

#### **COMA SURVIVES THE PANDEMIC**

Spring 2020

*Spores Illustrated* is the newsletter of COMA, the Connecticut-Westchester Mycological Association.

The current state of affairs has caused us to suspend our Morel walks but it hasn't destroyed our passion for all things fungal.

Our individual members either alone or in small groups have continued to roam afield in the search for the fungi of spring. A search of Tallman Park (a regular Morel spot for our club) by Vito and Ksousha revealed this little fellow.



#### A MESSAGE FROM OUR PRESIDENT

#### Spring Greetings and Salutations!

This is somewhat of a different start to our season than we would have hoped for, to say the least. It's been a long winter (It always is, have you noticed?), but we've managed to make it through, and assuming that we'll be able to "catch a break" somewhere along the line, improbable as it may seem, your all-time favorite mushroom club has some wonderful things in store for you this year. We have a few dates (tentatively) set up for evening programs, and because of the current situation, the schedule for all of our weekend walks is (as of the time of this writing) tentative as well. For 2020, it is our intention to be part of the Citizen Scientist (MycoFlora) Project, which will present the opportunity to participate in something of importance on a national level. Talk about participating, I know that it appears as if all COMA events happen by magic, but I can assure you that this is not the case. Aside from the Board of Trustees, we have a dedicated core of volunteers who generously donate their time (in quantities both great and small) to projects and events that benefit our members and friends. One of the most fun things is to be a walk leader for one of COMA's weekend walks, which does not require any degree of expertise, only familiarity with the venue, and (as always) we will be in need of volunteers to assume one of the many responsibilities (both minor and major) involved in the Clark Rogerson Foray. If you are interested in helping with any of this, please let me know.

Once again, I would like to take a mycological moment to offer a gentle (or maybe even not-so-gentle) reminder to everyone about fungal courtesy in the field, as there is a point of etiquette that sometimes gets overlooked in our mad dash for mushrooms. Sites that are on our schedule are strictly off-limits for at least 10 days prior to walks, with the exception of the walk leader's option to check paths, trail markers and terrain, to assure a safe passage and reliable route. The picking of mushrooms —*any* mushrooms—at the site of a walk is a most definite "no-no", from ten days to *ten minutes* before a walk. Sometimes (particularly if you've arrived early) it's difficult to restrain yourself, but in the interest of all our wonderful club members and new guests, please, *please* practice a small bit of fungal courtesy, and wait until the walk actually begins before attempting to satisfy the urge to pick. If you have arrived at a walk early, by all means, take a stroll, or be the self-appointed "greeter" for the club, but please do not pick mushrooms prematurely. I would also like to remind everyone that COMA walks are just that: *COMA* walks, not private outings. If you know a few "secret spots", or happen to get lucky at any

of the various locations during a club walk, is customary to share large finds of edibles, particularly when others may have come back empty-handed. It's not a rule that we can enforce, but reluctance to share a large find (nobody is going to ask, this would be your initiative) not only brands you as a hoarder, it gives a bad general impression to others, and is especially unbecoming of club members. Sharing is caring, and *we care enough to share*.

As a reminder, our activities for the year are generally capped off with a gala banquet in mid-November, but the "crown jewel" of our special events is of course, the *Clark Rogerson Foray*, which we anticipate will once again be held over the Labor Day Weekend. (Although the picture may change over the course of the next few months, for now, we will proceed under the assumption that the situation will improve by the end of the summer. It may be possible that registration this year will be restricted to COMA members and friends.) Last year, we reached maximum overnight capacity for the facility (Camp Hemlocks, in Hebron, CT) several weeks prior to the foray, and again this year, the camp's regulations require that we give them adequate advance notice of overnight accommodations, so I would implore anyone considering joining the festivities to sign up *as soon as registration opens* in June. Club members will receive notice in advance, and surrounding clubs will not receive notice of open registration until at least 10 days *after* COMA members have been notified. I would like to remind members that there are multiple scholarships available for the foray; anyone interested may apply through the COMA website (www.comafungi.org) *at any time*.

The Coronavirus has most certainly "put a spin on the ball", *big time*. How much of the season will remain salvageable at this point is questionable, but I will promise you that if there is any way that we can conduct our activities while keeping everyone safe, that is what we will do.

Regards to all.

Joe Brandt (JLBCO@hotmail.com)

Below is some stuff that we already knew, by and large, but worth repeating and some neat facts we might not realize

## The health benefits of mushrooms

#### • By Nicola Shubrook bbcgoodfood.com

What's the best way to cook mushrooms? How do you store them to make them last longer and why are they so good for you? We take a look at their nutritional benefits.

All <u>mushrooms</u> are fungi and they produce spores, similar to pollen or seeds, which allows them to spread or travel by the wind. The rest of the mushroom then matures, typically living in soil or wood.

There are many different types of mushrooms, some of which are edible including well-known species such as button, oyster, porcini and chanterelles. There are, however, many species that are not edible and can in fact cause stomach pains or vomiting if eaten, and in some cases could be fatal, such as the <u>common death cap mushroom</u>.

#### **Nutritional benefits**

All types of edible mushrooms contain varying degrees of protein and fibre. They also contain B vitamins as well as a powerful antioxidant called <u>selenium</u>, which helps to support the immune system and prevent damage to cells and tissues.

In particular, white button mushrooms are one of the few <u>non-animal sources of vitamin D</u>. When they are grown, whether indoor or outdoor, they are exposed to UV light which increases their concentration of <u>vitamin D</u>.

Mushrooms are being increasingly researched and used for their important health benefits with different varieties having different medicinal properties.

Can mushrooms help protect against cancer?

In particular, certain varieties of mushrooms have been shown to have potential in <u>protecting against</u> <u>cancer</u> by protecting our cells against DNA damage but also inhibiting tumour formation. There is also some <u>evidence</u> that they may be beneficial in the treatment and management of neurodegenerative disease such as Alzheimer's.

#### Can mushrooms protect heart health?

Mushrooms have been shown to have some <u>therapeutic properties</u> that can help to lower cholesterol, particularly in overweight adults, as well as phytonutrients that can help prevent cells from sticking to blood vessel walls and forming plaque build-up. This in turn then helps protect the heart by maintaining healthy blood pressure and circulation.

#### What is the best way to cook mushrooms?

Whilst mushrooms can be eaten raw and may have a <u>beneficial effect on the digestive system</u>, certain cooking methods have been shown to increase some of their nutrient status, especially if grilled or cooked in a microwave.

<u>New research by the International Journal of Food Sciences and Nutrition</u> looked at certain mushroom types (namely white button, shiitake, oyster and king oyster mushrooms) along with different cooking methods and found that when mushrooms are exposed to short cooking times they retain more of their vitamins and nutrients.

Microwaving or grilling mushrooms significantly increased their antioxidant activity, even when grilled in a small amount of oil, when compared to boiling or frying.

What is the best way to store mushrooms?

Mushrooms can start to deteriorate quite quickly and, if bought pre-packaged, they are often best kept in their original packaging in the fridge. If you buy loose mushrooms then they should be stored in a paper bag or in a container (without the lid) wrapped with plastic that is punched with a few air holes and stored in the fridge.

However, there could be a way to <u>boost the vitamin D in your mushrooms</u> naturally at home. Place them on a windowsill for just 1-2 hours to give them an extra shot and place them 'bottoms up' so that the underside of the caps is exposed. This is the area most sensitive to light.

#### Warning about foraging for mushrooms

Foraging has become popular in recent years, but with so many varieties of mushrooms, and not all being safe for human consumption, it's important that you heed caution before dashing out to your nearest woodland.

Take photographs with you of the common edible varieties, as generally they are quite easy to identify, and then make sure that they are cooked as only a few are safe to eat raw. If in doubt, don't eat it!

Now try our favorite <u>mushroom recipes</u> and discover more of the health benefits of your favorite ingredients.

#### GARLIC BUTTER MUSHROOMS

SIMPLE, EASY and DELICIOUS (Vegans can use Margarine) Ingredients 4 tbsp. melted butter 2 cloves garlic, minced 2 tsp. freshly chopped thyme 1 tsp. balsamic vinegar Kosher salt Freshly ground black pepper 1 1/2 lb. crimini mushrooms, cleaned (this would surely work with any edible Agaricus or with wine caps)

Directions

- 1. Preheat oven to 375°. In a medium bowl, whisk together butter, garlic, thyme, and vinegar.
- 2. Spread mushrooms into an even layer on a large baking sheet. Pour butter mixture over mushrooms, then season with salt and pepper. Toss to coat, then spread mushrooms back into an even layer.
- 3. Roast 15 to 18 minutes, until golden and tender.

# So you don't like mushrooms because the texture is like a slug. I can help you with that: How to properly cook <u>mushrooms.</u> By AMY FOX

There are two types of people that approach my table at the local farmers market:

1) Those that love mushrooms and are eager to inspect, discuss, and purchase my wares

2) Those that are curious and walk by my booth as if those "flowers" or "seashells" might jump off of the table and bite them.

Sometimes patrons at the farmers market ask me if I am selling seashells or flowers. : )

Yes, many a time I have had people ask me if I was selling flowers or seashells. :) The fellow fungiphiles need no indoctrination into the world of the incredible mushroom but I absolutely love, love, love bringing those that are wary in with a bit of friendly convo,

only to convert them to my mushroom loving ways. See, it is not about the money (although I do love me some greenbacks...they pay the bills), but more about opening people's eyes to the world of edible fungi (that is composed of more than the common white button, cremini, or portobello mushroom....all Agaricus species).

When I rope in the leery lady/gentleman, the first question I ask is if they like mushrooms. I either get a yes or a no. If no then I ask if it is the flavor or the texture. If they state that they do not like the flavor, I apologize and tell them that I have nothing in my bag of tricks to remedy that dilemma. If they state that they do not like the texture, I rub my palms together in anticipated victory and commence to educating them on the proper way to cook a mushroom.



Unless it is a dense mushroom such as a white button or porcini, I prefer tearing the mushroom to the desired sized pieces.

Most people, myself included until I was properly educated, cook mushrooms incorrectly. See, most mushrooms are mostly water by content. Most of us have this knee-jerk reaction to add oil or butter to the pan immediately with said mushrooms as if they were diced onions. That is our biggest mistake and that leads to that slug-like texture that people detest.

So, if you do not like mushrooms based on the texture that is created using your cooking methods, have a read and let me convert you...err ummm...educate you. : )

First off, I never cut mushrooms with a knife unless it is a dense mushroom such as a button, cremini, portobello, porcini..... Instead, I tear them into the desired sizes.

Secondly, I prefer a nonstick skillet but if you prefer the old standard, just know that you must add a little lube when you add the shrooms to the pan in the form of butter or oil so that they do not stick. Notice that I used the words, "a little".

Lets get this shroom cooking party started!!!

Remember when I said that mushrooms are mostly water? That holds true for most of them across the board. There are exceptions though such as hen of the woods, lions mane, and chicken of the woods that are more dense and do not release as much water when cooking. Oyster and white buttons though are gonna sweat like a man wearing a winter coat on a hot NC summer day.



When the mushrooms first release their water, you will see the tissue start to glisten.

Considering that info, always start cooking your torn or sliced shrooms over low to medium low heat (depending on how hot your stove is). DO NOT ADD ANY BUTTER OR OIL!!!! I know you want to , but control yourself! You are gonna know within the first few minutes (or less) if your mushroom is going to sweat or not. If it does not release moisture but instead immediately sticks to a nonstick (or lightly oiled pan), then chances are it has a lower water content and will require the butter or oil added at this point.

For the purpose of this lesson, let's focus on a higher water content mushroom: the oyster mushroom.

After three flushes, I recycle my oyster mushroom bucket substrate by tossing it onto my compost pile. Let's just say that the deer and squirrels that frequent my backyard are spoiled by being provided gourmet edible mushrooms as part of their daily diet. They are not the only ones that enjoy them. My customers are the recipients of the shrooms that grow in my climate controlled fruiting chamber but I am happy to partake of the fruits of my compost pile for my own personal use. The beautiful palate of colorful oyster shrooms that you see pictured in this article were harvested from my compost pile and they had just experienced two days of rain. Hence, they were a tad bit more full of moisture than usual.



Pictured are oysters who have released all of their moisture.

Regardless of the amount of moisture contained within the tissue of the mushroom, the process is the same. Let it release in the pan and then allow it to evaporate out. Do not remove the pan from the heat and pour out the moisture that collects in the bottom of the pan unless your mushrooms were so water-logged (usually only happens with foraged specimens) that they were swimming in the water exuded. Be patient and just let the moisture sweated out evaporate.

Once that moisture has evaporated you will see that your shrooms will start to look a bit drier. Now you do not want them so dry that they are sticking to the pan but dry enough that they no longer have that glistening sheen that was created when they were releasing their moisture.



Oyster mushrooms after all sweated moisture has evaporated from the pan.

Now is the time to add some butter or oil. Personally I prefer butter for the best flavor but if you prefer oil....well then that is your prerogative. After releasing their moisture, the mushrooms are eager to soak in something to replace what was lost. This is why you never want to add the butter/oil immediately to the pan with the raw mushrooms. Remember how I stated that after sweating out the moisture, the mushrooms will reabsorb the fluid left in the pan? Instead of ridding of all excess moisture and only taking in a small amount of butter or oil, the mushrooms will then absorb a watered-down

butter mixture. That leads to that lovely slug texture that turns so many off to mushrooms in general.



Add butter a little bit a time.

Add a little butter (or oil) and increase the heat a little. If the shrooms soak it up immediately, like I know you are so eagerly absorbing this knowledge, add a little more. The idea is to add enough so that the mushrooms absorb the ideal amount but not so much that they are swimming in it. I tell people to add enough a little at a time so that you see that you are left with a slight film of butter (or oil) in the pan, not a pool.

Once you have achieved ideal absorption, increase the heat a tad bit more to slightly caramelize the exterior of your shrooms. Once you have reached the desired doneness, remove from heat, and serve on a plate with a light sprinkling of kosher salt. I never salt my food but mushrooms are the one exception. That tiny bit of salt really makes the flavor pop. Eat as is or add to any recipe. ENJOY!!!!!



Increase the heat a little to caramelize the exterior. Transfer to a plate and serve with a little sprinkle of kosher salt. ENJOY!

Now, there are some exceptions to the above when considering the ideal way to cook a mushroom (in this instance, the oyster mushroom). If you are adding a shroom to a recipe that is liquid based, such as a soup or you are adding it to a pressure cooker, then

just add it raw and follow the recipe. But if you are making a pizza, follow the instructions as listed above but remove the shrooms from the pan at the point where they have been sweated out but just before you would add the butter or oil. Just think about the breakthrough you have just made: you now know how to make a pizza that is topped with shrooms but does not have that characteristic soggy dough! :)

Regardless of at which point you remove your perfectly cooked shrooms, I hope I have added you to my list of shroom-loving converts now that you know how to properly cook the incredible edible mushroom. : )

Amy Fox foxfarmforafge.com

## **'This isn't cannabis 2.0': are psychedelics the next frontier for advertising?**

Once stigmatized across the western world, the likes of MDMA, LSD and magic mushrooms are taking back their place in the world of medicine. Recreational wellness startups have begun to pop up, too. But the industry is crying out for a repositioning.

Their rise and fall story goes like this: Swiss chemist Albert Hofman accidentally invented LSD while attempting to create a stimulant in a lab in 1938. He saw the potential in its psychotherapeutic application and sent it to clinics and universities around the world alongside psilocybin, a naturally occurring prodrug produced by what are commonly known as magic mushrooms. More than a thousand scientific papers were subsequently published on its effects in patients suffering from certain mental disorders and trauma.

And then the 1960s happened; more accurately the Harvard Psilocybin Project happened. Researchers such as Dr Timothy Leary pushed the ethical boundaries of psychedelics' use in a medical setting and the drug leaked into middle class America's recreational fabric as 'acid'. Its use became synonymous with counterculture and youthful rebellion, and was consequently made illegal in the US by 1966.

The slow reemergence of therapeutic psychedelics came to a head in 2018 with the publication of How to Change Your Mind, Michael Pollan's bestseller subtitled: 'What the new science of psychedelics teaches us about consciousness, dying, addiction, depression, and transcendence'.

"That book really further destignatized [psychedelics] and made this a dinner table conversation for most of America," says JR Rahn, the founder and chief executive of MindMed, a public company developing psychedelic medicines for public use. It's part of a crop of firms springing up around the

psychedelic renaissance – a movement that's piqued the interest of culture much like activism around cannabis laws did in the previous decade.

And much like cannabis, this burgeoning industry is spawning a wide range of well-designed brands promising a wide range of solutions.

Once stigmatized across the western world, the likes of MDMA, LSD and magic mushrooms are taking back their place in the world of medicine. Recreational wellness startups have begun to pop up, too. But the industry is crying out for a repositioning.

"We have advertisements in the print magazine to help us pay for the production costs," explains Hartman. "Brands also sponsor our events – virtually and in person – and our videos. But we don't do traditional branded content in which we write favorable things about products in exchange for money as we feel that would compromise our editorial independence.

"Our goal is to provide people with all the tools necessary to embark on a safe and supportive journey with plant medicine. To us, thismeans: educational resources, actual products (such as legal plant medicines such as kava and tools for harm reduction such as drug testing kits) and community. We have more online courses on the horizon, partnerships with incredible people in the plant medicine space making things we'll be selling in our store, and, of course, events, from integration circles to a pop-up dinner with the Disco Dining Club."

Hartman is positive about the growth opportunity in the space, citing the FDA's encouraging interest in MDMA and psilocybin as prescription medications, as well as the 100+ cities and counties seeking to decriminalize entheogenic plants and fungi at the local level. But she and Margolin also believe the sector at large shouldn't be "branded" for the benefit of wider consumer palates.

"We don't want to see psychedelic culture or history become sterilized the way that cannabis has," says Hartman. "We don't think there's a right way to do psychedelics; we believe doing them at a festival can be deeply therapeutic and doing them in a clinical trial with researchers can, too. We do believe that more people should learn about psychedelics and their therapeutic potential—and that accessible, entertaining content will help with that."

The question is whether marketers – for all their 'bravery' – will also see psychedelics as a big part of their future too.

The Drum.com May 15, 2020 \*This article was shortened by half in order to give COMA the gist without it being over long.

The full version can be read at https://www.thedrum.com/news/2020/05/15/isn-t-cannabis-20-are-psychedelics-the-next-frontier-advertising



## **Telluride Mushroom Festival:** AUGUST 13-16

### 2020 FESTIVAL THEME

For 40 years the Festival has been changing minds about wild mushrooms. From back when few academic mycologists would have had any interest in coming to the Festival and mycophiles attended NAMA-sanctioned forays but raised eyebrows at "Telluride." That has completely changed. For 40 years we have been changing minds...one mushroom, and one mycophile, at a time. And so that brings us to this year's Festival Theme - Changing Minds, One Mushroom at a Time. https://www.tellurideinstitute.org/telluride-mushroom-festival/

#### Everyone, I am REALLY stoked for this year's Festival! The 40th!

And it's going to be a great lineup...some big names making their first trip to the Fest. And since we're celebrating a big anniversary, you know we have to invite back some of the most popular faculty from the past several years just to make it extra special.

I'm super thrilled to be able to finally announce that Erika Dyck will be one of our Keynote presenters for the 40th.

Here is a little info on Professor Dyck, who teaches at the University of Saskatchewan, and also holds the special title of Canada Research Chair in the History of Medicine.

Dr. Dyck's chief interests are in the history of psychiatry, mental health, deinstitutionalization and eugenics. She is the author of Psychedelic Psychiatry which examines the history of LSD experimentation and how it fits within broader trends in the changing orientation of psychiatry during the post-World War II period. Her second book, Facing Eugenics, examines the experiences of patients and families as they confronted eugenics in 20th century Alberta. It traces their experiences through coercive and voluntary sexual sterilization procedures and the legacy of eugenics for influencing our perceptions of reproductive rights, disability and reproductive choice.

She has a very long list of publications that you can find here https://artsandscience.usask.ca/profile/EDyck#/publications

Tradd Cotter will be back to once again rock our world as a Keynote presenter and managing the pre-Fest workshops. Tradd has incredible news on progress of a new facility he's creating in Haiti...and so much more.

Andy MacKinnon, "Canada's Rock Star of Botany," will be making his first visit to the Festival and will thrill our audience as a Keynote presenter. Andy is a forest ecologist and mycologist who works for the Canadian government in BC. He is the author of what may be the most popular botany book ever for Canada, Plants of the Pacific Northwest Coast, and is currently working on another huge guide–Mushrooms of British Columbia.

To help us celebrate our big anniversary year, we have many Festival favorites back with their latest research and new stories to tell.

Here are a few teasers:

- Larry Millman will discuss the latest findings on cold weather adaptations of fungi in the North and the effect of climate change on fungi of high elevations.
- Robert Rogers will be returning from Edmonton, AB, to discuss medicinal mushrooms of the Rocky Mountains.
- Brigitte Mars will make her first appearance at the Festival to educate about psychedelics.
- Danielle Stevenson and William Padilla Brown will be returning to lead workshops on cultivation, medicinals...and a few surprises.
- Chad Hyatt will be back by popular demand, and wowing audiences with demonstrations on how to turn wild Rocky Mountain mushrooms into haute cuisine.
- Alex Dorr will be back to teach about medicinal mushrooms and better health, as will our longtime friend John Michelotti who will invoke the spirit of Gary Lincoff and present Fungal Devotion: How to quit your job & make ends meet with mycelium plus forays.
- Plus our regular faculty from the Rocky Mountain region including Art Goodtimes, Kris Holstrom, Katrina Blair, Larry Evans, Graham Steinruck, Lauren Czaplicki d'Antonio, Greg Sanchez, Ken Kessenbrock, and many others will educate about wild mushrooms, lead forays, and demonstrate how mushrooms can save the planet.

The Telluride Mushroom Festival is the largest (and wildest) wild mushroom festival in North America. For 40 years the Festival has been changing minds about wild mushrooms. I remember back when few academic mycologists would have had any interest in coming to the Festival. "Mainstream" mycophiles

attended NAMA-sanctioned forays but raised eyebrows at the mere mention of "Telluride." That has completely changed. For 40 years we have been changing minds...one mushroom, and one mycophile, at a time. Today the Festival annually attracts the biggest names in research–studying cutting-edge molecular genetics and taxonomy, mycomedicinals and mycoremediation, forest health and ecology, and clinicians restarting studies using psychedelics–from the USA, Canada, and beyond. The past two years in a row have seen record attendance, as the public's interest in what mushrooms can do for the planet continues to grow.

And so that brings me to this year's Festival Theme – Changing Minds, One Mushroom at a Time.

I am ready to begin a fifth decade of changing minds. I am so ready!

- Britt A. Bunyard, PhD https://www.telluride.com/festivals-and-events/telluride-mushroom-festival

## Medicinal Mushrooms and Amateur Mycology: part two The education of a sceptic. By Bill Bakaitis

A bit of a preface: Much of the following is about memory. A good deal is known about memory both from rigorous study, as well as experiential evidence. We know, for example that memory is famously plastic. It is easily altered by intervening activity, by narrative verb choice, by desire, expectation, and cultural surround. Neurological evidence indicates that once recalled, a memory 'trace' is reassembled, so what is subsequently recalled is the memory of the original memory. In this sense, memories are created from present day schemata – that is to say, in a peculiar way, they are 'invented'.

I was reminded of this when I began to remember and search for my first botanical field guide. The sharp visual recall of the Herbal, especially the St. Vincent logo became blurred and eventually all but disappeared as I questioned whether it was St. Vincent's, St. Joseph's, or St. Francis'. Because I had remembered the name and used it in my searches, I had a record of that relatively unedited recall and was able to use it with some degree of confidence.

Incidentally, this is why I am such an inveterate record keeper: in my field notes of fungi collected for ID and specimen voucher purposes, for my fishing diaries, for the specific details of every archery bow I have made. Such detailed record keeping is a fundamental hallmark of the scientific method and one of the bedrocks of replication.

So, forewarned, here is the narrative.

I often wish I still had that 'teen when I gathered herbs

In my mind's eye I can still field guide, maybe 3" wide Inside one of the covers was how to send the dried that of an ornate *St. Vincent's* of the page.

Search as I might on the found. It does however



Medicinal Herbal I used as a young for sale.

see the slim olive drab cloth covered by 8" tall, of perhaps 40-60 pages. the name and address of where and collections. My strongest impression is *Botanical* imprint spread across the top

internet it has been nowhere to be greatly resemble the much longer (400

page) work by Joseph Meyer, published from 1918 to 1924, called The Herbalist.

Inasmuch as Meyer owned a printing company and The Indiana Botanic Gardens, it is my guess that he may have printed simplified manuals for special limited runs. <u>The Herbalist</u> continued on as an <u>Almanac</u> from 1925 to 1979 so perhaps what I remember was one of these editions with the St, Vincent's imprint as an advertisement. Dunno.

In any case, this is the field guide and manual which I used when I first became aware of Medicinal Uses of Natural Products.

During the latter part of the 1900's there was a parade of counter-cultural groups presenting a host of radical ideas: Extra Sensory Perception, Astral Projection, Psychokinesis, Mind Reading. Proponents of these ideas were often invited as speakers to College Campuses. In the best of situations their presentations were followed by skeptics who would calmly reveal the tricks of bending spoons or reading minds or predicting the future.

In order to encourage those of us who chose text books for our college courses, publishers often included 'ancillaries' to 'enhance' our courses. The need to keep students 'interested' (entertained) often led to the production of films purporting to demonstrate ESP, 'Multiple Personalities', 'Recovered Memory Therapy' and such. These incredible tales came crashing down with the expose of real life cases such as the 'Little Rascals Day Care Sexual Abuse Case''. (\*10)

And in the 'medicinal arts' a veritable industry sprung up to feed on the public's gullibility and apparent need for protection against a growing list of social anxieties. As legitimate medical treatments were extending the life span of Americans by reducing the

death rates of a host of treatable ailments, by dint of statistics alone, a collection of disorders less amenable to treatment increased. This morbidity of course, does not preclude, and was undoubtedly enhanced, by an increasing amount of chemical garbage being dumped into our environment and food chain. All of this is especially true of that "Emperor of all Maladies": (\* 11) a group collectively known as Cancer.

While Googling 'Laetrille', (\*12) one such disproven Cancer Cure, <u>I came across a</u> <u>catalogue (\*13) of hundreds of fraudulent Cancer Cures, which includes a "non-</u>exhaustive list of <u>alternative treatments</u> that have been promoted to treat or prevent cancer in humans but which lack scientific and medical evidence of effectiveness."

Have a look: I am almost certain you will find one, two, or more such remedies, cures, or belief systems popular with you or your friends. Here is a partial list of some of the things we believe will cure cancer:

Aromatherapy, Ayurvedic medicine, Greek cancer cure, Herbalism, Holistic medicine, Homeopathy, Native American healing, Naturopathy, Alkaline diet, Breuss diet, Budwig protocol, Fasting and intermittent fasting, Hallelujah diet, Kousmine diet, Macrobiotic diet, McDougall diet, Moerman Therapy, Superfood, Bioresonance therapy, Electrohomeopathy, Light therapy, Magnetic therapy, Orgone, Polarity therapy, Rife Frequency Generator, Therapeutic Touch, Zoetron therapy, Actaea racemosa, Aloe, Amygdalin (trade name Laetrile), Andrographis paniculata, Aveloz (also called firestick plant, pencil tree or Euphorbia tirucalli), Bach flower remedies, Cannabis, Cansema, Capsicum, Carctol, Acupuncture, Applied kinesiology, Chiropractic, Colon cleansing, Psychic surgery, Reiki, Shiatsu, Faith healing, Meditation (also Transcendental Meditation and Mindfulness), Neuro-linguistic programming (NLP), Qigong, Chelation therapy, DHEA (Dehydroepiandrosterone), Dimethyl sulfoxide (or DMSO), Emu oil, Hyperbaric oxygen therapy, Krebiozen, Pangamic acid, and Urine therapy. Urine therapy? Yep, you drink it up!

On and on it goes. The page was last edited on 22 January 2020 and contains a list of 173 scientific references.

It will probably not surprise you to learn that many of these cures actually have unintended harmful effects. The limited section on Plant and Fungal Cures lists 50 such scientifically unsupported 'Cures, including Chaga, Kombucha, and Mushrooms in general. Not too surprisingly, in this second installment, we have ended up in close conceptual proximity to where the first part of this inquiry ended. (\*14) with a skeptical look at some of the purported medical benefits and claims often touted by amateur mycologists.

Up next, a look at anecdotes, anecdotal evidence, and non-parametric evidence.

Bill Bakaitis Feb. 11, 2020

• Bill was kind enough to allow us to re-print the previous article and I of course returned the favor by cutting out a large portion of the piece which consisted of his personal history from childhood on and a discussion of the psychedelic paths of Castaneda and Timothy Leary. If anyone asks I will forward you the entire article and footnotes.



## **Death-Cap Mushrooms Are Spreading Across North America**

"There's nothing in the taste that tells you what you are eating is about to kill you."

Between a sidewalk and a cinder-block wall grew seven mushrooms, each half the size of a doorknob. Their silver-green caps were barely coming up, only a few proud of the ground. Most lay slightly underground, bulging up like land mines. Magnolia bushes provided cover. An abandoned syringe lay on the ground nearby, along with a light assortment of suburban litter.

Paul Kroeger, a wizard of a man with a long, copious, well-combed beard, knelt and dug under one of the sickly colored caps. With a short, curved knife, he pried up the mushroom and pulled it out whole. It

was a mushroom known as the death cap, *Amanita phalloides*. If ingested, severe illness can start as soon as six hours later, but tends to take longer, 36 hours or more. Severe liver damage is usually apparent after 72 hours. Fatality can occur after a week or longer. "Long and slow is a frightening aspect of this type of poisoning," Kroeger said.

He and I were in a quiet neighborhood of East Vancouver, British Columbia. Across the street, behind St. Patrick Elementary School, kids were playing basketball, and their voices echoed between the occasional passing cars. Kroeger likes kids. As we'd hunted mushrooms from the sidewalk earlier that day, he had cooed at every stroller, then stopped the parents to warn them about the death caps in the neighborhood.

As he shook the mushroom free of its soil and added it to the others he'd lined up on a sheet of wax paper, he surveyed the collection and said, "Enough here to kill an entire Catholic school."

The death caps were slightly domed, with white gills and faintly greenish stems. At the bottom of each stem was a silky slipper, called the volva, which was a purer white than the rest of the mushroom. The *Amanita phalloides* species accounts for more than 90 percent of mushroom-related poisonings and fatalities worldwide.

Kroeger, who studied the biochemistry of medicinal mushrooms while working as a lab assistant and technician at the University of British Columbia, is a founding member and the former president of the Vancouver Mycological Society, and the go-to authority on mushroom poisonings in western Canada. When *Amanita phalloides* first appeared in British Columbia in 1997, he took careful note. It had never before been seen in Canada. The single reported specimen was found among imported European sweet chestnut trees near the town of Mission, an hour east of Vancouver.

The species appeared again a year later, under a large, ornamental European beech tree on the grounds of a government building in the provincial capital, Victoria, on southern Vancouver Island. Ten years later, death caps began to appear in Vancouver, in a neighborhood shaded with mature European hornbeam trees. Kroeger recruited volunteers to search neighborhoods, and put out the word to mushroom hunters. During the first year, they documented about 50 locations in Vancouver. Kroeger wanted to know where the mushrooms were coming from, and where they'd turn up next. Sooner or later, he feared, they would have deadly consequences.

The first serious poisoning in British Columbia was reported in 2003, and another occurred in 2008. Both victims survived. Then, in 2016, a 3-year-old boy from Victoria died after eating mushrooms found outside an apartment complex. Kroeger thought he had anticipated the worst, but he wa

Kroeger thought he had anticipated the worst, but he was not prepared, he said, "for a wee child to die."

Without fail, Kroeger noted, death caps appeared in urban neighborhoods, not in deep woods or city parks. They showed up most often in the strip of grass between sidewalks and streets.

For the past few years, Kroeger and his network of fungiphiles have been putting up posters in infected neighborhoods. The BC Centre for Disease Control sends out his warnings in press releases, and he sets up a booth at street events in order to warn anyone willing to listen that death caps should be left alone.

When I joined him in East Vancouver, most of the people he stopped on the sidewalk—parents with strollers and passersby with groceries—had already heard of the invader. A man in a tool belt coming off a house remodel said he'd seen death caps a few blocks away in East Vancouver, and Kroeger scribbled down the address. I asked the man why he was so interested in mushrooms; he said he just liked to know what was growing in the neighborhood.

The first death cap Kroeger found that day had been in front of a house decorated for Halloween, which was two weeks away. He dug into the leafy ground cover, revealing several more greenish domes. Like a leaping gnome, he jumped across the sidewalk, grabbed a plastic human skull off a post, and brought it back to his find. Nestling the skull into a nest of purple periwinkle beside the emergent death caps, he laughed to himself and took a picture. Sometimes, he almost seems to side with the death caps. He appreciates their mysterious tenacity. He greets each one with an excited smile, talking to it: "There you are."

By the end of the day, Kroeger had collected a couple of dozen death caps, each placed in wrinkled wax paper and then into one of the plastic boxes he carried in a faded, bucket-style day pack. They'd be dried and stored at the university. Most were from new locations. Before rolling a thin cigarette for himself, he fished out a damp cloth to clean his hands. He explained that he couldn't use a moist towelette with alcohol because it could facilitate the passage of toxins through the skin. While he thought the mushrooms could usually be handled safely, a whole day of repeated touching was risky, since it was always possible to forget and touch one's face, nose, or lips. "Just to be safe," he said, wiping his hands and offering the cloth to me.

Dr. Kathy Vo, a medical toxicologist in San Francisco, publishes case studies on rare or unusual poisonings. *Amanita phalloides* poisonings, she told me, are some of the worst. "When the liver starts to fail, you see bleeding disorders, brain swelling, multi-organ failure. It's very, very rough," she said.

The levels of fluid loss, Vo said, are some of the most dramatic she's seen. The body flushes everything it has. "There's not an antidote," she said. "That's what makes this particularly deadly. We institute a variety of therapies, but there's not an A, B, C, D. It's not always the same. The best bet for the patient is fluid, fluid, fluid; keep watching the liver, and if the liver is failing, go for a transplant."

On average, one person a year has died in North America from ingesting death caps, though that number is rising as the mushroom spreads. More than 30 death-cap poisonings were reported in 2012, including three fatalities, while 2013 saw five cases and no deaths. In 2014, two people died of death-cap poisoning in California; a third died that year in Vancouver after a Canadian man traveled to California, ate the mushrooms as part of a meal, and returned to Vancouver, where he became ill and died.\*

*Amanita phalloides* are said to be quite tasty, and a person who eats one could feel fine for a day or two before illness sets in. The poison is taken up by the liver cells, where it inhibits an enzyme responsible for protein synthesis; without protein, the cells begin to die, and the patient may start to experience nausea and diarrhea—symptoms that can easily be attributed to general food poisoning or other ailments. "If the patient doesn't realize the connection, doesn't see the illness as a result of eating a mushroom a day or two earlier, it's a hard diagnosis," said Vo.

The first death caps to appear on the West Coast hit Northern California in 1938. Since then, *Amanita phalloides* has been a constant menace to people in the Bay Area. Vo said that an outbreak of poisonings typically follows a rainy season; in November of 2016, after a long spell of warm weather and copious rain, the Bay Area Mycological Society got in touch with the California Poison Control System hotline, warning that death caps were sprouting up. "Five days after that, we started getting calls," she said.

As part of a cluster of 14 poisonings in the fall of 2016, a Bay Area family grilled wild mushrooms gathered by a friend, not knowing they were death caps. They were eaten by the young mother and father, their 18-month-old daughter, and two other adults. The parents and a third adult underwent aggressive fluid treatments and were released from the hospital after a couple of days, while the fourth adult and the child required liver transplants. In the process, the little girl, who reportedly ate half a mushroom cap, suffered what Vo described as permanent neurological impairment, and is no longer able to feed herself or follow commands.

"Every year we get lots of calls about mushroom ingestion," Vo said. "A kid finds one in the backyard and eats it. We ask them to send a picture and usually it's not a big problem. We call them 'little brown mushrooms.' They cause irritation, sometimes nausea and vomiting. But *Amanita phalloides* is a different case. Flip the mushroom over and tell me if the gills are white. If they are, I'm really concerned."

The death cap is a global traveler, but only in the past century has it caught its stride. Long after feral cats spread across Australia, long after pigs and mongooses were running loose in Hawaii, *Amanita phalloides* was still home in Europe, where it grew mostly in deciduous forests and was the leading cause of mushroom poisonings from the Balkans to Russia to Ireland.\*\*

While historical records are inconclusive, the first suspected death caps in North America were reported on the East Coast in the early 1900s. The first in California were spotted on the grounds of the Hotel Del Monte in Monterey in 1938, growing from the roots of a planted, ornamental tree. After that, the species landed hard in the Bay Area, where it is now common, having spread into wild oaks; it is becoming more abundant in California than in its native European habitat. After the Bay Area, it was reported in a string of Pacific Northwest cities, each one farther up the coast.

The species wasn't just spreading from tree to tree, gradually expanding its range. Instead, it landed like an isolated bomb, colonizing outward from each impact. While this pattern suggests that the mushrooms in British Columbia may have started in California, Kroeger began to suspect that they represented a separate invasion.

When Kroeger put together maps of the first death-cap outbreaks in Vancouver, he had no problem seeing the pattern. They were showing up in neighborhoods built in the 1960s and '70s, growing under broadleaf trees that had started off in nurseries.

According to Kroeger, although there is some dispute among experts in the field, death caps appear in these neighborhoods decades after planting, because the mushroom lies dormant for that long. Its mycelia live in the roots of a host tree until the tree reaches maturity—when it stops pouring energy into growth and starts storing sugars. For these European imports, that's about half a century. When surplus sugars enter the fungal web, the first fruiting bodies emerge.

Shadowing Kroeger along streets pillared with old broadleaf trees is like pursuing a fox, not a creature of sidewalks. The matrix he follows is underground. Cutting between parked cars, smoking one of his thin cigarettes as he traveled, he seemed to know every grassy back way, every portage around apartment complexes and medical facilities.

Wearing sneakers and a red flannel jacket, he glided swiftly and paused often. Most of what he found were red and white *Amanita muscaria*, a showy native species. Like *A. phalloides*, this *Amanita* attaches to tree roots, and rings of its fruiting bodies rise like fairy kingdoms around the trunks. Poisonous and hallucinogenic, they had been brought out by the rains, and they were all over the city, some as big as dinner plates, some like cherry-colored doorknobs dotted with white flakes. Kroeger crawled on the ground with his camera, capturing tableaus, tapping on their tops, feeling their firmness in the ground. Passersby stopped to comment, amazed at how beautiful and numerous they were.

The death caps were lurkers. They had to be searched for. Rooting around in a strip of vines and flowers in front of a house where he'd found new specimens, Kroeger looked up as a woman cracked open the front door.

"What are you doing in my garden?"

Kroeger stammered that he was a professional mycologist. He clearly enjoyed talking to mushrooms more than to people. He stood upright and lifted a death cap in his hand like a freshly removed appendix. Did she know that deadly mushrooms were growing in her garden? When she didn't answer, Kroeger said in his gentle, earthy voice, "I'm just here to collect these."

"Okay," s e waited a moment after the door slammed, making sure she was gone, then reached into the base of a shrub, using his curved knife to pry up another silver-green mushroom.

As we packed up and moved on, he said, "The development style of the city set the stage for their introduction and proliferation. They will never go away, not, at least, through any known human decision."

Once an ectomycorrhizal fungus is in the ground, even killing the host tree won't stop it. A proposal was put before the city to chop down every hornbeam, the major source of death caps. "But then you have to cut the lindens, sweet chestnuts, red oaks, English oaks. That's a lot of the city, and you still won't get rid of [the death caps]," Kroeger said.

Across from the Catholic school where Kroeger had collected death caps a few hours earlier, a mature hornbeam tree towered over the neighborhood, its deciduous canopy shading both sides of the street. The house of the woman who had scolded him stood 30 feet from another stately hornbeam. Kroeger has maps of land use over the century, detailing development block by block. To him, they are maps of present and future death-cap distribution. Decade by decade, like an underground echo, more and more appear. Kroeger wonders how long it takes people to learn how to avoid a common and deadly mushroom. It is not common yet, but he knows that it likely will be, and that the first fatality in British Columbia from a local death cap, in 2016, will not be the last.

Britt Bunyard, the founder, publisher, and editor in chief of the mycology journal *Fungi*, has tasted a death cap. "Very pleasant and mushroomy," he told me. "A nice flavor, and then you spit it out."

For the amatoxin poison to begin to work, it needs to enter the intestinal tract. A quick bite without swallowing has little effect.

"Poisonous snakes, reptiles, plants, [and] fish have aposematic coloration that shows off that they are poisonous. Mushrooms don't," Bunyard said. "The dangerous ones are all mostly drab or brown, greenbrown, bronze. There's nothing in the taste that tells you what you are eating is about to kill you."

A large portion of people who are poisoned by death caps in North America are Hmong or Laotian immigrants. They mistake the species for a prized edible from home, what is called the "white Caesar," *Amanita princeps*.

Death caps are not only a North American problem. They have spread worldwide where foreign trees have been introduced into landscaping and forestry practices: North and South America, New Zealand, Australia, South and East Africa, and Madagascar. In Canberra, Australia, in 2012, an experienced Chinese-born chef and his assistant prepared a New Year's Eve dinner that included, unbeknownst to them, locally gathered death caps. Both died within two days, waiting for liver transplants; a guest at the dinner also fell ill, but survived after a successful transplant.

"Because the mushrooms don't taste bad, they're probably not meant to be poisonous to ward off being eaten or foraged," Bunyard said. "Mammals, not even all mammals, are the only ones affected. Some squirrels and rabbits can eat them without being harmed. Why it's so toxic to humans—who knows? Some poisons are used as communication molecules, and just happen to be poison to us."

To Bunyard, the death cap's journey is only a symptom of a larger phenomenon—the global mobilization of the entire Fungi kingdom. With their blowing spores and underground mycelia, mushrooms can travel in as many ways as humans can carry them. Bunyard, who has a Ph.D. in plant pathology, is concerned about how mushrooms might displace and change their new ecosystems. "The way bacteria are the primary pathogen for animals, fungi are the primary pathogens for plants," he said. "What's going on is under the soil, what we don't see. Some of the native mycorrhizal fungi are being displaced, which will in turn displace plants."

How a newly introduced mushroom and its underground cobweb impacts the life around it is poorly understood. Much about the life cycles and taxonomy of fungi remains elusive. Fungi were not given their own kingdom—now known as the "fifth kingdom"—until 1968. Before that, mushrooms were categorized as plants. Genetically and evolutionarily, they are closer to animal than plant. Mycology is a relatively new science, and researchers are only now beginning to understand how instrumental fungi are in almost every ecosystem, not only in breaking down and recycling organic matter, but also in concentrating nutrients for plant life and acting as chemical communicators.

Kroeger has reported that death caps are now moving from their imported European host trees to an oak species native to British Columbia. The first identified species jump was in 2015. This was seen in California decades ago, when they began moving into coast live oak trees.\*\*\* Tree roots mingle

underground and mycelia reach across, taking up new residence. Death caps have begun to naturalize, spreading without external aid.

"They could get rid of a lot of humans and dogs," Kroeger said. The occasional fatality is a risk Kroeger tries to mitigate, but, like Bunyard, he worries more about what he calls the "unexpected consequences" of a biological invasion following paths of modern civilization. What does it mean to move a tree-root mushroom to a distant continent? The steamship gave living plants and mushrooms their first chance to enter global commerce. Now, container ships and airplanes can get them anywhere. "I think anything humans do has a chance of going wrong," Kroeger said. "The monkeys have a bad history."

The next day, on a Chinatown-bound city bus, Kroeger moved toward the back like a gentle ghost. His ponytail lay down his back, neatly combed. He sat with his pack on his lap, plastic bins empty for another day of hunting and gathering. As the bus traveled down Main Street near East Vancouver, he rubbed his hands together with some excitement, saying, "We are about to pass the 13th Street location; we must genuflect."

He was referring to the crop of death caps he'd found the day before, across from the Catholic school. Every year he finds more, new appearances along sidewalk edgings and corner gardens. Soon, he fears, they will move from the city into the surrounding woods. Southern British Columbia could be the next Bay Area in terms of death-cap abundance, with fatalities or life-affecting illnesses after every good rain.

As the bus stopped and started toward the edge of downtown Vancouver, Kroeger ticked off the ways mushrooms get around the world: volcanic pumice rafts, ship ballast, animal stomachs, packing crates, live plants, peat. Human activities that introduce mushrooms to new habitats tend to bring in other non-native species too. "Most of the time you'd never know it's happening," he said. "It's only because this mushroom kills people that we're paying attention."

In 1987, Kroeger identified a mushroom previously unknown to science. He found it growing in clumps at the University of British Columbia Botanical Gardens—in mulch beds, on the wet, marshy edges of ponds, and along trails. "Pretty little thing," he said, as if describing something precious. "Gray gills and an amber-colored cap." As he does when he talks about any mushroom, he sounded like he was in love.

Kroeger and a colleague named this new species *Hypholoma tuberosum*, and it was not long before other sightings were reported in New York, Japan, Germany, Belgium, and Australia. The species wasn't native to British Columbia, but it wasn't a new arrival, either; it had simply not been noticed by anyone willing to go to the trouble to name it. Since it seemed to favor landscaped grounds, mycologists began looking for its source, thinking that like the death cap, it must have been incidentally carried by humans. The source appeared to be a single nursery in metropolitan Sydney, Australia, where peat carrying *H. tuberosum* was being used for potting plants, which were then shipped worldwide. That peat had been collected from a bog 130 kilometers away—the likely native source of a mushroom that could have easily remained an obscure local, but has become a global cosmopolitan.

As the bus slowed in downtown Vancouver, Kroeger lifted his pack, saying, "Our stop."

We got out on Hastings Street and moved along a wide, crowded sidewalk, bedsheets and flattened cardboard stretched out in what looked like a blocks-long flea market. Half the vendors were curled up or sprawled semiconscious next to their wares; it was early in the day in a rough part of town. Kroeger said he's been hesitant to put up signs in neighborhoods around here: "People with psychiatric issues, suicidal, possibly even with malicious intent. I don't want them intentionally going after death caps."

Several blocks away, in a shaded neighborhood, he stopped in front of a house on the corner of East Georgia Street and Princess Avenue. Moving back a fern frond with his hand, he said, "Speak of the devil."

In the shade of the underbrush was a metallic-colored mushroom, pale green verging on gold. There are 96 hornbeam trees on this chain of blocks, Kroeger said, and he had already found death caps under eight of them. Now the count was up to nine.

Kroeger stopped not just for death caps but for every troop of mushrooms. Anything bright or emergent caught his attention. "Nicely poisonous," he said about a button-topped *Agaricus* growing on a corner lawn. "Not near as poisonous as *phalloides*," he added.

Later in the day, his plastic containers were full, and he'd gone through five or six thin cigarettes. He found one last death cap, a mature one growing in the grass near the base of a rock wall. He looked around, noting the nearest intersection, committing the location to memory. Then he moved on, leaving the mushroom behind. It had been a long day, and Kroeger is not on a crusade to remove every death cap. He wants to know what they are up to, and he wants to take out enough to matter. He loves kids and dogs, after all.

The death cap he passed up, grown from the roots of a nearby hornbeam, stood clear of the grass on its slender white stalk. Digging it up would not slow what is happening underground; it would not change the worldwide flow of soils and roots, and the fibrous bodies living within them. Digging it up would be almost a symbolic act, less than a drop in the bucket. So Kroeger left the mushroom in place—a nod to the fifth kingdom, the unstoppable.

#### **Published in The Atlantic**

And now a public service announcement to COMA's lonely solo foragers: KEEP YOUR EYES OPEN OUT THERE

## Mushroom hunter finds bones of missing Eastpointe man

Neal Rubin, The Detroit News Published 11:49 p.m. ET May 16, 2020 | Updated 11:54 p.m. ET May 16, 2020

*Chesterfield Township* — A mushroom hunter near I-94 found the skeleton of what's believed to be a missing Eastpointe man Saturday afternoon.

Chesterfield police said the hunter was searching in a swampy and heavily wooded area south of 23 Mile Road and just east of the freeway around 4 p.m. when he came across bones, heavily weathered clothing and camping equipment.

An investigator from the Macomb County Medical Examiner's Office detected no sign of trauma, police said.

A wallet near the remains held identification for a 35-year-old white male who had been reported missing in 2018. A township detective contacted his next of kin, who lives in Texas.

The investigation will continue, police said, but there was no immediate sign of a crime.



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This is currently available on Youtube. Who knew Boris was a modern witch?

Notes from the Editor: Well now as you know, all of our morel walks were cancelled. If it is any consolation, you saw in the beginning of this edition of Spores that the pickings were slim at Tallman and in Cortlandt, Ksousha and I both walked my usual spot and came up empty handed. We have a theory that the locals have nothing better to do while home bound, so they have been getting there before us. Given the photos some folks are posting it is obvious that morels are around someplace. Maybe the one expert (Noah Seigel) that we got to hear at the sole Mushroom U. class squeaked in before the pandemic, was right when he said for all of the effort we put into finding a handful of morels we'd be better off flying out West where you can find 50 lbs in a morning. Then again, he also said he seldom eats mushrooms and didn't see the point of our culinary pursuits (which greatly reduced his popularity in the eyes of our attendees). Stay safe.

Tom C.

#### COMA officers and committee members are:

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