host-specific fungal connection.

Russula brevipes is an example of a fungal partner. It is long lived and relatively common in Douglas fir and Sitka spruce forests in 30–55 year old stands but is absent in 26 year old stands. *Tricholoma* species also form these tripartite relationships. Needless to say, mycoheterotrophic species can be eliminated for 40–50 years or more following clear cutting or fire.

MUSHROOM HUNTER FINDS BODY **Derek Kravitz** *The Columbia Daily Tribune, April 21, 2008*

A reserve Callaway County sheriff’s deputy looking for mushrooms yesterday afternoon near the Missouri River access at Mokane found the remains of a woman, authorities say. The deputy found the woman’s body near the river access point along County Road 479 in southern Callaway County, Missouri.

The road was closed to traffic, and river access was suspended until the crime scene could be investigated, Callaway County sheriff’s deputies said.

An autopsy was being conducted this morning at the Boone/Callaway County Medical Examiner’s Office, death investigator Dori Burke said. The autopsy was expected to be completed this afternoon, Burke said. Burke said officials from Callaway and Osage counties were awaiting the findings.

The site where the body was discovered is about two miles from where an abandoned car belonging to Jasmine Haslag, 31, of Russellville was found about 10 months ago.

Callaway and Osage county officials declined to comment this morning on the ongoing investigation or whether the body was believed to be that of Haslag.

*Mycophile dreaming:
spore drops silently onto
nematode, its prey.
— Ron Post*

BILL GATES TO HELP INDIA IN FIGHT AGAINST KILLER WHEAT FUNGUS

Thaindian News,

April 3, 2007

London, April 3 (ANI): Bill Gates has announced a donation of 26.8 million dollars (US) over the next three years for research into curbing a killer wheat fungus, which might cause mass starvation in India if it hits the country before new resistant strains are ready.

According to a report in *New Scientist*, the Bill and Melinda Gates Foundation announced it would give 26.8 million dollars over the next three years for research to breed new wheat strains that resist the fungus *Puccinia graminis*, known as Ug99.

Ug99 is a strain of black stem rust, a lethal fungal disease of wheat, first detected in Uganda in 1999. Virtually none of the commercial wheat now grown worldwide has any resistance to it.

The fungus recently invaded Iran faster than predicted and could cause mass starvation if it hits India before new resistant strains are ready.

To fight Ug99, Bill Gates would donate the large sum of money to the Durable Rust Resistance project, which is being set up to bring researchers from 15 institutes worldwide together to track the spread of the fungus, and breed wheat with resistance based on several genes working together.

Such wheat is hoped to be less likely to be damaged by the fungus than current varieties. The project will also look for useful resistance genes in wild plants related to wheat.

We’re hoping more donors will come on board, said Katherine Kahn of the Gates Foundation. Our concern is people like the 50 million poor families in India who depend on wheat to live, she added.

*Don't eat amanitas — you'll quiver.
You'll fall to your knees, and you'll shiver.
Poison mushrooms, that's why,
And you'll probably die.
If you don't, then you'll need a new liver.*

—Meg Beagle
Omnificent English Dictionary In Limerick Form

POSSIBLE DEATH FROM FUNGUS BEING INVESTIGATED **A-Channel News, CTVglobemedia** http://www.achannel.ca/victoria/news_56077.aspx

VICTORIA - A woman from Cowichan Bay who died at Victoria General Hospital Tuesday [April 15, 2008] may have been a victim of the *Cryptococcus gatii* fungus. That particular species is normally found in tropical countries, but was first reported on Rath Trevor Beach near Parksville in 1999. Since that time about eight people have died in British Columbia.

The fungus can be picked up from trees or stumps along paths, and takes from two to nine months to manifest symptoms. Most people who are exposed never fall ill. But some, particularly those over 60 who may be taking steroid-related drugs, seem to be more susceptible.

Symptoms include a prolonged cough, night sweats, and headaches. Of the 25 or so cases that occur in British Columbia each year, one person dies. It will take about a week for medical authorities to determine if the woman died from *Cryptococcus* infection.

Moldy Roof, cont. from page 1

extent of the damage in the next week or two, depending on the weather. Repairs will take between two and three months.

Richmond spokesman Ted Townsend said workers hope to salvage any undamaged insulation to reduce the cost of the repair, which will be paid out of the project's contingency fund at no extra cost to taxpayers. He added that once it's determined who is at fault, Richmond will look at recovering some of the repair cost.

The building will still open on time, Townsend added.

CHICKEN WITH VIN JAUNE AND MORELS

Bill McKibben, *Gourmet*, March 2008

An elegant meal for four that requires only 20 minutes active time? That's our kind of dinner. Because aged *vin jaune* can be hard to come by in the United States, we substituted a two-year-old Savagnin (with a flavor similar to a dry Sherry) and were very happy with the results.

Active time: 20 min. Start to finish: 3 hours. Makes 4 servings.

¾ ounces dried morel mushrooms
1 cup boiling-hot water
1 large shallot, thinly sliced
2 garlic cloves, smashed
1 tablespoon unsalted butter
1 cup heavy cream
1 whole chicken (about 3½ pound), cut into 8 pieces
1 tablespoon vegetable oil
¾ cup *vin jaune* or Savagnin plus additional for sprinkling

Soak morels in boiling-hot water 2 hours.

Squeeze liquid from morels into remaining soaking liquid (set morels aside), then strain soaking liquid through a paper-towel-lined sieve into a bowl and reserve ½ cup.



Cook shallot and garlic in butter with ¼ teaspoon salt in a small heavy saucepan over medium-low heat, stirring occasionally, until tender and golden brown, about 3 minutes. Add cream and reserved soaking liquid and boil until reduced to about ¾ cup, about 8 minutes.

Meanwhile, pat chicken dry and sprinkle with ¾ teaspoon salt and ½ teaspoon pepper. Heat oil in a 12-inch heavy skillet over medium-high heat until it shimmers, then brown chicken in 2 batches, skin sides down first and turning once, until golden brown, about 6 minutes per batch. Transfer to a plate as browned.

Return chicken to skillet, skin sides up, with any juices from plate and add morels, reduced cream mixture, and ¾ cup *vin jaune*. Cook at a bare simmer, covered, over low heat until tender, about 45 minutes.

Transfer chicken and morels to a serving dish and keep warm, loosely covered with foil. Boil sauce until slightly thickened and reduced to about 1¼ cups, about 5 minutes.

Pour sauce over chicken and morels and sprinkle with a little more *vin jaune*.



is morel month!

