

THE NEWSLETTER OF THE WISCONSIN MYCOLOGICAL SOCIETY
June 2006
Volume 23 Number 2



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MESSAGE FROM THE PRESIDENT

Hi everyone. I hope you've all had a great spring and are looking forward to an equally great summer. I can't reflect too much on fungi hunting this time around, as I simply have not had enough time to get out there that much. I hope you all found the mother lode of morels this year.

Moving on, I am sad to announce that Alan Parker is resigning from the WMS board. He will be remaining with the club and I'm sure we all hope to see him at our upcoming forays, etc. Alan was instrumental in re-forming the club back in the early eighties and is one of the founders of the club in its current incarnation. He published the WMS Newsletter with Tom Fifield for many years and also has served as WMS president. I know I will miss his sense of humor at our board meetings. I'm sure you all join me in saying "thank you" to Alan for all his contributions and years of service.

Also resigning from the board is longtime club member and longtime board member Sunny Rupnow. Sunny has been active with the club, attending forays, lectures and board meetings regularly for many years. Some health problems have caused Sunny to decide it is time to step down from the board. I certainly hope to see Sunny at more meetings next year and I'm sure our members join me in wishing her all the best. Thank you for your contributions to the WMS, Sunny.

Last, but certainly not least, is John Fetzer. John has been active with the club in many ways, not the least of which was as Secretary/Treasurer for

several years. John has become increasingly busy of late and has decided it is best to step down from the board. I'm glad to say he has agreed to stay on as Assistant Secretary/Treasurer. John has been instrumental in the function of the club and now seems like a great time to say thank you to John.

Our club recently made a donation in the amount of one hundred dollars to the West Allis Public Library as a "Thank you" for our being able to use their facilities and audio-visual equipment free of charge. The savings to the club because of the use of this new facility are considerable, and it was thought that it would be a nice gesture to make a donation. At least some of the money will be used to purchase a book or books on fungi or mycology. This book will have a small placard inside stating that the book was provided by the WMS.

Well, that's it for this time. Hope to see you all at the summer and photo forays.

by Chuck Fonaas

UPCOMING WMS EVENTS

July 15 (Saturday) Summer Foray: Meet at Papa Steinke's Farm - South Kettle Moraine, caravan to nearby site, 9:30 sharp.

August 26 (Saturday) Photo Foray: Scuppernong Springs Nature Trail - South Kettle Moraine, 10:00.

DUES REMINDER

If you haven't yet paid your 2006 dues (check your mailing label), please send your \$15 to: Fred Kluhsman, Secretary/Treasurer; 5315 S. Sunnyslope Road; New Berlin, WI 53151. Note that WMS dues are \$15 and that NAMA (North American Mycological Association) dues are an additional \$32.

APRIL MEETING REPORT

by Colleen Vachuska

The last lecture in our WMS winter-spring lecture series for 2006 was given by Dr. Britt Bunyard on April 25 at the West Allis Public Library. Britt is relatively new to Wisconsin, having moved to Germantown a few years ago from Ohio. As many of you know, Britt is editor of the *Mycophile* and of *McIlvainea*, both publications of the North American Mycological Association. He is also a subject editor for the journal, *Annals of the Entomological Society of America*. Britt has a PhD in Plant Pathology from Penn State and is an adjunct faculty member at Carroll College in Waukesha. He has also written a book called *Walking to Singapore* which has nothing to do with fungi.

The topic of Britt's talk was: "What's Eating You? A Light-Hearted Look at Mycophagous Insects." Humans and larger animals are not the only creatures that like to eat mushrooms. Many smaller organisms like mushrooms, too. Some

of the mycophagous (mushroom-eating) invertebrates include: flies, ants, millipedes, springtails (often found in morels), nematodes, beetles, and wasps.

Britt's special area of interest is mycophagous flies, sometimes called fungus gnats, and so these are the creatures we learned the most about. Britt believes that mushrooms attract flies and use them as pollinators. Mushrooms apparently put up with some damage from flies as a payback for helping to spread their spores. Most fungi host more than one fly taxa, and most flies are generalists when it comes to feeding on mushrooms, though the larger species of Basidiomycetes are more likely to host flies. Some of the best mushrooms for attracting flies are species of *Strobilomyces*, *Lepiota*, *Pholiota*, *Pleurotus*, *Laetiporus*, *Fomes*, *Lepista*, *Phallus*, *Amanita*, *Pluteus*, and *Tricholomopsis*. As a testament to the ubiquitous connection between mushrooms and insects, probably almost all mushroom collectors have had the experience of collecting a pile of beautiful mushrooms, only to have to discard them when you get home because they are full of maggots or some such. Our speaker had a few choice things to say about this phenomenon: "A successful foray has one of two outcomes, a sumptuous meal or fodder for compost." "If you've eaten mushrooms, you've eaten bugs." Britt's talk evidently sparked quite a bit of interest, as there was an especially long question and answer session after the lecture. All of us are at least vaguely aware of how bugs eat and live in mushrooms, but this was an opportunity to focus in on that particular connection. I suspect most of the attendees came away with a greater appreciation for how interconnected and how dependent on each other living organisms are.

MOREL FORAY--North Kettle Moraine Area May 20, 2006 by Peter and Colleen Vachuska

Moraine this year. It was a gorgeous sunny day, and we tried to make the most of it. I don't know if anybody hit the mother lode, but as usual, most participants found at least some morels. Competition continues to be a problem, with thousands of Wisconsinites (and a few others) all out tramping around every dead elm, searching for a very limited resource. The foray was a bit later in the season than usual, and so the morels found were on the mature side. But, additionally, it appears the season may have been a bit early from what we encountered in some of our other morel sites. After the foray, there was a lengthy lunch and socializing at a Mauthe Lake picnic area. Our 9-year old son was very happy to find 3 morels while playing near the picnic area.

MOREL FORAY--Madison Area May 13, 2006 by Betsy True

22 people attended. Betsy True found 10 (see the magic basket), others found a couple each. A drizzly day, but not too bad. Feet were soaked. A first time for several folks, exciting to find any. [h]

MYCOBRIEFS
by Colleen Vachuska

* **MUSHROOMS AND VITAMIN D:** Vitamin D has been known for years to play a role in healthy bones. More recently, it is increasingly thought to play a role in reducing cancer risk and in regulation of the immune response. While natural UV radiation from the sun triggers vitamin D synthesis in the skin, many Americans do not spend enough time outdoors to produce optimal levels of vitamin D. Unfortunately, there are few natural sources of it in the food supply. In the typical diet, most vitamin D comes from milk which has been fortified with the nutrient. Now, recent research has shown that brief exposure to ultraviolet light substantially increases the vitamin D content of mushrooms and may provide another significant food source for this nutrient. In 2004, the Mushroom Council called for proposals to examine the ability of edible mushrooms to boost disease-fighting immunity. In response, the Center for Food Safety and Applied Nutrition (CFSAN) proposed to optimize vitamin D content of edible mushrooms through exposure to sunlight (UVB) and to test their ability to increase disease resistance and regulate immune response. The research, which was funded by the Mushroom Council, was conducted by scientists at CFSAN, the Mushroom Council, the Mushroom Research Center at Penn State University, and MTT Agrifood Research in Finland, and was presented during the FDA's annual science forum April 18 - 20 in Washington, DC. The main result of the study was that after a standard serving size of white button mushrooms was exposed post-harvest to UVB for 5 minutes, its level of vitamin D₂ increased to 869% of the Daily Value. Also, exposing growing mushrooms to 3 hours of artificial UV light significantly increased their vitamin D content, as well. More research will be needed, however, to support these results and determine the feasibility of such practices. If these preliminary results are confirmed, this inexpensive process of radiation could turn mushrooms into a significant unique plant source of vitamin D. (FDA Science Forum poster abstract and Associated Press, April 18, 2006)

* **GARLIC MUSTARD AND FUNGI:** Many of us who spend time in the woods are familiar with the invasive plant garlic mustard (*Alliaria petiolata*) and how it can aggressively carpet an area. Now, researchers have discovered a new wrinkle to the saga. In a study using soils from five Ontario forests, researchers found that sugar maple and other hardwood seedlings grew much slower when the soil came from an area infested with garlic mustard than when it came from a mustard-free area. This finding was duplicated under a variety of test conditions. Evidently, the garlic mustard, which is a non-mycorrhizal plant, releases chemicals that are poisonous to the mycorrhizal fungi that many native hardwoods depend on for nutrients. This is the first study to show that invasive species are hurting the native species by interfering with the natural ecological relationship between roots and fungi. This research was done by Kristina Stinson of Harvard University and John Klironomos of the University of Guelph (Ontario), and colleagues. The findings were published in the May issue of *Public Library of Science Biology*. According to Klironomos, once the garlic mustard has produced these toxins and invaded an area, removing it doesn't help much, since "The compound is still in the soil and it's hard to plant any native plants in the area and have them establish properly." (University of Guelph

news release, May 11, 2006 and Richmond Times Dispatch, May 18, 2006)

* **NEW ONLINE FUNGAL JOURNAL:** The new scientific journal Pacific Northwest Fungi is now online. First discussed at a meeting of the region's mycologists nearly four years ago, the new journal is part of the Pacific Northwest Fungi Project, an ongoing effort to develop a complete inventory of the region. Pacific Northwest Fungi is designed specifically for the World Wide Web and benefits from the speed, broad distribution, and low costs inherent in internet publishing. The journal publishes papers on all aspects of fungal natural history, ranging from ecology and biogeography to taxonomy, morphology and phylogeny. Article categories include Notes, Brief Reports, Full-Length Research Articles, and Reviews. Features of interest include: --- All manuscripts are subject to anonymous peer review before acceptance. --- Any reader with access to a computer and an internet search engine can find and download articles. --- The journal publishes color photographs. The journal website is www.pnwfungi.org

NEWS OF MYCOLOGISTS

Tom Volk

Tom Volk had a heart transplant at the end of May and is currently recovering at a "halfway house" in Rochester, Minnesota. Evidently, the transplant went well, though with something as complicated as a transplant, there is a lot of followup testing and medication adjustment to be made. Tom, currently a professor of biology at UW--LaCrosse, has made many contributions to the WMS and the national mycological community over the years, leading forays, giving presentations and workshops, maintaining an excellent website, and inspiring and supporting others. We all wish him a great recovery and the best of health.

Orson Miller

Orson Miller passed away on June 9. His name should be familiar to many of us, as Dr. Miller wrote one of the first popular modern field guides, *Mushrooms of North America*, published in 1973. Orson received his PhD from the University of Michigan under the tutelage of the famous Alexander Smith. The early part of his career was spent as a plant pathologist for the US Forest Service. In 1970, he started teaching at Virginia Tech University, eventually becoming Professor of Botany and Curator of Fungi. He retired to Idaho in 2002. Throughout his career, Orson's wife Hope assisted him greatly with his research. Together they were very active in the mycological community for many years, conducting research around the world, writing books and papers and speaking at conferences. During his career, Orson made over 28,000 collections of fungi, described over 100 species of fungi new to science, and wrote 8 books and more than 150 research papers. Shortly before Orson's death, Orson and Hope completed a new book, *North American Mushrooms: A Field Guide to Edible and Inedible Fungi*, published by Falcon Press. (from obituary at IdahoStatesman.com and Orson and Hope Miller's website)

Hal Burdsall, honorary WMS Director and former MSA President, says of Orson Miller:

I was a student of Orson's (he was the graduate assistant in Alex Smith's course) in the mycology class at the University of Michigan Biological Station at Pellston, MI, in the summer of 1961. It was my first experience with mycology and he and Alex provided the impetus I needed to begin my mycological career. The following summer I was his field assistant in Idaho where he was collecting mushrooms and other fungi for the Forest Service. We collected most of the summer with Alex Smith from McCall to Priest River, ID. There are so many stories to tell that I can't pick out just one. We collected, cultured, dried and described mushrooms. We fished, hiked, and socialized. After receiving my PhD from Cornell I had the pleasure of working across the hall from Orson for three years at the Beltsville Forest Disease Laboratory. By that time Orson had mentored me to the point that I was comfortable being on my own. Through the 45 years since our first encounter at the UMBS I have considered Orson and his family close friends and valued colleagues. It is difficult to realize that he will no longer be there for council... or just having an evening martini.

Martyn Dibben

If you're thinking that you haven't seen Martyn Dibben, lately it's because he has left the state. But he hasn't moved too far away -- just to Minnesota NW of the Twin Cities. Martyn says that both he and Alison are enjoying retirement and staying active outside of their grandkids. Martyn is leading the City of Buffalo's new Urban Forest management program, offering field classes to local nature centers, and volunteering at the region's historical museum. Martyn was senior botanist at the Milwaukee Public Museum for many years before becoming Executive Director of the Schlitz Audubon Center. He remains an honorary director of the Wisconsin Mycological Society. We wish him and Alison well, and hope for some MN myco news from time to time.

TRIBE FAYODIAE Kuhner = LEUCOPAXILLEAE Singer (1948) p.p. by Steve Nelsen

Tricholomataceae is the largest family of gilled fungi, and rather obviously could use cutting into smaller pieces for convenience. Most species have the inamyloid spores (which remain colorless or light yellowish in Meltzer's solution, which is a mixture of potassium iodide, iodine, and chlorohydrin). Spores whose surfaces have the form of starch called amylose turn dark blue in the presence of Meltzer's solution. The color is thought to be caused by a rather subtle interaction in which I^- ions lie close to each other in helical channels formed by the amylose. For whatever reason the color develops, it was used to break up the large genera in Tricholomataceae into more tractable units, and this tribe Fayodiae is one of the best reasons for an amateur mycologist to acquire some Meltzer's solution. Kuhner used Fayodiae for the Omphalinoid and Clitocyboid fungi that have amyloid spores, including

Fayodia and Myxomphalia (both European and not considered here), Cantharellula, Pseudoclitocybe, Clitocybula, Pseudoomphalina, and Singer's tribe also includes (in a separate subtribe) the larger genera Leucopaxillus and Melanoleuca, which are not considered here. Larger groupings of fungi seem to be totally arbitrary, and apparently no one has felt much compunction to use anyone else's groupings. Peck is always a good place to start in considering Northeastern US fungi, and I shall organize this discussion along the lines of Peck's species.

Cantharellula

Peck described a new American species, *Cantharellus dichotomus*, collected in his second year as New York state botanist, in Report 23, for 1869, as well as a var. *brevior*, with a reduced acute or no umbo. By report 37, for 1893, in one of his mini-monographs on this genus, he had reduced them to varieties of the European *Cantharellus umbonatus* (a more modern citation is *Gmellin ex Fries*), but he never really gave up the idea that the American material should be kept separate, and in Rep. 67, for 1902, returned to arguments of why he thought they were different (all based on macroscopic features that are not considered important any more). These plants were only put in *Cantharellus* because they have forked gills, and considering microscopic features, they do not belong there. Singer erected the monotypic genus *Cantharellula* in 1936 to house this fungus, which is usually associated with haircap moss (*Polytrichum*). This assignment of genus has been accepted by everyone I have seen. The cap color is very variable between dark brown and light gray (see cover and Figure 1), as is the degree of development of the umbo, but the strongly amyloid spores, usual presence of a rather sharp to broad umbo, forked gills, and growth in haircap moss make it rather easy to recognize.

Pseudoclitocybe

Agaricus cyathiformis was described by Bulliard (died 1792 or 1793), but this name is often attributed to Fries, who described it (attributed to Bulliard) in 1821, but whose book was the starting point for mycological nomenclature for decades, so by convention earlier authors were not mentioned. This is an initially dark brown fungus (cap 2-7 cm.), that becomes brownish-gray and cup-shaped in age, has decurrent brownish gills, 4-7 cm. by 3-6 mm. stem, and occurs on rotten wood in the U.S. as well as in Europe. It was moved to *Clitocybe cyathiforme* by Kummer (1834-1912). Roussel ex Earle in 1909 moved it to *Omphalius* (which was thought to be too similar to *Omphalia*). It has amyloid spores, and Singer moved it first to *Cantharellula* subgen. *Pseudoclitocybe* in 1943, and then elevated the subgenus to a genus in 1956. There are about 6 species in Europe, but only *cyathiformis* appears to be known in the U.S.

[This will be continued in the next newsletter.]

RECIPE: MAGIC PUFFBALLS
by Karl Vachuska

1/2 c. white flour
1/2 c. whole wheat flour
1 egg
3/4 c. milk
1 T. honey
1 tsp. baking powder
salt
oil
a small young firm *Calvatia gigantea*

Mix together flours, egg, milk, honey and baking powder in a bowl wide enough to dip the puffball slices. Slice the puffball into about one centimeter slices (a little less than a half inch) and dip into mixture. Fry in about a half inch (a bit over a centimeter) of hot oil till brown and crispy on both sides. Add salt to taste while frying. Eat while hot.

Enjoy!