THE NEWSLETTER OF THE WISCONSIN MYCOLOGICAL SOCIETY
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MESSAGE FROM THE PRESIDENT

I hope everyone had a wonderful morel season. I did not have a lot of time to get out but did find 50 by a dead apple tree and at least that many around dead elms over a four week period. It is almost unbelievable that the year is almost half gone, the picnic is two weeks away and then our summer and fall forays start. The WMS seems to have survived my first year at the helm and hopefully my next will be better. I hope to see a great turn out at the picnic and with a lot of luck we will have a good chanterelle crop for the summer foray.

by John Steinke, WMS President

UPCOMING EVENTS

June 22 (Saturday) -- Annual Picnic and Business Meeting. Watch for new location! Members may receive a note with possible updated information as to the time and place.

July 20 (Saturday) -- The Summer Foray in South Kettle Moraine. Foray Leader: John Steinke.

August 24 (Saturday) -- The Photography Foray at Scuppernong Skiing and Hiking Trails. Foray leader: Chuck Fonaas.

August 31 -- September 1 -- WMS Camping Foray near Phillips, WI.

September 7 -- Bristol Woods Foray.

Members should receive announcements with details and directions to each of the above events.

APRIL MEETING: FAIRY RINGS AND FUNGAL FOLKLORE
by Colleen Vachuska

Dr. Alan Parker, UW-Waukesha biology professor, presented the April 10th slide-show program at Mitchell Park. Alan is a former WMS president and former WMS newsletter publisher and long-time board member.

The title of the lecture was `Fairy Rings and Fungal Folklore' and Alan devoted the larger part of his time to this broad topic. Alan mainly tried to give us a feeling for how mysterious fungi must have seemed to ancient or medieval peoples. For the ancient Greeks or Romans, there were really only two types of organisms -- plants and animals. Not moving around and not having obvious seeds, mushrooms and fungi don't fit particularly well in either one, but fungi were only given their own kingdom recently. Mushrooms must have seemed very magical; often cropping up suddenly after rains, they were associated with thunder and lightning. Fungi also come in a great array of forms and shapes, which probably added to people's bewilderment.

No doubt, the unusual character of fungi and people's lack of knowledge about them led to their being associated with mythical creatures such as fairies. Of course, fairy rings are one of the best examples of the charm and mystery of mushrooms, and there is much folklore surrounding these. Some of the stories are that there are fairies dancing at night in rings and that they stop and rest on the fairy ring mushrooms. Stepping inside a fairy ring can be good or bad luck depending on what country or culture you are talking about. There is also the story that there is a pot of gold inside a fairy ring, but only a fairy can dig it out. Other fungi have fairy associations too -- small cup fungi have been called "pixie baths" (because of how they collect water) and bird's nest fungi have been called "pixie purses". A good reference for further reading on the topic of fungal folklore (and other stuff that makes fungi neat and interesting) is Romance of the Fungus World by R. T. Rolfe and F. W. Rolfe, available as a Dover reprint.

The second and shorter part of the lecture was an invitation to the upcoming May morel season. We watched some appetizing slides showing a variety of lovely morels. Alan pointed out that morel-picking time was not far off, since the morels were cropping up already in southern Illinois. For those of you that would like to learn more about morels, a good reference is Nancy Smith Weber's A Morel Hunter's Companion (though it is soon to be revised).

Thanks to Alan for an entertaining talk.

SPRING MUSHROOM DINNER
by Laura Ellis

May 6, 2002 was our annual spring mushroom dinner at Heaven City Restaurant. As expected, the turnout was great. There were many new faces as well as the familiar faces this year. The evening started out in the lounge where the conversation was good, and the drinks were better. After an hour of good fellowship, and several drinks, we were ushered into the dining room. Once seated, we were greeted by Scott McGlinchey dressed in his usual white chef's coat. His pants however were multi colored, with pictures of mushrooms on them. He truly knows how to set the mood for this annual feast.

The meal began with a bit of a "teaser" appetizer appropriate for the spring season. It was a tender morel mushroom, (local) stuffed with goat cheese, breaded then fried to perfection. We then were given the option to sample a different wine with each course of food given. A treat I declined to partake in after John Steinke informed me I was writing this article. I felt it was best I actually remembered what I ate!

The first course was a Robust Exotic Mushroom and Brie Tart with Brandy Cream Sauce. Scott was on hand to introduce his masterpieces and add to the casual, friendly atmosphere. He genuinely seemed as excited to share his gift with us, as we were excited to receive it. At times he would even disclose how he came up with a certain recipe, even when it was made by mistake. His mistakes put my best cooking to shame.

The second coarse consisted of a Portabella Mushroom Taco with Red Mole Sauce, and "Stinky Cheese". Again Scott was there to enlighten us regarding all the work that actually goes into his courses. The sauce alone had 24 different ingredients in it. Its flavor was spicy, and unique.

By the third course our palates were ready for more. It was a Mushroom Consomme [soup] with Oyster Mushrooms, Cucumber, and Toasted Sesame Seeds. The toasted sesame seeds offered an eastern, nutty flavor.

The fourth course's presentation was as pleasing to the eye as it was to our taste. It consisted of Tilapia Fillet [fish], with Morel Sauce, Mushroom Croquette Potatoes, and Tender Spring Asparagus. By the end of this course many of the people at my table were loosening their belts. I myself was quite full. The portions were larger this year, and a few people even asked for doggy bags. But we all regained our appetites once our dessert came.

The fifth and final course was Shiitake Mushrooms Banana Bread with Butterscotch Sauce. Now when they say butterscotch, they mean butter, and scotch! Scott cheerfully informed us that over 2 cups of scotch went into the sauce for this dessert. I personally did not detect any scotch flavor. All I tasted was a light, buttery sweet bread pudding, with the appropriate amount of mushrooms in it [as to not overtake the flavor]. Surprisingly I liked the dessert, not usually caring for bread pudding. Then again I usually would not put mushrooms in my desserts at home. Of course Scott has not only had me eating bread pudding, but he had me eating it with mushrooms in it as well! Thanks Scott. We will look forward to next year's Spring Mushroom Dinner.

MAY MOREL FORAY
by Peter Vachuska

This year's annual morel foray on May 18th was a success. No one went home empty-handed. Chuck Soden and I led thirty some adventurers to two locations on a beautiful sunny day. The first location was one that we had visited many times in the past with success and has become a dependable morel spot due to the diversity of places that we find morels growing there. The second location was less diverse, but still successful this year. Its main virtue was a large stand of dead elm. However, not a lot of morels were found in this stand (probably due to its being dead for so long and being too open). Other less open nearby areas did have morels though and helped fill our bags.

The weather during the week prior to the foray had been cold, but there had been a hot spell at the beginning of May. I had seen morels a week before the foray, but the cold weather probably slowed their growth. We probably chose the best weekend for the foray. We were finding young, but good-sized morels. This also seemed to be the year for morels in the less usual places. I found more growing in sumac this year than anywhere else, and at the first location,

Chuck, Tanya, Elaine and I spent over an hour collecting them on an almost bare rocky gravel hill where there was little association with the other plants growing there. I have heard reports this season of morels growing in association with white pine and with spruce. Hopefully, the morels will set the tone for all fungi this year and we will have a fruitful and interesting fungal year.

MYCOBRIEFS
by Colleen and Peter Vachuska

* Numbers of fungi: Predicting the total number of fungal species has always been a bit of a guessing game without a solid foundation. Bryce Kendrick estimated the total number of species at over a million. There are currently about 70,000 known species. Let us be clear that these are not mushrooms, but for the most part, microscopic fungi filling very specific niches in the environment.

  Now using DNA analysis, Vandenkoornhuyse et. al., have been able to list nearly all "species" of fungi in a rather mundane habitat, the roots of a grass (Arrhenatherum elatius). For the inventory, the roots were extensively cleaned, so that only fungi living within the roots or tightly bound to the roots were examined.

  The examination resulted in 49 different phylotypes, of which only 7 were closely similar to known species. Also of note was that "[t]he 49 phylotypes are distributed across all fungal phyla (1 Chytridiomycota, 8(7) Zygomycota, 16 Basidiomycota, and 25 Ascomycota). By contrast, culture-based analysis of endophytic fungi have yielded mostly Ascomycetes." This clearly indicates that the vast majority of fungi are waiting yet to be discovered. (Science, 3/15/02)

* Fungi to have their genome analyzed: A panel of experts at the National Institutes of Health Human Research Institute recently chose the next high priority organisms to have their genome analyzed after current projects (including the human genome) are completed. An (unnamed) family of fungi was among the six chosen out of the 13 contenders that various researchers were arguing for. The other winners were: the chimpanzee, chosen because of its great genetic similarity to humans; the honeybee, because of its complex social behavior and its potential to be trained to detect biological and chemical weapons; the chicken, representing what its advocates call the "premier non-mammalian vertebrate" partially because new organisms develop in an egg rather than in a uterus; the sea urchin; and the yeastlike protozoan, Tetrahymena hermophila. Those researchers arguing for the analysis of fungi complained about a "serious imbalance" in which more than 50 bacterial genomes have been sequenced while only one fungus (brewers yeast) has had its DNA dissected. They noted that fungi are the natural sources of many antibiotics, including penicillin, cephalosporin and cyclosporine; twelve million people take "statins," a class of cholesterol-lowering drugs, several of which are made by fungi; and fungi cause crop losses valued at $200 billion annually worldwide. By looking closely at far-flung organisms, researchers hope to compare their genomes to that of humans to develop a better understanding of evolutionary processes and the causes of human diseases. Most of this genomic research will be conducted at three NIH centers: Whitehead Institute/MIT; Baylor College of Medicine, and Washington University School of Medicine. (Washington Post, May 23, 2002, via Proquest)

* China using fungus to grow selenium: Selenium is a mineral important for health, particularly for the prevention of cancer. Lack of selenium may also contribute to other diseases of aging such as cardiovascular disease and osteoarthritis. Since March of 2000, China has been successfully cultivating a native fungus (no information on exactly what kind of fungus) rich in selenium in Ziyang County. This year, about 100,000 square miles of the fungus have been "planted", with the expectation of producing about 500,000 mushrooms. Tests have shown that the mushrooms are rich in selenium and contain many other active nutrients. These mushrooms could be an important dietary supplement for persons living in areas where selenium levels are low. The intent is also to develop health foods and new medicines using the fungus. (New China News Agency May 13, 2002)

* New potential cancer treatment found in fungus: A bright red fungus that grows on bamboo shoots has been used for centuries in traditional Chinese medicine to treat skin diseases. Now researchers have isolated a compound called hypocrellin from this fungus that may be useful in treating cancer. The compound is injected intravenously, but does nothing until activated by light or ultrasound. Results so far show the hypocrellin produces "significant tumor growth delay". Testing on humans could begin within 2 years. (from a Canadian news magazine, 5/27/02 via Ebscohost)

* Fungal fumigants: Many fungi produce bad smells, some of which may be useful as fumigants. A fungus called Muscodor (that's probably a meaningful

name) albus that grows on cinnamon tree bark produces volatile compounds that have now been shown to be toxic to a wide range of pathogenic bacteria and fungi, such as the human pathogen Staphylococcus aureus and the smut fungus Ustilago hordei. Different combinations of volatile gases have also been found to be produced from fungi growing on other rainforest plants. (Science 11/30/01)

* Mushroom Mecca in Switzerland: For a small country, Switzerland boasts a large variety of mushrooms and fungi, roughly 6000 species of mushrooms alone. Swiss people also have a great deal of interest in fungi, with some 700 amateur mushrooming groups and many eminent fungal experts. (Many of us are aware of the wonderful series of mushroom books Fungi of Switzerland.) Now plans are to construct Mycorama, an international center for mycology research and education. The center will be built in the canton of Neuchatel, known for its mushroom-growing industry. Even the form of the center will celebrate the mushroom, with two mushroom-shaped glass spheres connected by a rectangular lab building. Plans are to make the center "a complete panorama" that doesn't exist anywhere else in the world. Planned exhibits include displays of fungi in all their forms known to man, an underground fungi farm that people can walk through, and a mushroom-tasting restaurant. (Science 3/1/02)

* Picking by License Only in Epping Forest: With 1,600 species of wild mushrooms, Epping Forest in Essex, England, has long been a popular mushroom-hunting haunt. Technically, it is illegal to pick mushrooms there, but until recently, authorities have turned a blind eye to it. Unfortunately, wild food has been popularized so much by TV chefs in recent years that the forest has been inundated by both amateur and professional chefs. Now plans are to issue licenses for mushroom pickers to prevent the forest from being stripped bare. The licenses will be free and issued to 500 people on a first-come, first-served basis. The licenses will be good for one day only and limit the picker to 1.5 kg of fungi. An informational leaflet on the varieties of fungi to be found in the forest will be provided to pickers, and wardens will be on hand to make sure nobody goes over their limit. (The Independent, London, UK 5/25/02)

HERMAN LETO AND WISCONSIN MUSHROOM FARMS
by Alan Parker

It may seem initially odd to write a review of an obituary, especially if it's for someone you've never met. The obituary of Herman Leto appeared in the 2 September 2001 issue of the Milwaukee Journal-Sentinel. The title caught my eye; "Leto cultivated successful business growing mushrooms."

Herman Leto owned and operated the former Wisconsin Mushroom Farms in New Berlin (near Moorland Road) for many years. Leto bought the farm, at 2879 South Acredale Road, from Green Giant Co. in 1962. He also built and owned a mushroom farm in Helenville during the 1960's--1970's, selling it around 1982.

In the 1960's, the mushroom farm that Leto and family ran was said to be the only commercial operation of its kind in Wisconsin. Two types of white mushrooms were grown, along with fewer numbers of a light brown variety that had more flavor but less popularity. About 900 to 1000 pounds of mushrooms were picked and packaged each day. Most were sold wholesale through distributors in Milwaukee and sometimes Chicago. They were shipped to restaurants, delicatessens, and food stores -- some as distant as Texas and Florida.

Herman Leto was introduced to mushroom growing at a very early age. His father and an uncle immigrated to Southeastern Pennsylvania in the early 1900's from northern Italy near the Swiss-Austrian borders. They observed mushroom-growing operations, and began their own cultivation venture in 1917 at Kennett Square, PA. This PA community boasts of having had the first commercial cultivation of mushrooms in the U.S. in 1896, and today promotes itself as "The Mushroom Capital of the World." Herman studied fungi and other scientific subjects by taking courses at Pennsylvania State University. He then moved to Chicago to practice applied fungi culture with relatives, and finally established successful mushroom growing farms in Wisconsin.

When I first came to Wisconsin in 1976, several people told me about "a mushroom farm somewhere in New Berlin," but I never made a visit to the Leto operation. I'm guessing that a few of our long-time members can recall the mushroom farm of Mr. Leto.

MORE QUORN
by Colleen Vachuska

In the last issue of the WMS newsletter, we talked about a new product made from fungus that had recently become available in the US. At that time, we had not been able to actually sample the product, but in April, we found the product in Outpost Natural Foods on the east side of Milwaukee and have since

been able to try it. Named `Quorn', the product has been popular for a number of years in Europe as a vegetarian meat alternative. Made from a fungus, and produced through a fermentation process similar to that used to make yogurt, the resulting material called mycoprotein is flavored and enhanced to be made into a number of products, including chicken-like nuggets, tenders, and patties.

The products are intended to be healthy, high-fiber, reduced calorie and fat alternatives to regular meat products. For example, 1/2 cup of the tenders (a substitute for chicken tenders) has 90 calories and 2 grams of fat. The individual patties (which are breaded) have 200 calories and 8 grams of fat, which is probably not bad if you compare it to similar breaded and deep-fried products.

We have tried some of the Quorn products and found them to be tasty. We tried the imitation chicken nuggets, and while they may not be as good as real chicken nuggets made from white meat chicken, they certainly compared favorably to another imitation chicken nugget we were sampling at the same time. The Quorn nuggets were nicely breaded and seasoned, and held up well when baked in the oven. Even our 5-year old son liked the Quorn nuggets, even though they may have looked different than the chicken nuggets he was used to. To my mind, they also compared favorably to chicken nuggets made from pressed and formed chicken. We have also tried the `tenders', and while not as succulent as real chicken, their texture is in some ways better than real chicken since it is not long and stringy, and they certainly seem like they would be satisfactory in any dish such as a stir-fry or casserole where you might be looking for something like chunks of chicken.

The new Quorn products have generated some controversy. According to a recent article in the New York Times (5/14/02), the wording on the Quorn packages which says that the product is "mushroom in origin" has aroused complaints, both from competitors such as Gardenburger and from watchdog groups such as the Center for Science in the Public Interest. They say that the term "mushroom" is misleading in this case and may be harmful to other companies that use real mushrooms. Some professional mycologists from Penn State University agree, saying that "Quorn is made from a fungus that they say is `more accurately described as a mold'."

The fungus used to make Quorn is Fusarium venenatum. Food scientists looking for a new source of protein found it in the ground near a wheat field in Buckinghamshire, England in 1967. The fungus grows in dirt and on grain, forming fine filaments, and sometimes pinkish fuzz, but it never sprouts anything that looks even remotely like a mushroom. The fungal filaments are a bit like muscle fibers and give Quorn the texture of meat, making it appealing in meat--substitutes.

Concerns about the safety of the fungus used to make Quorn have also been raised. Dr. David Geiser, director of the Fusarium Research Center at Penn State, said that "There really isn't anything closely related that people have been eating in large quantities." Quorn may contain proteins that people have not eaten before, and some persons may be allergic to it. Geiser also said it was possible that under certain conditions, Fusarium venenatum could produce poisons called trichothecene mycotoxins which can cause nausea, vomiting and diarrhea. He felt that tests should be done to ensure that no fungal toxins are present in Quorn. Dr. Michael Jacobsen of the Center for Science in the Public Interest expressed similar concerns about a few complaints (that his group had received) of nausea and vomiting from persons who had eaten Quorn. However, I tend to feel that almost any food has the potential to cause idiosyncratic reactions in the right people.

The Quorn product is somewhat pricey; I believe we paid $3.49 per 7--12 ounce package for the nuggets, tenders, and patties (package of 2), and this was a `sale price.' The New York Times article indicated that Americans were paying an average of $3.79 a box for these products. For myself, I think I would be interested in having the raw unenhanced mycoprotein product to do as I wish with, if that were possible. This would presumably be cheaper if available, but the manufacturer has obviously invested in creating value-added products which can be sold at a higher price. No doubt, the feeling is the raw product would be unappetizing and not sell well.

PSATHYRELLA 3: TECHNICAL TERMS
by Steve Nelsen

Psathyrella species (whose names I naturally am not completely sure of) provide excellent examples of some technical terms used in books describing mushrooms. One of the irritating things to a beginner is the frequency with which people make up special jargon to conveniently describe things about plants. The jargon words usually don't mean anything in the absence of knowing exactly what they were made up to designate without wasting a lot of time explaining in real English words. All areas of science do this; it is necessary to prevent wasted effort. Nevertheless, using jargon sure makes it

harder to "join the club" and figure out what the descriptions mean.

floccose: Covered with flakey looking scales, usually arising from tearing of a fragile veil as growth occurs. This Psathyrella (see http://www.geocities.com/pvachuska/newsletter_images/n02b1.jpg), found on an October 27th at La Riviera City Park, Prairie du Chien (Crawford County), has both floccose cap and stem (usually called the pileus and stipe by mycologists), and is probably in Smith's Subgenus Pannucia, Section Pannucia, which has many floccose species, although it is larger (5 cm) and shaggier than illustrations I have seen of P. pannucia itself.

hygrophanous: Having sufficiently loosely packed hyphae in the cap so that water is soaked up like a blotter, producing very large differences in color between "soaked" and dry conditions. The photo at http://www.geocities.com/pvachuska/newsletter_images/n02b2.jpg shows Psathyrella hydrophylla, taken on a May 30th in the UW Arboreteum in Madison (Dane County), and you can see completely dried as well as completely hydrated caps close to each other. This is one of the commonest species, illustrated in most books. You clearly must be very careful about matching colors to ones in photographs for hygrophanous mushrooms, as their appearance changes greatly with time, even within a couple of hours after picking. This makes photographs of strongly hygrophanous species that were carried to a laboratory to photograph, as for example in Phillips' books, look rather different than they did in the woods. Most Psathyrella species are at least slightly hygrophanous, although the degree varies a lot.

evanescent: Fragile and disappearing. The fragile, wispy grayish veil still remaining on the turned over mushroom cap (shown at http://www.geocities.com/pvachuska/newsletter_images/n02b3.jpg) is quite evanescent. No trace of such a veil was seen on any of the other caps in this cluster. It is common not to be able to find traces of evanescent veils and rings on any of several mushrooms, making you wonder whether there ever was one. Nevertheless, whether there is a veil is frequently a branch point in keys (and one of the reasons they are hard to use; if it appears high in the key, you often have to follow both pathways all the way to their end, or get the wrong answer). The cap is also hygrophanous, and unusually, dries in streaky patches starting between the margin and the center. I have no idea what this Psathyrella is. The picture was taken at Whitefish Dunes State Park in Door County, on a September 11th.

virgate: Sometimes `Englished' as "lined", this means that although the surface of the cap is smooth, it is semi transparent when hydrated, so darker regions are seen above the gills. When dehydrated, the cap usually becomes opaque, and the "lines" can no longer be seen (so virgate mushrooms also change greatly with age). I am not absolutely certain that the mushroom shown in the photo at http://www.geocities.com/pvachuska/newsletter_images/n02b4.jpg is a Psathyrella. The stems are rather thin and fragile, but not white. It has a Mycenoid aspect, that is, it looks like some Mycena species. The photograph was taken on an October 1st at Rowan Creek, near Poynette.

RECIPE: CHILLED MUSHROOM AND TOMATO SALAD
contributed by Greta Menke

2 Tbsp. vegetable oil
1/2 cup onion, minced
1/2 pound or 2 cups thinly sliced mushrooms
salt and pepper
1 Tbsp. lemon juice
1 Tbsp. sour cream or a little more
Chives
Tomatoes
Lettuce
Parsley

Heat oil in a frying pan. Add onions and saute until transparent. Add mushrooms and cook on medium heat until liquid evaporates. Add salt and pepper to taste. Add lemon juice and sour cream and chives. Chill well. Cut whole tomatoes into sixths, being careful not to cut all the way through. Add mushroom mixture to the center of the tomato. Serve on lettuce leaves and garnish with parsley and whole mushroom cap. Great with chilled, dilled vinegar, cucumber slices.

Enjoy.

End