

Potomac Sporophore

www.mawdc.org

The quarterly publication of the Mycological Association of Washington (MAW)

Fungus Notebook



Common Name: Chanterelle, Golden Chanterelle, Yellow Chanterelle

Scientific Name: Cantharellus cibarius - Genus from the Greek kantharos and derivative Latin cantharus meaning cup, goblet or drinking vessel and referring to the trumpet-shape of the stalk; cibarius is Latin for "relating to food."

The chanterelle is recognized by mycophagists (fungus eaters) worldwide as one of the most succulent of the edible forest mushrooms. The literal translation of the species as "cup of food" attests to this association. Its popularity is due not only to its unique floral flavor and apricot aroma but to the facility with which it can be identified. Chanterelles have one distinctive identifying feature that sets them apart from other mushrooms. They do not have true,

blade-like gills on the hymenium, the spore-bearing surface of the mushroom on the underside of the cap (pileus) like the familiar button mushroom, Agaricus bisporus. Rather, they have blunt ridges that run from the edge of the pileus down on the stalk (stipe), a configuration known as decurrent.

Chanterelles are also easily identified by the cornucopia shape of the stalk, by the rich yellow-orange coloration of the cap, and by the irregular shape of the cap margin. There is only one other mushroom that bears a likeness to the chanterelle as it is also yellow-orange in color, the poisonous Jack-O-Lantern (Omphalotus olearius). Cursory examination would serve to prevent misidentification, as the latter has true gills in lieu of ridges and is generally found in clumps at the base of trees whereas the Chanterelle grows singly in scattered groups on the ground.



Jack-O-Lantern Mushroom

From the MAW President

I hope that the weather-caused damages and power outages that controlled the Washington Metro area and a good portion of states in the Eastern U.S. did not have a lasting impact on you or your loved ones. Since I had not done much but think about these notes before the storm hit, I've missed my deadline and lost — aside from a couple of downed trees (next winter's firewood) — not much but sleep and leftovers in the fridge.

It appears that the changes we've made in our "communications plan" have been effective, but I really don't know without your feedback. Please let me, or anyone else on the Executive Board, know how you feel, by email, face to face, text, phone call, anonymous note, or however you are most comfortable. The Board meets regularly on (continues on page 7)

Chanterelles are nutritious: 100

Inside This Issue

Fungus Notebook	1
From the President	1
Board of Directors	2
2012 Scheduled Events	3
The Mushroom Chronicles	3
FUNGI Comes to MAW	4
Cooking Corner	5
MAW Spring Tasting	5
Tentative Summer Forays	6
West Virginia Joint Foray	7
Mushrooms in the News	7

grams, about 20 mushrooms, contain 0.4 grams of fat, 7 grams of carbohydrates, 2.6 grams of fiber and 34 cal-

BOARD OF DIRECTORS

Bruce Boyer, President 703-863-9633 president@mawdc.org

Mitch Fournet, Vice President 301-768-6788 vicepresident@mawdc.org

Bobbie Blue Marcoux, Secretary mawsecretary@mawdc.org

John Harper, Treasurer 301-589-2830 treasurer@mawdc.org

Bruce Eberle, Programs programs@mawdc.org

Jon Ellifritz, Forays 301-422-7517 forays@mawdc.org

Barbara Karpas, Memberships 301-270-4239 memberships@mawdc.org

Daniel Barizo, Culinary 301-332-7112 <u>culinary@mawdc.org</u>

Connie Durnan, NAMA Liaison 202-362-1420 namatrustee@mawdc.org

William Needham, Editor 410-884-9127 newsletter@mawdc.org

Monthly Meeting Location:

July – Aug Davis Public Library,6400 Democracy Blvd Phone number (240) 777-0922

Sep-Dec Kensington Public Library,4201 Knowles Avenue. Phone number 240-773-9515

MAW Board Note

Membership renewal was due on 1 January 2012. If you have not renewed, you are now three months overdue. ories. Analyses of amino acid content

have shown that chanterelles are 10 percent protein by dry weight. They are rich in vitamins A and D and supply the minerals selenium, potassium, iron and phosphorous. Vitamin A in chanterelles is from carotenoids that are the source of the yellow pigmentation; improved visual acuity is realized when they are consumed. Vitamin D is synthesized when the mushroom tissues are illuminated with sunlight. Chanterelles can store vitamin D when dried for up to 6 years. Next to cod liver oil, chanterelles are one of the most concentrated sources of vitamin D; their popularity in the low sunlight northern reaches of Europe is in all probability a result of this.

The chanterelle was first mentioned in European literature by the Dutch herbalist Lobelius in 1581 and was the subject of a scientific monograph by the Belgian botanist Clusius in 1601. The many local common names for the mushroom throughout Europe imply an early medieval association. The chanterelle is capo gallo (cock's crest) in Italy, dotterpilz (egg yolk mushroom) in Germany, rebozuelo (woman's dress) in Spain, canarinhos (canary bird chicken) in Portugal, and jaunette (little yellow) or chanterelle in France. Linnaeus, the Swedish father of taxonomy, originally named the chanterelle Agaricus chantarellus in 1747, as it was a common edible. However, Elias Fries, the reputed father of mycology for his early work on the taxonomy of fungi, gave the chanterelle its current name Cantharellus cibarius in his 1832 work Systema Mycologicum.

Commercial cultivation of chanterelles is impractical, as they are ectomycorrhizal; they must grow with trees. The term mycorrhizal is derived from the Greek mykes meaning fungus and rhiza meaning root so the word literally translates as "fungus root". It refers to the symbiotic relationship between some fungi and plants, most notably trees. The hyphae, which are the threadlike filaments of the fungal mycelium (the underground fungal body), extend into the soil to absorb water and minerals that are provided to the host plant, thereby effectively extending its root system. In return, the plant provides carbohydrate nutrients to the fungus for growth and reproduction. The prefix "ecto" is derived from the Greek ektos meaning outside. This refers to those mycorrhizal fungi, like the chanterelles, that form external sheaths over the roots of the host plant to facilitate exchange of minerals and nutrients. The chanterelle is ectomycorrhizal with trees in 14 genera, notably oaks, pines, firs, spruces and hemlocks. Since they are not grown commercially, they are harvested in the wild for income in many regions.

It is estimated that the global market for chanterelles is about 450 million pounds and \$1.4 Billion annually. Germany and France are the largest chanterelle importers in Europe; Poland, Lithuania, Russia, Belarus and Latvia are the biggest exporters. In Sweden, income from selling chanterelles is tax free up to \$555 per person and it is estimated that 40 percent of the population picks mushrooms, mostly chanterelles, which they sell for about \$10 per pound. There is reportedly a training manual for dogs to teach them to find chanterelles. In China, the chanterelle is called jiyou-jun (chicken fat mushroom) and is used both as foodstuff and as medicine. It is used to treat night blindness and as a lubricant to

soothe rough, dry skin and to moisten mucous membranes. - W Needham

Mushroom Chronicles

Mycoremediation

If you haven't come to the conclusion that fungi rule the world, hopefully you're well on your way to enlightenment. Some mycologists even are saying fungi are the reason our world is habitable. Whatever your persuasion, you've at least got to admit our spore-spreading brethren do a good job of cleaning up some of humanity's nastiest habits and might save our hides in the process.

Paul Stamets, an authority on mycoremediation, famously tapped into fungi's superpowers with a novel experiment in which he pitted fungi against bacteria in a competition to consume a pile of woodchips doused in diesel fuel. In one experiment, Stamets found common oyster mushrooms removed 97 percent of the nasty polycyclic aromatic hydrocarbons from the oil-soaked material and left a gorgeous spray of fruiting bodies behind. Even better, the mushrooms likely were dinner plate ready, as they showed no signs of petroleum contamination. It turns out our natural sanitation engineer friends are great at breaking down hydrocarbons.



Oyster Mushrooms (*Pleurotus ostreatus*) White Oak Canyon Trail

Following the BP Deepwater Horizon oil spill in 2010, Stamets set to work on testing whether fungi could tolerate saltwater and intense sunlight exposure. His search and subsequent experimentation led to the creation of a mycoboom that comprises hemp "socks" stuffed with sterilized hay substrate and oyster mushroom mycelium. These booms float on the surface of the ocean, where the mushrooms lunch on the spilled oil and grow as they effectively filter the water. Because oyster mushrooms grow so quickly, they're a good candidate for cleanup sites where everyone wants fast progress and unlimited cleanup supplies.

But not all oil spills are cleaned up with due diligence or at all. In parts of South America and Africa, unregulated oil extraction has left behind places with names like "Sour Lake." One of the largest remaining scientific hurdles for mycologists with the Amazon Renewal Project, which aims to clean up some of these toxic sites, is determining what exactly fungi absorb and whether they leave behind or contain harmful metals after their jobs are done.

Other ugly sites where fungi have shown promise at cleaning include those contaminated by pesticides, creosote, and nuclear radiation. (Talk about otherworldly mycopower!) In the case of pesticides, mushrooms seem to do similar filtration work as in an oil spill. Of course, radiation is a bit of a different beast. Some mushroom species break down uranium, and others concentrate the radiation, making it easier to harvest and contain.

It goes to reason that if fungi can break down hydrocarbons in substances like petroleum, they also could break

2012 Scheduled Events

Monthly Meetings/Major Events Monthly Meetings/Major Events

Monthly meetings are normally held on the first Tuesday of the month. All monthly meetings start at 7PM and include a brief review by each of the MAW board members and a summary of monthly events and mushroom finds by the President. The program starts at about 8PM.

<u>July 3</u> – Fungi and Trees – Sudden Oak Death and others. Beth Brantley from the University of Pennsylvania at Mount Alto

July 28 -29 MAW, the West Virginia

Mushroom Club, and the New River Valley Mushroom Club joint foray at Canaan Valley State Park, WV

<u>August 2 – 5</u> NEMF Foray East Stroudsburg University. Register at www.nemf2012.org

<u>August 7</u> – Mushrooms of California. Noah Siegel – see NAMA foray below

<u>September 28 - 30</u> - Annual Foray at Camp Sequanota in Western Pennsylvania.

October 2 – Fall "Mostly Fungi" Tasting meeting

October 7 – Annual Mushroom Fair at Brookside Gardens

December 13 – 16 NAMA Foray Scott's Valley, California. Register at http://www.namyco.org/

down pesky petroleum derivatives. And they're doing just that. A group of undergraduate students at Yale reported late last year they had found *Pestalo*-

tiopsis microspora is capable of subsisting on a diet of polyurethane alone while subjected to an anaerobic environment. If you're not familiar with your seldomly recyclable plastics, polyurethane is "the best of plastic and rubber combined;" it's used in garden hoses, foam seats, Spandex, and footwear. Before now, it had a pretty good reputation as being non-biodegradable, with very little of it making it to complex recycling processes. P. microspora isn't a cure-all yet though. Because it might be difficult to unleash the necessary amount of P. microspora into the world's landfills, those genius Yale students already are working on a way to instead isolate and use the enzyme responsible for polyurethane degradation.

Polyurethane isn't the only ugly plastic ending up in landfills; and fungi are back to the rescue. Tom Volk with the University of Wisconsin announced in a 2006 paper he and colleagues had discovered phenolic resin biodegradation properties in Phanerochaete chrysosporium, now known as Hydnophlebia chrysorhiza. Phenolic resins are plastic-like compounds, typically used as adhesives. You'll find them in bowling balls and toilet seats; they're also what hold together plywood and particle board. With P. microspora and H. chrysorhiza on the table, it stands to reason fungi have many more secret industrial trash-eating powers yet to be realized.

Finally, we come to the fungi making a dent in plastic trash altogether. As presented at the April MAW meeting by Sue Van Hook, chief mycologist at Ecovative Design, fungi have all kinds of applications when used as quick-growing glue to hold together biodegradable waste materials like buckwheat or cottonseed hulls. Her team has made a variety of

promising replacements for traditional polystyrene applications, including packing materials, toys, seat cushions, insulation, and weather buoys. When you're done with an Ecovative product, you just toss it into your compost and let it break down naturally. As Van Hook said, "If we're going to continue to live on the planet, we have to live this way." Thanks to a recently announced agreement with Sealed Air, Ecovative's products might soon be in consumer households in lieu of Styrofoam and its many long-lived cousins.

Looking forward, team fungi is going to need a lot of cheerleaders and even more researchers. Stamets' solutions haven't gotten a lot of use, and much of the work has yet to be done on the plastic eaters. Stamets says what we really need to make mycoremediation possible are mycological response teams (The Fungal Emergency Management Agency?) Others blame foot-dragging, especially in the case of the BP oil spill, on conflicting monetary interests and a fear of both mushrooms and the Cannabis genus. So keep spreading the word: Fungi are friends.

— Willow Nero

FUNGI comes to MAW

The Mycological Association of Washington's June program featured the inimitable Britt Bunyard, editor of FUNGI, the magazine of and for all things fungus who gave a lecture entitled "From Aflatoxins to Zombies; Weird, Weird, Weird Fungal Chemistry and Physiology." The titular tautology ostensibly ensured that the audience (which was already comprised of dedicated mycophiles)

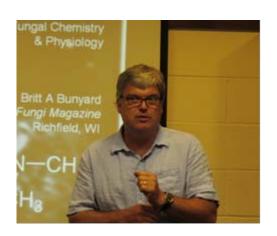
would have a true appreciation for how bizarre mushrooms actually are.



Britt Bunyard with MAW Program Chair Bruce Eberle

With vivacity set against an anecdotal repertoire that only a lifetime of mushrooming could elicit, Britt proceeded to weave a complex web of fact and fancy that was a five act play beginning and ending with "what goes around comes around" interleaved with entr'actes of "stop, you're killing me," "The mycology of desire (with no perceptible apology to Michael Pollan's 'The Botany of Desire,') and "You're blowing my mind" that achieved the moral equivalent to a standing ovation with the denouement chapter on zombies.

FUNGI magazine was Britt's started in 2008 with a stated intent to "explore the world of mycology from many different angles. With regular features ranging from toxicology to medicinal mushrooms, from photography to book reviews, Fungi will inform and entertain everyone from beginner to professional mycologist." A yearly subscription consists of four quarterly issues and one special issue that focus on one aspect of mycology. The quality of the writing and research is evident in the composition of the editorial review board, including such noteworthy mycologists as Paul Stamets, of Fungi Perfecti fame, and Nicholas Money, author of the classic "Mr. Bloomfield's Garden." Among the regular authors is David Rose whose articles under the rubric "Notes from the Underground" are exquisitely erudite, as evidenced in the description of the stinkhorn in the Spring issue as "a fungus so invigorating to the imagination that it beleaguers its beholder with burden of its gamy reputation as it cloys the senses with misfortunes of sight and smell."



Comfort Dishes Wow MAW Members at Annual Spring Wild Foods Tasting

Though not a single dish at MAW's annual Spring Wild Food Tasting May 1 featured morels, plenty of comfort food-style mushroom dishes and wild greens kept the modest crowd coming back for seconds.

Danny Barizo, MAW culinary chair, called the lack of morels at this year's event a "glaring difference" from past years.

"This is not surprising since this year's morel season was the worst in recent memory," he said. "The abnormal weather patterns, the sudden fluctuation in temperature, and rainfall affected the growth of this spring delicacy."

First place in the cookoff went to Mark Tanney, who prepared a wild mushroom ragout over creamy polenta (see page x for the recipes.) This

was Tanney's first experience cooking for MAW, and he enjoyed the chance to cook for a larger group.

Second-place winner Elena Kolgan says her wild mushroom risotto has a lengthy cooking process but it's not that hard to make. She first made the dish several months ago with her son and received copious compliments.

Longtime member and MAW Treasurer John Harper was surprised and quite pleased with his third-place win. It's his first time to place in a MAW cookoff. Harper made homemade ravioli stuffed with *Polyporus umbellatus*.

The prize for the most creative mushroom dish went to Johnny Pantages, who served up an Asian-inspired king oyster mushroom bites with scallops, polenta, and Sriracha.

The spring tasting differs from MAW's fall tasting in that it encourages members to prepare both wild mushrooms and other wild-foraged foodstuffs.

MAW Foray Chair Jon Ellifritz would have won the award for inclusion of the most wild-gathered greens if there were such an award. His homemade pesto served on Ritz crackers had at least a handful of backyard faithfuls from dandelion to nettle.

Colin Firth managed to merge wild greens and mushrooms with a chips and dip dish comprised of dried king oyster "chips" and a wild green dip.



Also of note was MAW

President
Bruce
Boyer's
offering
of fried
snakehead.
The invasive
fish species has

gained



notoriety as a scourge on the Potomac, though innovative residents like Boyer are providing some population control.

Cooking Corner

Want to see your creations in Cooking Corner? Submit your recipes to newsletter@mawdc.org, and help show off MAW's culinary genius.

The following recipe was submitted to the *Sporophore* by Mark Tanney, first-place winner of MAW's Spring Wild Food Tasting. What pushed this dish into the winning slot might be the clever mix of sweet and savory—dried cherries and raisins mixed with mushrooms. Tanney was familiar with putting dried fruit in polenta, so the combination in this dish was a natural pairing for him.

WILD MUSHROOM RAGOUT 4 slices thick bacon, diced small ½ stick butter

Tentative Summer Forays

See the April Sporophore for the new policies that have been implemented for forays.

Here's the tentative schedule for July and August:

Saturday, 7/7 – Montgomery County, MD

Sunday, 7/15 – P.G. County;

Sunday, 7/22 – Northern Maryland

Friday, 7/27 – Sunday, 7/29 – western VA joint foray weekend

Sunday, 8/12 – Northern Virginia

Saturday, 8/18 – Michaux State Forest, southern PA

½ cup olive oil

- 2 medium onions, diced
- 2 leek tops (white), thinly sliced
- 2 medium shallots, diced small
- 8 cloves garlic, diced small
- 1/4 cup all-purpose flour

1 teaspoon oregano, dried (or substitute with fresh herbs of chef's choice)

- 1 teaspoon thyme, dried
- 1 teaspoon basil, dried
- 4 lbs mixed mushrooms, sliced (portabellas, hen of the woods, or chef's choice)
 - 4 ounces dried porcini mushrooms
- 5 chicken thighs, skinless and boneless, boiled until just done, then diced medium

½ white wine

- 4 cups chicken stock
- 1 large red bell pepper, diced medium
- ²/₃ cup cream

Cayenne pepper or Tabasco sauce, to taste

Freshly ground black pepper, to taste Seasoned salt or regular salt, to taste

In a small pan, reconstitute the dried porcini mushrooms by simmer-

ing in 2 cups water for 5 minutes.

Reserve all liquid. Dice the cooked porcinis.

In a large pan (4 quarts or larger) sauté the diced bacon on medium heat until just done. (Make sure the pan never gets hot enough to burn any ingredients.)

Add shallots and garlic, sauté for a few minutes over medium heat until they are soft and translucent, not brown.

Add butter and olive oil, then onion and leeks. Sauté mixture on medium heat for 5 or 10 minutes until onions and leeks are soft and translucent, not brown.

Add flour and herbs, and sauté over medium heat for 5 or 10 minutes.

Add portabella and hen of the woods mushrooms and the diced, cooked chicken. Sauté until mushrooms are wilted, just half-cooked.

Add porcini mushrooms, all liquid from porcinis, white wine, and chicken stock. Simmer mixture over medium heat for 10 minutes, stirring often.

Strain mixture to separate the liquid from the solid ingredients. Reserve solid ingredients. Return liquid to pan. Simmer liquid until reduced by half. Mixture should begin to thicken.

Add red bell pepper, cream, and cayenne pepper or Tabasco. Simmer for 5 minutes

Return solid ingredients to pan, and simmer and stir for 10 to 20 minutes, until mushrooms are fully cooked and everything is blended together.

Adjust seasoning with salt and pepper.

Serve over creamy polenta.

Notes: This dish is even better the next day after being chilled overnight and reheated until just warm.

CREAMY POLENTA

1 quart whole milk or half-and-half 1 quart chicken stock ½ stick butter 2½ cups dry polenta (Bob's Red Mill makes a good one)

Salt and freshly ground black pepper

½ cup cream cheese

½ cup sour cream

½ cup Parmesan cheese, freshly grated

1 package frozen peas, simmered until just warm

1 cup golden raisins

1 cup dried cherries (or other dried fruits of choice)

Pour milk or half-and-half in a pan. Add the chicken stock and the butter. Bring just to a boil, then reduce heat. Don't let the mixture continue to boil.

Add polenta gradually, whisking constantly for the first 5 minutes to avoid lumps.

Simmer for 45 minutes, stirring often. Remove from heat. Mix in the cream cheese, sour cream, Parmesan cheese, peas, and dried fruit.

Adjust seasoning with salt and pepper.

Polenta is best served within 15 or 20 minutes of preparation. It can be reheated, but it might be lumpy.

Serve warm polenta on a plate or in a bowl. Make a well in the center. Spoon mushroom ragout into the center. Sprinkle with a little chopped parsley, if desired.

(Recipes contributed by MAW member Mark Tanney)

West Virginia Joint Foray

There will be a joint foray weekend with MAW, the West Virginia Mushroom Club, and the New River Valley Mushroom Club, at Canaan Valley State Park, WV, on Saturday, July 28 and Sunday, July 29. The guest mycologists will be Gary Lincoff, author of the Audubon series mushroom field guide and other

books, along with Bill Roody, author of Mushrooms of West Virginia and the Central Appalachians. Gary's Saturday evening talk is entitled "Mushrooms and Wildflowers - the Unseen Connection. There will be forays for mushrooms and wild edibles, and at least one wild mushroom and other edibles tasting. Paul Goland, a longtime MAW member, will hold a question and answer session on growing shiitakes and will have inoculated logs for sale.

Arrangements for accommodations and food are to be made separately from registering for the foray itself. The West Virginia club has made arrangements with the Canaan Valley Lodge to set aside 25 rooms with double beds (apparently 2 per room) for the event at a discounted rate of \$79 per room per night. It's best to reserve early by visiting the Canaan State Park Valley website. http://canaanresort.com, or by calling 1-800-622-4121 and mentioning the West Virginia Mushroom Club in order to get the discount rate. The foray registration application is avail-MAW's able website. on www.mawdc.org which should be sent to Connie Durnan, the registrar for the event. The foray fee is \$35 for Saturday only, \$25 for Sunday only or \$50 for both days, before July 1. Add \$5 for a day or \$10 for the weekend after that. Checks or money orders should be made out to the West Virginia Mushroom Club. For more details about the foray, visit the WV Mushroom Club's website at http://wvmushroomclub.org. tration at the foray begins 9 a.m.

Saturday, at the lodge.

Mushrooms in the News

Two recent studies suggest the use of mushrooms containing psilocybin (generally from the genus Psilocybe) may change the brain in ways similar to antidepressants.



Professor David Nutt, a researcher at Imperial College London and senior author of both studies, told Reuters, "We're not saying go out there and eat magic mushrooms, but ... this drug has such a fundamental impact on the brain that it's got to be meaningful — it's got to be telling us something about how the brain works."

The first of these studies took 30 healthy volunteers and infused the active ingredient psilocybin into their bloodstreams. Brain scans showed decreased levels of activity in regions of the brain that connect areas responsible for consciousness, self-identity, and organizing sensory information. The second found psilocybin enhanced volunteers' recollections of personal memories. Their brain scans also showed changes in areas for vision and sensory information.

From the MAW President

(continued from page 1)

the 5th Tuesday of months that have one, normally four times per year, plus a few separately called meetings in accordance with the Board Rules, an annual supplement to the Bylaws, which govern the Board's activities. Members are invited to attend any Board meeting and would be welcome to present any written proposal for MAW to implement. The next meeting is July 31st and the last scheduled meeting is October 30th.

Although there are often more items on the agenda that we have time to discuss, a proposal will draw a high priority. A top priority for the October meeting will be the assignment of the Nominating Committee, three MAW members who propose a slate for elections that are held at the December 4th monthly meeting. A proposed slate is presented at the November meeting. We definitely need your participation. No more than one Board member can be on the nominating committee, so if you have someone in mind who, from your perspective, would be a good representative, please indicate your interest to be on the Nominating Committee to any board member, we are all listed in this newsletter.

Now is the time to be thinking about the changes you'd like to see next year. If you'd like to be involved in any part of MAW operations, talk to me or to the Board member responsible for that activity and we will welcome your help.

Good hunting, Bruce

