



September 17
General Meeting Speaker



--Sporting a boa made of mycelium!

Ken Litchfield

"Aztec Octli and Dionysian Wine: Their Herbal and Fungal Additions and Their Legacy in Pulque, Root Beers and Steroids"

Ken Litchfield is a naturalist with a professional background illustrating, writing, teaching and working in the fields of art, science, and health. Ken is the current Cultivation Chair of the Mycological Society of San Francisco and teaches "Mushroom Cultivation", "Growing and Using Healthful Herbs" and "Beneficial Beasts in the Garden" at Merritt Community College in Oakland, CA.

Ken prefers teaching the ecological relationships that can be fostered when horticulture and mycology are properly combined. Under correct management, an ideal system of cultivation can be achieved where poisonous pesticides are no longer needed and everything is diversified and shared in the pursuit of happiness, health, and wealth rather than monocultured and commodified for immediate gratification.

MycoDigest:

What are FUNGI?

Else C. Vellinga

It is surprisingly difficult to come up with a definition that characterizes fungi. For plants it is relatively easy to list the most important characteristics: they are planted in the ground and make their own sugars in special little cell-organelles called chloroplasts with the help of sunlight. Plant cells contain a nucleus in a membrane. The cell's walls contain cellulose and lignin.

Animals are also not too hard to define: organisms that are able to move around—at least during one stage of their life. They lack the capacity to make their own sugars and must depend on other organisms for this essential source of energy. They are able to ingest food and digest it. They're also made up of cells with a nucleus in a membrane, but distinct cell walls are absent.

Fungi have characteristics in common with both these groups. Most fungi, and certainly the mushrooms we all know so well, are *sessile* just like plants—they sit there and do not move around. And like animals, they have to break down organic material and absorb it for nutrition. Their cell walls do not contain cellulose, but chitin; a substance also present in many animal groups (think beetles and crabs for instance). Fungal cell walls also have glucans, just like plants.

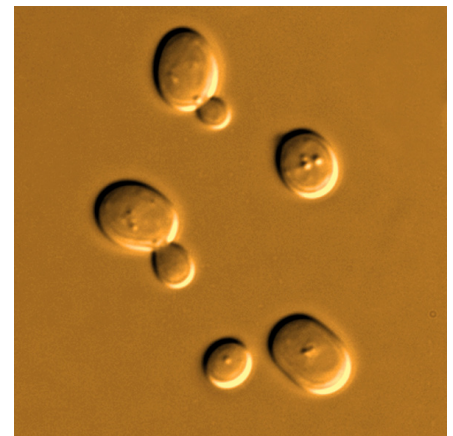


Fig. 1. Yeast cells (*Saccharomyces cerevisiae*) [from Wikipedia]. The two cells on the left are budding, and making new yeast cells.

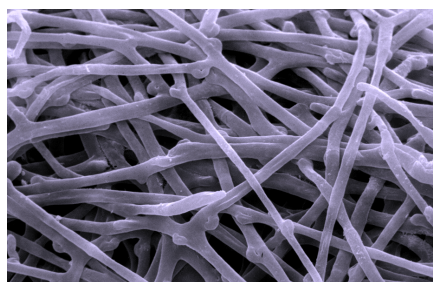


Fig. 2. Fungal hyphae forming a mantel around a tree root [photo by Hugues Massicotte].

Fungi are a diverse group and their body shapes vary enormously. The oldest branches of the fungal family tree are *unicellular*, in other words, each individual is a solitary, single cell. These cells live in wet environments and their spores have a flagellum—a whip-like hair that propels the cell around. The more advanced species of fungi lost their flagellum and changed from single-cell individuals to complexes of thread-like hyphae that form fruiting bodies like boletes or morels. They moved onto the land and conquered that new environment. Hyphae perform the same function as roots do

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PRESIDENT'S POST

Greetings MSSF Members!

I hope you all had a great summer while the MSSF council members took their well-deserved, three month break from business. Usually during the summer months there is not a lot of fungal activity. However, I and others have discovered plenty of *Agaricus augustus* (the Prince) as well as a few *Boletus edulis* (the King) here in San Francisco during the last couple of months. I also received a report from a MSSF member and good friend who found a huge fruiting of the Spring King in June near Truckee, CA in the Sierra.

Other MSSF activities this summer included the annual summer picnic held on Sunday, 4 August in the beautiful redwood glen picnic site of the East Bay Regional Park System. I want to thank George Willis, the hospitality committee, and Norm Andresen for their coordination in making this event a success.

The MSSF also participated in the annual Telluride Mushroom Festival, held in Telluride, Colorado, from 15-18 August. V.P. David Gardella and head cultivator, Ken Litchfield set up an educational table and distributed information and flyers about the MSSF.

The election of new officers to the MSSF council was conducted by the Vice President, David Gardella at the May general meeting. Here are the results of the election:

President:	Curt Haney (re-elected)
Vice President:	David Gardella, (re-elected)
Treasurer:	Henry Shaw: (re-elected)
Secretary:	Eric Multhaupt
Councilors:	Brennan Wenk & Sander Sindell

The annual Mendocino Woodlands Camp/Foray is on schedule for 15-17 November 2013. Look for an announcement in this edition of the Mycena News. Make sure you sign up early before all the spots are filled, and remember, membership in the MSSF is required to register for this awesome event.

The next general meeting is scheduled on 17 September at the Randall Museum. A social hour with appetizers and mushroom identification begins at 7 p.m. with the official meeting at 8 p.m. In addition, our newly appointed librarian, Danny Newman, will be available to check books in and out of our newly rededicated library: the MSSF Bill & Louise Freedman Mycological Library.

I hope to see many of you in the forest soon, getting more involved with the society as a volunteer, or at a future MSSF event!

--Curt Haney, President@MSSF.org

CULINARY CORNER

September is upon us and that means great times and great food will once again be blessing our mushrooming months. The MSSF Culinary Group has been an important part of the Society for many years. Be sure to come to the season opener; the annual potluck that will amaze you with its variety and excellence. Meet fellow lovers of mushrooms and good food. Just be a member of the MSSF and bring a dish to share plus your tableware and favorite beverage. Oh, and \$8.00 to cover the rental of the kitchen and dining area. As for all of our gatherings, information can be found on the MSSF Calendar.

To learn all the details about the MSSF Culinary Group, here is a description, aptly written by Lisa Bacon. Thank you, Lisa.

THE MSSF CULINARY GROUP

The Culinary Group is open to all MSSF members interested in the gastronomical aspects of mushrooming. We are united in our love of cooking and passion for mushrooms, as well as the opportunity to enjoy each other's company over a delicious meal. The MSSF Culinary Group meets nine times a year (September – May, see MSSF calendar) at 7 p.m. on the first Monday of each month (with a few posted exceptions) at the San Francisco County Fair Building (a.k.a. Hall of Flowers), Golden Gate Park, 9th and Lincoln, San Francisco.

Each dinner is limited to 60 diners who must pre-register online or by contacting the Culinary Chairperson. To participate, you must be a current member of MSSF and pay the \$10 annual Culinary Group membership dues (payable on-line or at the dinners). Most dinners cost \$16 (\$15 for seniors, 65+) to cover the cost of the facility rental and the dinner's ingredients.

Traditionally, the dinners have been designed to take advantage of the wild mushrooms and freshest foods of the season. Menus are centered on mushrooms, a particular main ingredient, ethnic foods, or a holiday near the time of the dinner. Each dinner is led by a "captain" who sets the menu and organizes volunteers to set up the dining hall, cook the dishes and clean up afterwards.

The MSSF Culinary Group is a hands-on participatory cooking group. All participants contribute, either as part of the team that prepares the dinner, or by bringing an appetizer to share. Members are expected to take part in the setting up for, or the preparation of, at least one

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Mycodigest continued

for plants. Every day I gaze at the roots of the orchid above my computer, roots that are slowly but surely growing along the shelf, and I contemplate the similarities of roots and hyphae.

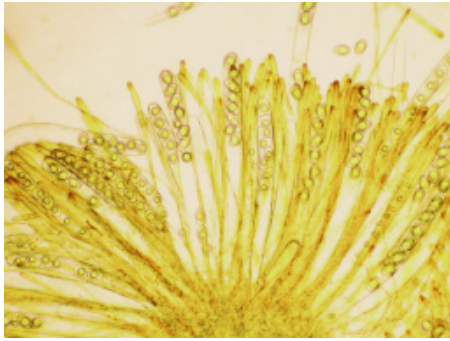


Fig. 3. Asci with 8 ascospores [photo by the author]. Every spore has a refractive drop. The long cells between the asci are called paraphyses, and protect the growing asci.

There are two large and species-rich fungal groups that we are very familiar with: the basidiomycetes and the ascomycetes. They differ mainly by the structure on which, or in which, their spores are formed. Basidiomycetes have basidia: club-shaped cells with four prongs on which spores are formed. The hallmark of ascomycetes are their asci: tube-shaped cells in which 8 ascospores are formed.

These basidia and asci are on or in the fruitbodies, whereas the rest of the fungal organism is out of sight—too small to be seen with the naked eye.

Both these groups conquered the world by growing everywhere with their hyphae. Hyphae lengthen just behind each tip and they have rather rigid walls.

What I have written so far is all very gen-



Fig. 5. Lichens growing on a wall in Avignon (France) [photo by the author]. The flat round objects in the middle are the fruitbodies of the fungus, but the rest of the organism is visible as well (in non-lichenized fungi, that part is invisible to the naked eye and is hidden in soil, etc.).

some *Leucocoprinus* species (parasol mushroom relatives), for instance, form yeast-like colonies when grown and cultivated by ants. Yeasts form colonies, but every individual is still just a single cell that behaves more like bacteria than like fungi. One example is *Saccharomyces cerevisiae* or baker's yeast, which makes our bread rise, ferments grapes into wine and is instrumental in brewing beer.

Fungi digest food—but not inside the cells. Enzymes are made inside the cells and are exuded into the environment (wood or soil) where they do their work of breaking down complex molecules into smaller molecules. The cells are then able to absorb these smaller molecules and put them to work.

Here, hyphae are at their best; they have a lot of surface in relation to the contents.

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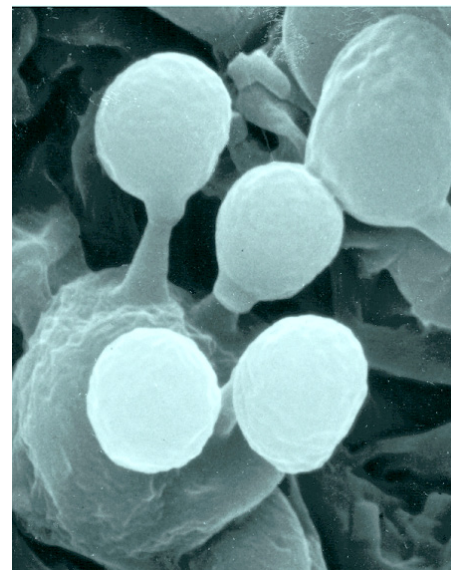


Fig. 4. Basidium seen from above with four basidiospores on it [photo by the author].

eral and that means there are plenty of exceptions. Here are a few:

- Some plants have lost their chlorophyll and parasitize other plants (either directly or indirectly via a fungus) for their carbohydrates and sugars.
- Some groups of filamentous fungi have gone back to a cellular form or stage;

- Some groups of filamentous fungi have gone back to a cellular form or stage; for instance, form yeast-like colonies when grown and cultivated by ants. Yeasts form colonies, but every individual is still just a single cell that behaves more like bacteria than like fungi. One example is *Saccharomyces cerevisiae* or baker's yeast, which makes our bread rise, ferments grapes into wine and is instrumental in brewing beer.

Mycena News



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To subscribe, renew, or make address changes, please contact Nathan Heilman: Membership@MSSF.org or (415) 320-4237.

Past issues of *Mycena News* can be read online at www.mssf.org

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MycoDigest continued



Fig. 6. *Rozella allomyces* [from Wikimedia commons] – the resting sporangia (the brown balls) in groups within the cells of the fungus *Allomyces*. The cell walls of these sporangia contain chitin, but the active stages of the fungi do not have chitin.

- Some basidiomycetes have basidia with six spores, or five, or two, or one and some ascomycetes have asci with four spores or some multiple of eight, like, 1032.

- Lichens show off their whole organism; nothing is hidden from sight.

- Quite recently, a group of widespread and diverse aquatic organisms was discovered that does not fit the fungal bill completely. These unicellular fungi lack chitin in their cell walls. Are they still fungi or do they belong to other groups? The morphology of the cells does not help much; it is just a balloon-shaped cell and a spore with a flagellum. All these were found in British pond water, river sediments, harbors, even the Berkeley Marina, etc., and they form one basal branch of the big fungal tree. This branch has a lot of leaves on it; many different organisms fit in here. One of these organisms was already known: *Rozella*, a genus that can be grown in the lab. *Rozella* also lacks chitin in the cell wall, but only in some stages of its life, namely when it is actively feeding. Some authors describe

this as “no dinner jacket for *Rozella*”. Chitin is present in the walls of its resting sporangia (a kind of over-wintering spore container) and that can easily be revealed with a chitin-specific marker.

This is what makes fungi such intriguing organisms: completely new groups keep being discovered. Exceptions on generalities are the rule and we still know surprisingly little about the vast majority of the individual species.

Further reading:

At present the best introduction to fungi in all their beauty and weirdness is the book by Jens H. Petersen (2013): *The Kingdom of Fungi*.

Some articles describing the newly discovered fungal groups:

Discovery of novel intermediate forms redefines the fungal tree of life
Jones, M.D.M., I. Forn, C. Gadelha, M.J. Egan, D. Bass, R. Massana & T.A. Richards, 2011. *Nature* 474: 200-203. doi:10.1038/nature09984

James, T.Y., M.L. Berbee, 2011. No jacket required – new fungal lineage defies dress code. *Bioessays* 34: 94-102. DOI 10.1002/bies.201100110



Else C. Vellinga is interested in mushroom taxonomy and has been studying mushrooms in California and beyond for years. A frequent contributor to *Mycena News*, she is also fascinated by interactions between fungi and other organisms. In her free time she knits, and knits, and knits!

FIRST BEGINNERS QUICK START FORAY

The MSSF Education Committee is planning local forays for those new to, or interested in, local mushrooms. The first foray will be held Sunday, October 13, in Francisco's Golden Gate Park. Meet at the southwest end of the Polo Field at 9:30 AM. Quick Start forays are scheduled to occur the Sunday just before a general meeting of the MSSF. General meetings are held on the third Tuesday of each month. Upcoming quick start locations will include local municipal parks, greenbelts and other areas where permitted.

These forays are intended to familiarize beginners with field characteristics useful in helping to identify mushrooms and other fungi. We usually gather for an orientation to go over collecting policies, practices and etiquette. We also point out locations where fungi are likely to be found. After the orientation, we break out into smaller groups and hunt for fresh fungi for one to two hours. On returning, we display specimens collected and discuss their key identifying characteristics. Any fungi not identified can be brought home, refrigerated and taken to the general meeting on Tuesday for further inspection.

New MSSF members and guests, beginners or advanced, are welcome. Non-members of the MSSF are also welcome. It is hoped that these forays will provide information about local fungi and stir one's interest to learn more.

Email Paul Koski at: pkoski04@yahoo.com or Enrique Sanchez at eingew@yahoo.com for details about these forays and to be put on the foray list.

Culinary Corner continued

dinner. It's an excellent opportunity to practice one's culinary skills and to learn from more experienced cooks. The participation requirement can also be met by taking on a non-cooking assignment. Members and guests not helping with the evening's dinner are asked to bring appetizers. The Culinary Group also helps with special events such as the Fungus Fair.

PRACTICALITIES: Reservations for ALL the dinners (except the September potluck) are required and must be made no later than the Wednesday before the actual dinner. We keep our reservation numbers at a maximum of 60. To make reservations online, go to the website, www.mssf.org. Select the calendar and click on the event, or go to the Members' area and click on "event registration." For assistance or additional information, please email culinary@mssf.org. If you have questions, please contact 2013-2014 year co-chairs, Paul Lufkin (415) 515-1593, plufkin@gmail.com or Lisa Bacon, (707) 849-5142, lisa.bacon@comcast.net. David Bell is the Culinary Group treasurer. Pat George writes the monthly column for Mycena News. Contact her at 510-204-9130, plgeorge33@yahoo.com.

Each dinner starts at 7 p.m. with a brief business meeting (signing up for future dinners, etc.) followed by appetizers. Members and guests are required to bring their own dinner beverage, tableware and table covering (i.e., dishes, utensils, glassware, linens, etc. are not provided). Those who have not prepaid on line will put a check or cash in the envelope provided by the treasurer. The main dinner starts at 8 p.m. with the captain for that meal introducing the courses and volunteers. Dinners are usually over by 9:30 as the facility rental is usually until 10 p.m.. The cleanup crew returns the facility to the state in which it was found.

As a participatory group, everyone needs to volunteer at least once a season to take part in setting up, preparing food (main, sides, dessert) or cleaning up. A sign-up board is available at each dinner.

The Culinary Group has its own large pots, pans, utensils, etc. available for volunteer cooks to use for the dinners. We have many seasoned veterans with expertise and experience willing to advise and assist. Volunteer cooks are reimbursed for their grocery expenses. Appetizers are donated.

As always, we welcome any suggestions our members have regarding the structure and functioning of the MSSF Culinary Group.

FLASH!

The September issue of *Cook's Illustrated* offers the following from its feature article: "Common Cooking Myths, Debunked".

"Washing mushrooms makes them absorb water. FACT: Soaking will, but a quick rinse won't. When we learned that mushrooms were more than 80% water, we began to question their ability to absorb yet more liquid. We weighed whole mushrooms before and after soaking them in water for 5 minutes and found that 6 ounces of mushrooms gained only 1 ½ teaspoons of water. But, to entirely prevent absorption, we wash mushrooms the same way we wash other vegetables: by rinsing them under cold water. However, if you will be using the mushrooms raw (ed. Note: a bad idea, according to many because indigestibility), rinse them just before serving or avoid rinsing altogether, since the surfaces of wet mushrooms turn slimy when exposed to air for more than 5 minutes."

Many mushroomers simply wet a paper towel and wipe the mushrooms with it rather than rinse under the faucet. Also, as dirt is often very present on mushrooms you've collected, use a soft bristled brush to clean them. I've often wondered if using a water pik would work to discreetly get rid of dirt in hard places to reach, but I don't have one to try it.

I'm always looking for great mushroom cooking ideas and recipes for this column. Please do contact me if you would like to contribute. --Pat

MSSF Mendocino Woodlands Foray "Food - Forays - Fun"

November 15-17, 2013

Deep in the Mendocino Woodlands, MSSF members, friends and family, gather once again for our annual north coast fungal rite of autumn. This weekend-long spectacular mycological event includes great mushroom themed dinners, guided forays, fun Informative presentations, and of course plenty of mushrooms.

Last year we returned to our roots of the "3- F's", (Food-Forays-Fun). This year we will continue to improve upon that theme. We plan to offer a more diverse selection of forays, and increase the number of forays to six. We plan to expand upon the very popular Saturday afternoon appetizer cooking demonstration with a larger variety of mushroom appetizers. We have arranged to have "Deb Dawson" the chef who cooked the fabulous meals for us last year, return to repeat the experience for us. Last but not least, Curt will conduct his legendary raffle again, and it will be bigger than ever!



Jeanne Coleman,

We plan to have two speakers. Friday night's speaker will be Miss Jeanne Coleman, Education Director of the Mendocino Woodlands Camp Association. Her short presentation will be on the Cultural & Natural History of the Mendocino Coast.

Our feature speaker on Saturday evening will be: Dr. Brian Perry, PhD. He has been studying fungal diversity, systematics and evolution since 1995. In addition to documenting the mushrooms and other fungi of the Hawaiian Islands, Dr. Perry's lab conducts research on the assembly, dynamics and biogeography of island fungal communities, endophytic fungi of Hawaiian plants, the systematics of *Mycena* and allied genera and the evolution of fungal bioluminescence. Dr. Perry has conducted research in Tibet, Borneo, Micronesia and various West African islands. He received his PhD from Harvard in 2006, and was a professor at the University of Hawaii at Hilo from 2009-2013. He begins his new position at California State University East Bay in September.



Dr. Brian Perry, PhD.

All on-site meals and lodging (Friday night through Sunday lunch) are included in the basic \$200 dollar per person member rate; \$150 for children 5-12 years (accompanied by a paid adult). To become a MSSF member, go to: <http://www.mssf.org/membership/join.html>

Event details and sign up are on the web site linked from the calendar or on the member's only section under events. The link to register is: <http://mms.mssf.org/members/secure/evr/mchange.php?evd=6991963>

Please register online if you can to save paperwork for the registrar. Online registrations may be paid with a credit card or a check can be mailed after you register. A registration form is included in this issue of the Mycena News for use if you cannot register online. The schedule of events will be posted to the web site and sent to registered participants soon.

For registration questions, please e-mail Stephanie Wright at: lioness.chef@gmail.com or call (510) 654-6279. The above e-mail address can also be used if you need help with the online reservation process.

Important Notes: We are at our usual location in Camp #1 this year. Cabins have fireplaces and wood is available, but we suggest you bring a couple of presto logs if you plan to make a fire in your cabin, (much less smoke and much easier). You can also bring fire starters which help greatly in getting fires started. Another option is to enjoy the nice big fires we will have available in the dining rooms after dinner and then return to your cabin at bed time. If you would like an alcoholic beverage with your dinners on Friday or Saturday night it will be BYOB. Also please note that it is very important that every camper bring a flashlight for safely getting back and forth to the cabins after dark. A complete list of what to bring, and directions to the camp will be sent to registered attendees in October.

Additional information about the Mendocino Woodlands Camp can be found at:

www.MendocinoWoodlands.org (FAQS, MAPS & DIRECTIONS).

Mycological Society of San Francisco

Mendocino Foray Registration Form

November 15-17, 2013

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: (____) _____ E-mail: _____

MSSF Member registration:

Adult (on site lodging) # _____ @ \$200.00 ea. _____

Children (on site lodging) # _____ @ \$150.00 ea. _____
(Ages 5-12)

Total: _____

Payment Options:

Check (preferred): Please mail check with printed form to:

MSSF 150 Sadowa ST., San Francisco, CA 94112

Credit card: Enter details below and mail in:

VISA _____ MasterCard _____ Card# _____ Exp. _____

3 Digit code from back. _____

PayPal:

Registration and payment via paypal, credit card, or check is available at:

<http://mms.mssf.org/members/evr/addcontact.php?evid=5117415>

Please register online if at all possible.

Please list all attendee's names and Mycological Club affiliation for badges:

Name

Club

#1 _____

#2 _____

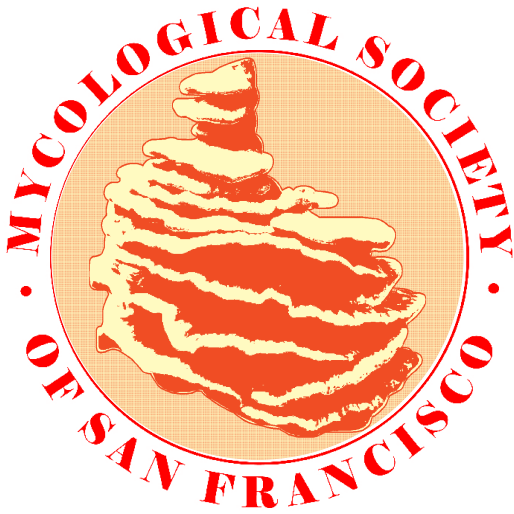
_____ Please check if you are a senior or handicapped (for lodging preference)

_____ Please note number of vegetarians, if any, in your party.

Please list any food allergies or special requests for the registrar:

Mycological Society of San Francisco
c/o The Randall Museum
199 Museum Way
San Francisco, CA 94114

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"A World of Wonder at Your Feet"

September 2013, vol. 65:01

MSSF Calendar September

Sunday, September 8 - MSSF Past Presidents Dinner
(no further info at press time) Randall Museum 199 Museum Way, S.F.

Monday, September 9, 7 p.m. - Culinary Group Dinner
County Fair Bldg, Golden Gate Pk, 9th & Lincoln, S.F.
Season-opening Potluck. Reservations not required but there's an \$8 charge to cover use of the facility. Bring your tableware and a beverage. The SFCFB does not provide dishes, etc. The next dinner is October 7th.

**Tuesday, September 17, 7 p.m. - MSSF General Meeting
(and MSSF President's birthday!)**
Randall Museum (Buckley Room) 199 Museum Way, S.F.
7 p.m. - Mushroom identification and refreshments.
8 p.m. - Speaker: Ken Litchfield

Tuesday, October 8, 7 p.m. - MSSF Council Meeting

Sunday, October 13, 9:30 a.m. - Beginners Quick Start Foray
Golden Gate Park, S.F. Meet at the southwest end of the Polo Field.
For more information, email Paul Koski at pkoski04@yahoo.com

Tuesday, October 15, 7 p.m. - MSSF General Meeting
Randall Museum, 199 Museum Way, San Francisco.

Check the MSSF online calendar at:
<http://www.mssf.org/calendar/index.php>
for full details, latest updates
and schedule changes.

Announcements

Mycena News Editor Needed

Let creativity be your guide. Bring out your inner artist. Knowledge of Adobe InDesign CS5.5 and Adobe Acrobat X Pro helpful. Current editor will coach via email. Email to: mycenanews@mssf.org.

To learn more about volunteering for this or other council and committee positions, go to: www.mssf.org, members-only area, file archives, council member position descriptions, or email: President@MSSF.org Remember, our great ALL-VOLUNTEER organization would not survive without volunteers!

The 2013 Henry Pavelek Sr. Memorial Scholarship from the North American Truffling Society

Henry Pavelek Sr. joined NATS in 1982 and soon was elected President. His energy and enthusiasm for truffles and truffling provided much of the driving force that established NATS as a sustainable organization. A scholarship fund has been established in his memory. Applicants should be graduate students or outstanding undergraduates conducting research on physiology, taxonomy, phylogeny, ecology, animal interactions, commercial harvest, or culinary attributes and uses of hypogeous fungi. The scholarship for 2013 is for \$1500. The recipient will be announced at the NATS December 7 meeting & potluck in Corvallis. The application form can be accessed by clicking on its link at www.natruffling.org. The application deadline has been extended to Oct. 31.

The submission deadline for the October 2013 issue of Mycena News is September 15th. Send all articles, calendar items and other information to: mycenanews@mssf.org.