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Pleurotus ostreatus
Oyster Mushroom

Growing almost exclusively on dead hardwoods in clusters, it has a fleshy texture, off-center stem, and a slight fragrance of anise. In the wild, the cap is usually white, but fall specimens are beige (possibly a different species). Each can attain sizes up to 10” across. It grows in any season if conditions are favorable, and is frequently seen on warm days during the winter months.

PHOTO BY JIM BARG
PRESIDENT’S MESSAGE

With a successful 2019 NEMF behind us, and with the NJMA Fungus Fest just in front of us, I have been considering why we spend so much time collecting, identifying, cataloging and even preserving mushroom specimens. Some of us do it for utilitarian purposes: food, fiber crafts, medicine. Others, though, don’t seem particularly interested in these things, yet they are out every weekend collecting. What purpose are they serving besides filling their own heads with obscure Latin names? Is there even a purpose to it?

I do think there is a very important purpose that our club members are fulfilling. I admit that I am often out in the woods just looking for a free (and delicious) meal. But I also enjoy looking at older mushroom literature, and even occasionally finding rare documentation as to what was being collected in a certain area at a certain time. This kind of documentation is important to modern researchers, people who are busy trying to understand changes in our environment. For example, was kind of fungal diversity existed in Trenton or Morristown 100 years ago? Likely not the same kind of diversity that exists now, but how do we really know without having actual documentation as to what was growing there in 1919? This kind of documentation is hard to find, and likely does not exist for many of the areas that we collect in.

I expect that our environment will continue to change rapidly over the next century, and I certainly hope that, in 100 years, our descendants will still be collecting mushrooms for the table and for science.

I expect that they, too, will have similar questions as I do: How much has changed over the last century? How can I measure the change?

That is where clubs like NJMA come in. Our weekly forays, fungal inventories, involvement in NEMF forays, our fungal herbarium, Mycoflora projects, etc. combine to document New Jersey fungi. This documentation is painting a picture of the current state of fungal diversity in our region and serves current and future generations of researchers in a myriad of ways. Very few organizations are collecting this type of information and, in our rapidly changing environment, every season counts! So even if you come to the forays with nothing on your mind but finding a few chanterelles, be proud that you are participating in the development of a large-scale fungal inventory that will help both us and future generations to understand our world a little better.

– Luke Smithson
President, New Jersey Mycological Association
njmaprez@gmail.com

EDITOR’S NOTES

On Fungus Fest 2019

It is just a short while to Fungus Fest, our annual mega-outreach event, Sunday September 22nd. While the emphasis has been on attracting the public to visit and learn about NJMA, we should not minimize the appeal for our members. The fest is a great time for all of us, newbies and old-timers alike, to discover more and more about the wide wild world of fungi.

Each year, there are new displays to learn from, new vendors to patronize, new books to buy, new species on display, new culinary treats to taste, and new friends to make. There will be opportunities to learn about the medicinal value of fungi as well as the dangers of poisonous species. There will be displays and demonstrations on how to grow mushrooms, how to use them to dye yarns and fabrics, and hands-on papermaking. There will be short field walks and talks. There is even a mushroom-themed play area for the kids. You will be able to bring in that mushroom that was growing in your yard to have the experts identify it.

For all of these things to happen, there must be members available to carry them out. From help with setup on Saturday to tear-down on Sunday, many hands are needed. You do not need to be mushroom savvy to help out or have to be there all day. There is need for relieving others so they can get a short break. So contact the Fungus Fest chair, Liz Broderick (liz.broderick2@gmail.com) to see what you can do to help.

And, please, take lots of pictures and send them (along with captions and comments) to njmaeditor@gmail.com.

Thanks. See you there!

Correction: The recipe for Chicken Mushroom in NJMA News 49-4 was reprinted from the CVMS (Connecticut Valley Mycological Society) newsletter Spore Print. Thanks to Agnes Sieger, Puget Sound’s editor, for pointing this out.

– Jim Richards
from a non-member, Rachel Burt (Director HFPL):
Eating more mushrooms may lower your risk of cognitive decline

https://tinyurl.com/y6zze66l

from the Editor:
Mushrooms: The Best Ways to Pick Them, Cook Them, and Eat Them

https://tinyurl.com/y6rab54q

from Sue McClary:
What a Giant Fungus Can Teach Us About Cancer:

https://tinyurl.com/y28gu3ty

from Sue McClary:
Using fungi as biodegradeable insulation:

https://tinyurl.com/y59f68sz

from the Editor:
Growing Israel’s Desert Truffles as Crops:

https://tinyurl.com/yxoao3n5

from Sue McClary:
The superpowers of marine fungi:

https://tinyurl.com/yyjzvutp

from the Editor:
Could Your Clothes Be Made Out of Leftover Bread One Day?

https://tinyurl.com/y3erappy

(continues on page 11)

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Views expressed herein do not imply New Jersey Mycological Association endorsement.
overviewing about 20 mushrooms, they handed out a brand new macro feature key (spores and microscope not required) to the Milk Mushrooms of the Northeast and North Central United States. Using flash cards with a picture of a mushroom on one side and a few key field observations on the other (color of latex, initially and later, habitat, etc.), we practiced using the key.

For any novices in attendance, they gained practical experience using keys that can help them identify some edibles, even if they did not yet appreciate the value of their handout.

The new key made my attendance well worth it for me. As for my non-mycophilic spouse, some of the activities he enjoyed were the Beginners workshop, the lecture on equipment for photographing mushrooms, and the lengthy lecture on mushroom DNA by Rod Tuloss. He already wants to go to the next regional gathering in Quebec next year.

I have since compared the new Lactarius key against other available keys and a list of mushrooms the club has found in recent years. The new key is the most extensive, covering 88 species; 37 the club has collected in NJ and 51 not yet seen. The key does not cover nine species the club has recorded as seen in NJ. I look forward to trying the key out at the next foray.

Editor’s note: I received this email from Alex Adams:

John’s talk was very informative, including ways to save money and still get good pics of tiny stuff. I don’t know whether we'd need his ok to put this info into the newsletter but i believe it would be helpful to many budding photogs who have no idea about these techniques. Thanks.

Editor’s note: I contacted John and received this reply:

Several attendees at my NEMF presentation on photographing fungi through microscopes have asked me to make a copy of that presentation available. I have therefore placed a copy of it in my Dropbox and will be happy to send a link to that file on request to my email address, jwd7too@comcast.net.
It was another hot day on July 28, 2019 at Stephens State Park, but the woods were moist and the Musconetcong River cooled the air as it rushed by. The woods were fairly moist, and our efforts produced many interesting collections, including a good mix of gilled mushrooms, Boletes, and Ascomycetes (cup fungi and Pyrenomycete allies). Over 100 species were identified. One was new to the list, *Scutellinia erinaceus*. A second was new to the list at the Meadowood foray, and found again this week at Stephens, *Inocybe pallidipes*. We had more mycorrhizal fungi this week than we had been seeing in early summer and spring, including several Amanita (7), Cortinarius (3), Lactarius (6), Russula (8), and a variety of Boletes (11).

I wanted to draw your attention to the *Russula rubellipes*, which you would very likely have missed because it was lost in a crowd of red Russulas sitting nameless on the table. We have only recorded it three times. This specimen caught my eye for two reasons: 1) its unusually dark cream/ochre gills suggested it would have a relatively dark spore print, which greatly narrows the search for a name, and 2) its nearly completely red stipe is also unusual (a red flush on the usual white Russula stipe is not unusual, but completely red is quite unusual). After getting the expected relatively dark spore deposit overnight, I keyed this out using the Kibby-Fatto Russula key. It fit the description of *Russula rubellipes* very well. This taxon was first named for science by Raymond F. Fatto, co-author of the aforementioned Russula key and a long-time member of NJMA. This find made my day. I have posted my mug shot of the specimen on the NJMA Facebook page. If you collected it, please let me know, so I can make sure to give you credit as collector on the herbarium record. Thanks for the many good collections and help with sorting and identifying. I was especially pleased to see so many tags written by people other than the usual suspects. Thanks also to Alex for the watermelon.

Please let me know if you have corrections or additions to the list. If you would like a copy of the complete list, just ask johnab190007@gmail.com, or call 609-651-2728.

Editor's note: After receiving John's report (above), I asked him for a photo of *R. rubellipes*. His reply:

I have attached my two mug-shot photos of the *Russula rubellipes* – one of the cap and stem, plus one of the gills and stem. Unfortunately, the cap photo did not capture the entire cap; a substantial piece is cut off. So even as a mugshot, it is not very good. Still, the photos show key features that were helpful in coming up with the name. As soon as we get home from a foray, I take similar mug shots of selected unidentified Russulas, write a brief description of the “fresh” material, and set the specimen on a microscope slide to get a spore deposit. Over the next day or two, I use the photos and written description plus microscopic data on the spores and the Kibby-Fatto Russula key, to try to make a determination. On average, I come up with one name that I am pretty sure is correct for every five Russulas I process in this way. Anyway, feel free to use these photos, but know that my feelings will not be hurt if you decide not to use them.
FORAY REPORT
THOMPSON PARK AND HELMETTA FORAY - AUGUST 18TH
by John Burghardt, NJMA Recorder

No matter the conditions – rain or shine, hot or cold, dry or moist – we arrive at each foray expecting to have a pleasant walk in the woods, meet some nice people, and maybe find some interesting fungi. Last Sunday was a hot day and there had been no rain for a while. I decided to stay at Thompson Park, and head down the hill to the wet areas near the stream in the ravine, confident I would find a few mushrooms there. But we never made it that far. Our group kept finding interesting fungi along the way in what looked from a distance like parched duff. Though we never made it to the stream, we returned to the sorting tables with many interesting collections.

The group found about 100 species in all. There were many mycorrhizal fungi: Amanitas, Boletes, Corti-narius, Lactarius, and Russulas accounted for nearly half of our collections. Collectors in our area and all over the nearby Northeast of the US have been noting that these fungi have not been fruiting as expected this year. So I was surprised to see so many in seemingly dry conditions.

I like to include data about our past collections of the various species identified in order to give a sense of which finds are common, and which are unusual. There were three species new to the NJMA list this week. One of these was an Ascomycete, Chromelosporium fulvum, collected and identified by Maricel Patino. The second was a Myxomycete (or Slime Mold), Dictydiaethalium plumbeum, collected and identified by Sue McClary. (I dare you to say that Latin name quickly six times without strangling yourself!) Both are taxa that you could easily miss unless you were looking carefully at downed wood. The third species identified for the first time is probably Russula subdepallens. It was, collected and identified by Chaiyut. I took the collection home to examine the spores, since red Russula are notoriously difficult to identify, and this species is not on the NJMA cumulative list. The spores were narrower, more sub-elliptical than described by Tim Baroni (Mushrooms of the Northeastern United States and Canada 2017) or Kibby & Fatto (Keys to the Species of Russula in Northeastern North America 1990). Furthermore, different descriptions of this taxon that I was able to find online diverged in some seemingly important details. I am not confident we have the correct ID, but it is a great find.

Thanks for all the good company, great collections and good questions. The foray was an excellent way to spend a hot August day.

For a complete list of collected fungi, contact me at johnab190007@gmail.com.

MEDICINAL MUSHROOMS AND THE SCIENTIFIC EVIDENCE
reprinted from Fungi Kingdom News, the newsletter of the Pioneer Valley Mycological Society, Summer 2019. (Hyperlinks converted to TinyURLs for simplicity.)

Dianna Smith has been hard at work the last couple of years, reading the scientific literature to assess the efficacy of using various fungi as medicinal treatments for a variety of conditions. While using a whole variety of fungi and fungal supplements as medicine has a long traditional history and has seen a more recent surge in interest, what is the scientific evidence that they actually work? Beyond the very effective and wide use of fungal-derived antibiotics, are there other promising avenues of treatment using fungi that are undergoing serious clinical trials? Several articles on these topics are now available on NAMA’s website, including three by Dianna (with one more coming in the near future). Follow the links below to access these carefully researched works:

Medicinal Fungi: Introduction
by Dianna Smith
https://tinyurl.com/yvvos4qj

Scientific Research & Medicinal Fungi
by Dianna Smith
https://tinyurl.com/yyqwfe76

LING ZHI. Ganoderma ling zhi (Curtis) P. Karst (1881). the Chinese Mushroom of Immortality
by Dianna Smith
https://tinyurl.com/y38uk43y

Three Popular Medicinal Mushroom Supplements:
A Review of Human Clinical Trials
by Megan Frost, M.Ed., MLS
https://tinyurl.com/y32nfqxx

SCIENTISTS CREATE GLOBAL MAP REVEALING THE VAST UNDERGROUND NETWORK THAT CONNECTS TREES, FUNGI AND BACTERIA
by Aristos Georgiou, Newsweek, May 16, 2019 via Spore Prints, newsletter of the Puget Sound Mycological Society, May 2019

In recent years, scientists have begun to understand that trees rely on complex underground networks of fungi and microbes which interact symbiotically with the roots, facilitating the transfer of nutrients.

Now, an international team of scientists has created the first global map of these vast subterranean systems, known as “mycorrhizal fungi networks” or, colloquially, the “wood wide web,” according to a study published in the journal Nature.

(continues on page 12)
A LOOK AT (SOME OF) OUR FUNGUS FEST VENDORS

Over the summer, editor Jim Richards contacted all of the vendors who will be displaying at Fungus Fest 2019. The following profiles and photos are from those who replied:

**MAINLY MUSHROOMS**  
(Returning Fungus Fest vendor)

Chris Darrah will be selling a wide array of fresh and dried mushrooms – local and imported. Italian truffles, Washington lobsters, and California candy caps are only a few of the tasty fungi that may be available.

**LIFE SCIENCE STUDIOS**  
(New Fungus Fest vendor)

Julie Johnson is a scientific illustrator, amateur mycologist, and founder of Life Science Studios. Her love for beautiful fungi and the natural world shows through her detailed watercolor paintings of different mushroom species and the environments in which they grow. The Life Science Studios booth will be offering fine art prints and greeting cards of original mushroom-themed watercolors, products such as tote bags and coffee mugs featuring Julie’s mushroom art, as well as fun clothing for adults and kids. Stop by and say hello!

---

**MUSHROOM DANCE**

Dancing on the mushrooms  
Jumping on their hats  
We are the faeries of the night  
You can’t see us if there’s light  
Can you see us as you’re passing by?  
We like to see our shadows when we dance  
But only by candlelight!  
We are the faeries of the night  
And before daylight comes ... we’re gone!  
And though you’ll never in this lifetime see us twice  
You’ll always remember us with an enchanted sigh  
Dancing on the mushrooms at night  
By candlelight!  

– Daphne

(reprinted from *Spore Prints*, the newsletter of the Puget Sound Mycological Society, May 2019)
Antipasto

**Chanterelle Focaccia with Lemon Oyster:** *Cantharellus lateritius, Pleurotus cinrinopileatus*, flour, water, sourdough culture, olive oil, salt

**Assorted Cheeses:** Pecorino with *Tuber borchii* (Sheep), Nettle Jack (Cow), Danish Blue (Cow), Chevre with *Morchella americana* (goat)

**Za‘atar Oysters:** Cultivated *Pleurotus ostreatus*, canola oil, za‘atar seasoning (herbs, sesame seeds, sumac, salt)

**Portobello with Ramps:** Cultivated *Agaricus bisporus*, ramps, grapeseed oil, salt

**Roasted White mushrooms:** Cultivated *Agaricus bisporus*, canola oil, white wine vinegar, rosemary, thyme, mugwort, bayberry, salt, sugar

**Mushroom Shooters:** Cultivated *Agaricus bisporus*, canola oil, red wine vinegar, garlic, ramp salt, thyme, basil, red pepper flakes, water, ham, fresh mozzarella

Tasting Plate

**Chanterelle and Corn Salad with Wisteria:** *Chanterellus lateritius*, sweet corn, zucchini, red bell peppers, wisteria vinegar, canola oil, salt, pepper, herbs

**Classic Duxelle:** Cultivated *Agaricus bisporus*, canola oil, white wine, ramp salt, filo dough, sour cream, chive

**Black Trumpet Pate:** *Craterellus sp., Agaricus bisporus*, butter, onion, sherry, tomato paste, mugwort, thyme, lemon juice, soy sauce, salt, pepper, cayenne

**Candy Cap Shooter:** *Lactarius fragilis*, milk, brown sugar, corn starch, vanilla, eggs, butter, vanilla cake, whipped cream

Snack

**Popcorn with Truffle Salt:** Popcorn, canola oil, salt, *Tuber aestivuum*, nutritional yeast, flavoring
<table>
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<tr>
<th>Date</th>
<th>Event Description</th>
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<tr>
<td><strong>Sunday, September 8</strong>&lt;br&gt;10:00am</td>
<td><strong>GRETE TURCHICK FORAY AND PICNIC</strong>&lt;br&gt;Stokes State Forest, Kittle Field Picnic Area, Branchville, NJ&lt;br&gt;The foray is open to the public, the potluck picnic which follows is for <strong>members only</strong>. Bring a food dish to share, clearly labeled with your ingredients, and your own picnic gear (plates, napkins, utensils, etc.)</td>
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<td><strong>Sunday, September 15</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: CHESTNUT BRANCH PARK</strong>&lt;br&gt;Mantua, NJ <em>(new foray location)</em></td>
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<td><strong>Sunday, September 22</strong>&lt;br&gt;10:30am</td>
<td><strong>FUNGUS FEST</strong>&lt;br&gt;Frelinghuysen Arboretum, Morristown, NJ</td>
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<td><strong>Saturday, September 28</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: WAWAYANDA STATE PARK</strong>&lt;br&gt;Hewitt (West Milford), NJ <em>(Joint foray with the New York Mycological Society)</em></td>
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<td><strong>Sunday, October 6</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: WELLS MILLS COUNTY PARK</strong>&lt;br&gt;Waretown, NJ</td>
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<td><strong>Sunday, October 13</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: CATTUS ISLAND COUNTY PARK</strong>&lt;br&gt;Toms River, NJ  Mushroom cultivation workshop to follow.&lt;br&gt;<em>(Carpool: <a href="https://www.groupcarpool.com/t/xa587k">https://www.groupcarpool.com/t/xa587k</a>) Password: Mycena-2019</em></td>
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<td><strong>Sunday, October 20</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: ESTELL MANOR PARK</strong>&lt;br&gt;Estell Manor, NJ&lt;br&gt;<em>(Carpool: <a href="https://www.groupcarpool.com/t/p5hvoa">https://www.groupcarpool.com/t/p5hvoa</a>) Password: Mycena-2019</em></td>
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<td><strong>Saturday, October 26</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: FOREST RESOURCE EDUCATION CENTER</strong>&lt;br&gt;Jackson, NJ&lt;br&gt;<em>(Carpool: <a href="https://www.groupcarpool.com/t/Ov26d8">https://www.groupcarpool.com/t/Ov26d8</a>) Password: Mycena-2019</em></td>
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<td><strong>Sunday, November 3</strong>&lt;br&gt;10:00am</td>
<td><strong>FORAY: BELLEPLAIN STATE PARK</strong>&lt;br&gt;Woodbine, NJ&lt;br&gt;<em>(Carpool: <a href="https://www.groupcarpool.com/t/3wbf8t">https://www.groupcarpool.com/t/3wbf8t</a>) Password: Mycena-2019</em></td>
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<td><strong>Sunday, November 10</strong>&lt;br&gt;12:00pm</td>
<td><strong>EDUCATION WORKSHOP:</strong> <strong>MYCORRHIZAE, MYCOHETEROTROPHS AND MYCANGIA</strong>&lt;br&gt;&lt;i&gt;A program by Dorothy Smullen&lt;/i&gt;&lt;br&gt;Three “M” words that have a lot of fungal connections. Fungi are interesting partners! They connect with over 80% of the vascular plant world. Some green plants even take food from fungi. The last “M” word connects with insects. To find out about these connections. <strong>Fee $5.00.</strong> Register online at <a href="http://www.njmyco.org/education.html">www.njmyco.org/education.html</a>. Class size is limited to 25 participants.</td>
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<td><strong>1:30pm</strong></td>
<td><strong>NJMA ANNUAL MEETING/ELECTION OF OFFICERS</strong>&lt;br&gt;Followed by a lecture by <strong>Sigrid Jakob “Not Just Another JAR: An Introduction to Russulas”</strong>&lt;br&gt;Frelinghuysen Arboretum, Morristown, NJ&lt;br&gt;<em>(see articles on page 3 and page 4)</em></td>
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<tr>
<td><strong>11:59pm</strong></td>
<td><strong>NJMA PHOTO CONTEST 2019</strong> <strong>ENTRY DEADLINE</strong>&lt;br&gt;<em>(see full instructions and entry form beginning on page 14)</em></td>
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As its specific epithet *arachnophila* rather euphemistically suggests, *Torubiella arachnophila var. leiopus* is a ‘lover’ (i.e., parasite) of spiders. Its anamorph (asexual form), formerly called *Gibellula leiopus*, is shown in the photograph below.

The generic name *Torubiella* honors José Torrubia, a Franciscan monk, Catholic historian, and naturalist, who was born in Granada, Spain in 1698 and died in Rome in 1761. In 1719, five years after becoming a Franciscan, Torrubia was sent as a missionary to the Philippines, where “his gifts as a careful observer and writer soon brought him posts of distinction both within and outside the order, as well as the jealousy of some friars.” Recalled to Spain in 1733 to recruit more friars to serve in the Phillipines, he succeeded in enlisting 72 such. He himself, however, did not return to those islands, but instead lived in Mexico while charges made against him by rivals in Manila were investigated. Meanwhile, in 1738 he was appointed as chronicler of the Franciscan order in Asia.

Ultimately, the charges against Torrubia were dismissed, not just by the Franciscan order, but by the Holy See and the king of Spain, after which, in 1752, Torrubia was elevated to become chronicler of the Franciscan order as a whole. Continuing work on a *Chrónica* begun in 1682 by Damián Carnejo, eight volumes of which had previously appeared, Torrubia added a ninth volume, published in 1756 and “considered by far the best” due to “the abundant documentation” and critical commentary that Torrubia provided. A projected tenth volume was left unpublished at his death five years later, by which time he had become commissary general of the Franciscan order at the Holy See. In the interim he had also produced an important work in Italian, *I Moscoviti nella California o sia dimostrazione della verità del passo all’America Settentriionale nuovamente scoperto dei Russi*.

Apart from such historical works, Torrubia’s significance for mycology derives from a book he wrote in Spanish that was published in Madrid in 1754, entitled *Aparato para la historia natural española*. In it, he described some of his observations in Spain’s colonies in the Caribbean, including a drawing of ‘vegetating wasps,’ about which he commented (in English translation): “Being at a gentleman’s country-seat, two leagues from the city of Havana in New Spain, on the 10th of February 1749, I found some dead wasps in the fields (… they were entire, the bodies, wings and all, and indeed were perfect skeletons). From the belly of every wasp a plant germinated, which grows about five spans high.”

That preposterous description was quoted by George Edwards in his verbosely titled 1758 book *Gleanings of natural history, exhibiting figures of quadrupeds, birds, insects, &c. Most of which have not, till now, been either figured or described. With descriptions of seventy different subjects, designed, engraved, and coloured after nature, of fifty copper-plate prints.* Edwards included his own colored engraving of Torrubia’s drawing (reproduced here), but remarked that though Torrubia was “a man of letters [who had] treated his subject extremely well”, he nonetheless had made “some vulgar errors.” In particular, Edwards thought the growths emerging from the wasps in Torrubia’s drawing were not plants, but resembled fungal protrusions from the heads of...
some insects (which he took to be cicada nymphs) that had been found buried in the earth in Dominica. He illustrated one of those insects in another plate, also reproduced here, and thought that it was the moisture of the earth that had caused the fungal growths to emerge, that the growths dropped off before the cicadas matured, and that Torrubia had “mistaken… the protuberant parts from the fungus for dried leaves.” For, he said, “the Spaniards have not yet attained to any perfection in natural history.”

Today, Torrubia’s drawing is recognized as one of the first depictions of a species of *Cordyceps*, despite its inaccuracy and Torrubia’s fanciful description of what he thought he had seen. It is fitting, therefore, that an entomopathogenic fungus was later named after him.

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**BYTES, BITS, & BITES** (continued from page 3)

*from Sue McClary:*
Bringing mushroom cultivation to people of color:
[https://tinyurl.com/yxewxtpl](https://tinyurl.com/yxewxtpl)

*from the Editor:*
Omajowa Massive mushrooms spring from tall termite mounds in Namibia:
[https://tinyurl.com/y5wrg9lb](https://tinyurl.com/y5wrg9lb)

*from Sue McClary:*
School News: Children sharing mushroom knowledge in Chinese:
[https://tinyurl.com/yxjd267a](https://tinyurl.com/yxjd267a)

*from Sue McClary:*
Oakland becomes second US city to decriminalize magic mushrooms:
[https://tinyurl.com/y4ao4b4g](https://tinyurl.com/y4ao4b4g)

*from Sue McClary:*
Canadian fossil pushes back the origin of fungi:
[https://tinyurl.com/y4b3p24o](https://tinyurl.com/y4b3p24o)

*from Sue McClary:*
Mushroom color lightness linked to the thermal environment:
[https://tinyurl.com/y6caxfmo](https://tinyurl.com/y6caxfmo)

*from the Editor:*
Before you say anything, I do know that fungi are not plants, but we do occasionally encounter some non-fungi when collecting:
[https://tinyurl.com/yyerf8lf](https://tinyurl.com/yyerf8lf)

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**SCIENTISTS BREW BEER WITH ANCIENT YEAST**
*Peninsula Daily News, May 23, 2019, via Spore Prints, the newsletter of the Puget Sound Mycological Society, May 2019*

Israeli researchers raised a glass Wednesday to celebrate a long-brewing project to making beer and mead using yeast extracted from ancient clay vessels.

Archaeologists and microbiologists from the Israel Antiquities Authority and four Israeli universities teamed up to study yeast colonies found in microscopic pores in pottery fragments. The shards were found at Egyptian, Philistine, and Judean archaeological sites in Israel spanning from 3000 to 4000 BC.

Genome sequencing of the yeast colonies extracted from the pots showed that the ancient strain of yeast was different from the yeast used in beer-making today, but similar to those still used to make traditional Zimbabwean beer and Ethiopian *tej*, a type of honey wine.

The researchers said their next aim is to pair the resurrected yeasts with ancient beer recipes to better reproduce drinks from antiquity.

Other researchers of ancient beers, such as University of Pennsylvania archaeologist Patrick McGovern, have concocted drinks based on ancient recipes and residue analysis of ceramics. But the Israeli scientists say this is the first time fermented drinks have been made from revived ancient yeasts.

The scientists are touting the brews made from “resurrected” yeasts as an important step in experimental archaeology.
The culinary world owes a lot to whoever first discovered the magic of mushrooms. Fungi— from everyday cremini to decadent morels—are an undeniable gift from nature. A vegetarian’s delight, the fleshy, umami-packed morsels offer an unparalleled, meaty addition to everything from soup and sauces to pasta and pastries.

But the best thing about mushrooms? They occur naturally all over the world. Unlike a lot of seasonal or state-side veggies, like squash or com, the versatile—and sustainable—mushroom varies from country to country, making it a cultural Easter egg that varies based on dish and destination.

You don’t have to stick to truffles or morels, either. What’s great about mushrooms is that the everyday cremini or enoki mushroom can be just as decadent when prepared properly. An enoki-packed bowl of ramen in Tokyo can be just as satisfying as a fresh truffle butter pasta in Piedmont. Whatever your culinary preference may be, here’s where to travel to satisfy your inner fungus fiend.

**Brussels, Belgium**

Europe is home to a wide variety of decadent and everyday mushrooms, but to get a taste of the entire European fungi spectrum, head to Cafe des Spores. This decidedly cool, but surprisingly affordable bistrot nestled in the trendy Saint Gilles neighborhood serves mushrooms in every single dish—including dessert. While the menu changes seasonally, expect everything from porcini and cheese croquettes to mussels with Jerusalem artichokes and black chanterelles.

**Rotterdam, Netherlands**

While mushrooms are, for the most part, naturally occurring, two friends from Rotterdam took fungus production into their own hands by collecting coffee grinds from cafes across the city and growing no-waste oyster mushrooms. Known as Rotterzwam, the innovative mushroom producers now supply many local restaurants and continue to operate in a sustainable manner, fostering a no-waste ecosystem across the city.

The West Coast of Canada has some of the most vast, biodiverse wilderness in all of North America—making it a great spot to forage for fungi. Just outside of Vancouver, there are countless forests with plenty of everything from chanterelles to lobster mushrooms. Many fishing resorts, like Nimmo Bay Wilderness Resort in British Columbia’s Great Bear Rainforest, offer foraging classes from experts—and actually incorporate the wild mushrooms guests find into their meals.

**Kyoto, Japan**

Home to the traditional Japanese Kaiseki set meal, Kyoto has some of the most Michelin-three-starred restaurants in the world. It goes without saying, you’ll have no problem finding some of the best sashimi and tofu of your life. But Kyoto also has a handle on Sansai (Japanese mountain vegetables) including mushrooms unique to Japan such as matsutake, nameko, and maitake. If you’re in the mood to be spoiled, head to Michelin-starred Kichisen for a multi-course Kaiseki dinner, complete with fresh foraged Sansai, expertly prepared and presented. Be sure to make a reservation in advance.

**Piedmont, Italy**

The truffle is one of the most sought-after mushrooms in the world—and for good reason. Synonymous with decadence and fine dining, truffles are seasonally harvested in autumn until December and are otherwise considerably hard to come by. While travelers opt for guided foraging trips throughout Italy, The International Alba Truffle Fair—just outside of Piedmont—draws local restaurateurs, renowned chefs, and tour-ists alike to appreciate and purchase the best truffles Italy has to offer. The fair runs from early October to late November.

**Copenhagen, Denmark**

Copenhagen is home to the famous Noma. A bucket list item for many, Noma strives for culinary perfection—from taste and atmosphere to sustainability. Their seasonal ingredients are locally foraged, meaning mushrooms regularly act as the star of the show. Be sure to book far in advance, the two-Michelin-star restaurant by chef Rene Redzepi is not easy to get into—but it’s worth planning for.

**Kennett Square, Pennsylvania**

Don’t have the time for an international trip at the moment? Just head to Kennett Square, Pennsylvania, which boasts the largest—and tastiest—selection of mushrooms in the U.S. The Woodlands at Phillips Mushroom Farms (just outside of Kennett Square) offers cooking demonstrations with local chefs, a selection of handpicked mushroom varieties (think everything from cremini and shitake to royal trumpet and lion’s mane), as well as a quirky mushroom exhibit—which shows the mushroom-growing process, from start to finish.

by Kaitlyn McInnis
https://www.travelandleisure.com/, April 20, 2019. reprinted from Spore Prints, the newsletter of the Puget Sound Mycological Society. May 2019
For their paper, the researchers created a computer algorithm to analyze a database belonging to the Global Forest Initiative, which has information on 1.2 million forest trees, representing 28,000 species in over 70 countries, the BBC reported.

To produce models of these fungal networks around the world, the algorithm took into account local environmental factors, as well as data regarding the different microbes that are most closely associated with each tree species.

For example, the roots of oak and pine trees are often surrounded by ectomycorrhizal (EM) fungi, Science Magazine reported. Meanwhile, those of maple and cedar trees tend to found alongside arbuscular mycorrhizae (AM) fungi – which can penetrate the roots. Still others – mostly in the legume tree family – are often associated with “nitrogen fixing” bacteria, which take the gas from the air and turn it into food.

The team’s analysis showed that local climate has a big role to play in the composition of these networks. In regions characterized by a cool temperate climate and boreal forests, EM fungi are more common. In the warmer tropics on the other hand, AM fungi are found in higher proportions. Finally, nitrogen-fixing bacteria tend to be clustered in very hot dry, areas.

“It’s the first time that we’ve been able to understand the world beneath our feet, but at a global scale,” Thomas Crowther, an author of the study from ETH Zurich, told the BBC. “Just like an MRI scan of the brain helps us to understand how the brain works, this global map of the fungi beneath the soil helps us to understand how global ecosystems work.”

“What we find is that certain types of microorganisms live in certain parts of the world, and by understanding that we can figure out how to restore different types of ecosystems and also how the climate is changing,” he said.

The authors say that the latest findings highlight not only the significant role that mycorrhizal networks play in mitigating climate change, but also how vulnerable they are to its effects.

According to the study, AM fungi accelerate the recycling of carbon into the atmosphere, whereas EM fungi help to remove the greenhouse gas and keep it locked away in the ground. The problem is that EM fungi are at greater risk from climate change, thus we could see significant declines in the future – which could increase the “feedback loop of warming temperatures and carbon emissions.”

“The types of fungi that support huge carbon stores in the soil are being lost and are being replaced by the ones that spew out carbon in to the atmosphere,” Crowther told the BBC.

I am totally engulfed in both fermentation and mushrooms. However, the two usually do not directly cross paths. Fermentation is a technique for enhancing flavors and making nutrients more bioavailable, but historically, it is a means of food preservation. There are loads of fungi that take place in fermenting – in things such as beer, bread, cheese, and even soy sauce. While all of these ferments involve some kind of fungi, not many directly involve mushrooms. I have searched for folk recipes and have asked around about fermenting-mushrooms, but have found little on this subject. Mostly I’ve stumbled through some vinegar-based pickles and a little on lacto fermenting, which I plan to experiment with more this year.

What did spark my interest enough to share is “The Noma Guide to Fermentation.” This book has some in-depth instructions for making koji (fungi cultured grains) and some shoyu-like sauces using mushrooms. In particular, I was intrigued by a Dryad’s Saddle Shoyu. Here is the recipe in time for spring and one of our first wild edible mushrooms.

**Dryad’s Saddle Shoyu**

- 2 kg fresh *Cerioporus squamosus* (Polyporus)
- 400 grams Pearl Barley Koji (rice koji works as well)
- 600 grams water
- 150 grams non-iodized salt

Clean mushrooms, wiping off any debris. Chop into pieces that will fit easily into food processor. Pulse into a coarse meal. If desired, koji may also be broken up in food processor. Thoroughly mix ingredients and place in a non-reactive fermentation vessel. Place plastic wrap directly on the surface and weight down to ensure coverage. Ferment for 3-4 weeks at room temperature stirring with a clean spoon once a week. To harvest, strain liquid using cider press or by squeezing pulp through a clean towel. Strain again through a cheesecloth and refrigerate or freeze for longer storage.

This shoyu can be used for roasting and/or sauteing meats or vegetables, or simply as an earthy base for stocks. Since this book came out in the fall, I haven't had the chance to make this one, but have altered the recipe using previously-frozen matsutake, *Tricholoma magnivelare*. My variation is overpoweringly matsutake with intensely concentrated flavor. Not quite finished at the time of writing this, I’m looking forward to cooking with this. A little will go a long way with this one.
If you haven't already started doing so, get your photos together now and don't miss the deadline. Winners will receive valuable awards (see below), plus you'll receive heaps of praise from your fellow NJMA members. Also, your winning photos will become a permanent part of the NJMA Photo Library.

If you need technical assistance to prepare your digital-format photos for entry, contact Jim Barg at jimbarg@bssmedia.com or call him at 908-227-0872. You can send in your entries by email, Dropbox, or Google Drive with one important restriction: You MUST include a scanned or clearly photographed copy of your completed entry form at the same time as you send in your entries.

You can submit photos taken in any year or any location. You are not limited to photos taken only this year or only in New Jersey. Also note that we will only accept digital files of photos from now on. If you have a slide or print, you must have it scanned before submitting it.

THE JUDGES FOR THIS YEAR’S PHOTO CONTEST WILL BE ANNOUNCED SOON ON OUR WEBSITE.

ENTRY CATEGORIES AND DIVISIONS

For all entries, the main considerations in judging will be composition, clarity, lighting, and all the other criteria that make for a good picture, whether using a camera or a scanner. Entries will be accepted in three categories in two divisions (Novice or Advanced). There will be a total of six first-place awards:

TECHNICAL (Divisions: Novice and Advanced)

This category is for photos that can be used to aid in the identification of fungi, as if they were going to be used in a field guide. Emphasis will be placed on portrayal of key morphological characteristics. The subjects may be photographed in situ or removed to a more photographically appropriate setting. Photos through the microscope are included in this category.

PICTORIAL (Divisions: Novice and Advanced)

The entries in this category should be more concerned with pictorial beauty and aesthetics. It is expected that most entries will be taken in situ to illustrate the fungus and its surroundings. Judging criteria include consideration of both technical (focus, depth of field, exposure, lighting, color, absence of distracting elements) and artistic (composition, color, background, lighting) aspects.

JUDGES’ OPTION (Divisions: Novice and Advanced)

The entries in this category should be mushroom-themed or mushroom-club-related and can depict anything not covered in the Pictorial or Technical Categories. For example, they may depict either people working (or playing) with mushrooms or the results of this work or play. You can use this category for photos of club or regional events, forays, and gatherings (NJMA, NEMF, NAMA, etc.) or use it for creatively-manipulated photos involving mushrooms. It may also show people cooking mushrooms (or the dishes prepared). The use of a mushroom theme as part of a craft project and the finished objects are also appropriate entries for this category...basically, anything that is not strictly a mushroom photograph. (If you use digital manipulation, we will not need to see your originals, but it is imperative that all components of your image be your original work.) Creative use of text in the image is acceptable.

Here is a summary of the categories and divisions in which prizes will be awarded (note the **boldface category code**, for use when submitting):

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<tr>
<th>NOVICE DIVISION</th>
<th>ADVANCED DIVISION</th>
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<td><strong>Technical</strong></td>
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<tr>
<td><strong>Pictorial</strong></td>
<td><strong>Pictorial</strong></td>
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<tr>
<td><strong>Judges’ Option</strong></td>
<td><strong>Judges’ Option</strong></td>
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AWARDS

All entries will be shown and winners will be announced at our annual Holiday Party meeting in early December.

**FIRST PLACE** in each division of each category (six prizes total): $25.00 NJMA gift certificate

**SECOND PLACE** and **HONORABLE MENTION** will be given in each division of each category.

**BEST IN SHOW** (chosen from the six First Place winners): $50.00 NJMA gift certificate

As always, winners’ photos will become part of the permanent photo collection of NJMA. We also reserve the right to publish any of your entries (winners or not) on our website, in our newsletter and other NJMA publications with due credit given to you, the photographer.

SEE NEXT PAGE FOR CONTEST RULES/GUIDELINES AND HOW TO ENTER
1. This contest is open to current NJMA members, officers, and photo contest committee members only. Images that have previously won (including Honorable Mention) are not eligible. You are permitted to enter photos from any year – you are not limited to photos taken only during the past year.

2. You are only permitted to enter into one Division or the other (Novice or Advanced). Novice contestants may not enter the Advanced Division (unless they have won a First Place award in previous years – see Rule #3), and Advanced contestants may not enter the Novice division. You must check the box on the top of the entry form indicating your entry into either the Novice or Advanced Division. If the Photo Contest Committee determines that you have entered into the improper division, we will reassign you to compete in the proper division.

3. Which Division to enter: The following types of contestants may only enter the Advanced Division and are not permitted to enter the Novice Division: (a) Professional photographers or those who earn any portion of their livelihood with their photographs, and (b) Anyone who has won a First Place award in the Novice Division in any previous year.

4. All entries must be made by electronic file (.jpg or .tif) in their original resolution. Please do not send ‘thumbnails’ or reduced-size images. Keep them big. If you have a slide or print that you wish to enter into the contest, you must have it scanned and converted to a digital .jpg or .tif file. (Most copy centers have good quality scanning services and can provide you with files in either of these formats. We recommend scanning at 300 dpi resolution at an image size of roughly 8”x10”) All judging will be done on computer monitors. If you’re not sure how to prepare your digital files for submission, please call Jim Barg at 908-227-0872 for technical assistance.

5. LABEL EACH ENTRY! Name each file with your initials, followed by the category code (see previous page), followed by the number of your entry. For example, if your name is John Doe, and you are entering into the Technical category, and this is your first entry, the entry code on your first slide should read JD-T-1.jpg or JD-T-1.tif (don’t forget the .jpg or .tif suffix!). Record this same number on the entry form under “Entry Code”.

6. Fill out the entry form below, recording your entries using this code and also, if they are mushroom photos, providing your best attempt at determining the scientific name of the mushroom(s) included in the photo. (Improper ID is not a cause for disqualification, but we are a mushroom club, and we’d really like it when you try to attempt a proper ID!) We suggest that you make a photocopy of the entry form and keep it for future reference.

7. Digital image files should be submitted by email or on optical media such as CD-R or DVD-R or PC/Mac flash storage devices (NOT the cards which are used in your digital camera). You can also use Dropbox or Google Drive, but you must email us to tell us that you’ve done so. At your request, we can return flash storage devices if you provide us a stamped, self-addressed envelope (SASE) along with your entry. Remember: you must include a scanned (or clearly photographed) copy of the completed entry form. If you choose to email your entries, we cannot take responsibility for lost, damaged, or undelivered files. If you send your entries by email or Dropbox or Google Drive, we will send a confirmation when we get them.

8. For photos entered in the Pictorial and Technical categories only: If you do any digital manipulation to your photo, you MUST provide us with the original file or print to allow us to see the manipulation you did. Cropping, color correction, contrast and brightness adjustment, dust, dirt, or scratch removal, grain reduction, and sharpening are acceptable forms of digital manipulation in these two categories. Digitally-manipulated photos will not be considered for judging if we do not receive a copy of your unmodified original (It is acceptable to watermark this copy if you wish). If you intentionally add, subtract, or move any element or object that’s in the original photograph, your entries will be disqualified. (Entries in the Judges’ Option category are exempt from this requirement.)

9. For photos entered in the Judges’ Option category only: Your subject must include mushrooms or anything mushroom-related (club activities and food photos are permissible just so long as they are identified in the title of the work.) You may do whatever manipulation, augmentation, subtraction, filtering, effects...whatever you wish. Any components you use must be your work (e.g., not scanned from a book or magazine or taken from the Internet). You may also creatively use text or other elements of your own making in your entry. You do NOT need to submit your originals.

10. You may enter up to 12 photos in total, and you are permitted to mix categories.

11. By submitting to this contest, you grant NJMA the right to reproduce or publish your photos (without compensation, but with due credit) in the club newsletter, on the NJMA website, on promotional posters, or in any publication which NJMA provides to its membership or prospective members.

12. Entries must be postmarked, emailed, or uploaded by 11:59 PM on November 10, 2019.

13. If we do not receive entries from two different entrants in any Category, no award will be given in that category. (Competition is what makes a contest!)

SUBMITTING YOUR ENTRIES

Please be sure that your entries are labeled properly (see Rule 5, above) and enclose them with your entry form and send, mail or deliver them to: Jim Barg
NJMA 2019 Photo Contest
122 Canna Street
Browns Mills, NJ 08015

or submit them electronically (email, Dropbox, Google Drive). Email entries should be sent to jimbarg@bssmedia.com. If you have trouble sending, please contact us. We repeat: YOU MUST also attach a scanned or clearly photographed copy of your completed entry form. If you’re sending your entries by email and need to send them in more than one message, be sure to include your name in the subject line of each message. If you do not know how to add attachments to an email message, or how to use Dropbox or Google Drive, or if your outgoing email cannot handle large files, please contact Jim for assistance (908) 227-0872. THE DEADLINE FOR ENTRIES IS NOVEMBER 10, 2019.
### NJMA PHOTO CONTEST 2019

**OFFICIAL ENTRY FORM**

*(Please fill out according to the instructions and make a copy for your records.)*

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<tr>
<th>NAME OF ENTRANT</th>
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**TELEPHONE (DAY) ________________________ TELEPHONE (EVENING) ______________________________

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Please remember that photos submitted on digital media will not be returned unless you enclose a SASE with your entry.

Also remember that, if you digitally manipulated or retouched your entry in the Pictorial or Technical categories, you must enclose the original (or an unmodified copy of the original, or a watermarked copy of the original) as well!

**DEADLINE FOR ENTRIES IS 11:59pm, SUNDAY, NOVEMBER 10, 2019.**