



# MicroNews

San Francisco Microscopical Society

Volume 8, #1 January 2013

## MEMBERSHIP INFORMATION

To join the Society, fill in the form available [on line](http://www.sfmicrosoc.org) at:

[www.sfmicrosoc.org](http://www.sfmicrosoc.org)

Mail it to :

SFMS Treasurer  
435 Melrose Ave  
San Francisco, CA 94127

Include your dues.

Make check payable to SFMS.

Dues are \$12.- /calendar year.

Pay now for 2013

Life membership is \$144.00

## REGULAR MEMBERS

**Please bring your dues to the meeting on January 9 or mail today so you will not forget.**

**(We are all volunteers. Help make the organization run without multiple reminders.)**

## January 9, 2013 General Meeting: Dr. Eric E Gonzales Species-selection and Development of a Cephalopod Model System for Genomics and Advanced Imaging Techniques.

### SFMS at Randall Museum's Buckley Room

### Wednesday, 7:30 PM

An exciting event has been planned by President Werner for the kick-off meeting for the 2013 year. Imaging has become one of the essential means for analyzing and understanding what the microscope reveals and new techniques are being developed to better see the results of investigations in biological microscopy.

Dr. Gonzales is a post-doctoral fellow in the laboratory of Dr. Daniel Rokhsar at the Okinawa Institute of Science and Technology (OIST). His research is on the genomics and development of molluscs, with a focus on the evolution of complex features in octopus as compared to human.

We are fortunate to be able to present this speaker and ask that mem-

bers come early so that the business of the Society can take place before the feature presentation. You will hear brief reports from the officers and be introduced to our new Recording Secretary Mary Ann Scott. An election will take place for the presented slate and any write-in candidates who are paid up members for 2013. Dues (\$12) can be paid at the meeting. HS

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## THE GRANT- WHO IS THE WINNER?

In the middle of the November 2012 **Micro News** was an orange copy of the 2012 grant announcement. It was meant to catch your attention and I hope it did. Over 250 copies were sent to Science Departments of high schools and colleges in the hope of attracting some responses.

A call for evaluators resulted in three members volunteering to join Presi-

dent Werner to form the evaluation team.

Four proposals were received by the 10th of December and they were given to the President who will call a meeting after the 25th.

As we go to press, we do not know who will be recommended to the board at the January 6 meeting. Come to the board meeting and be among the first to know.

### RANDALL MUSEUM LOCATION

199 Museum Way,  
San Francisco

Call 415-554-9600 for additional information.

From Market Street, turn right onto 14th and continue uphill until you have crossed Castro.

Follow the traffic going up 14th as it swings left. Continue up Roosevelt way and after one long block enter Museum Way on your left. Drive to the parking lot at the end. Enter the museum, turn right, follow the passage way down to the Buckley Room.

## A New Fungal Species Reported By Peter Werner et al.

Those of us who are not firmly rooted in academia or who hold a position in a research institution would find it difficult to have a discovery published in a scientific journal. Our president Peter G. Werner recently contributed significantly to the discovery of mushroom species that had, because of its similarity to closely related species, been misnamed. Peter has been active in the field of fungi and molds for many years and in collaboration with the two principal authors, Jan Borovička and Alan Rockefeller published in **Czech Mycology** “*Psilocybe allenii* – a new bluing species from the Pacific Coast, USA”. [http://](http://www.czechmycology.org/_cmol/CM64207.pdf)

[www.czechmycology.org/\\_cmol/CM64207.pdf](http://www.czechmycology.org/_cmol/CM64207.pdf)

By “bluing” is meant the characteristic discoloration of wood that this group of wood-rotting fungi produce. The spores, used to identify different species, were rather similar to *Psilocybe cyanescens* but had a distinct difference in that the pileus margins were not wavy. This difference, however, was viewed in the past as within normal variability of the species.

Advanced DNA analysis revealed “*that there is a stable 5-base pair difference in the DNA sequence of the ITS rDNA region...which is commonly used for separation of agaric species*”<sup>1</sup>. This difference

provided the evidence that this was a new species.

Microscopy and photomicrographs were employed to view and describe the spores using a Zeiss Primo Star LED microscope with full Kohler illumination and a Zeiss Plan Achromat 100x, 1.25 –oil-immersion objective. The measurements of 200 spores in five collections were statistically analyzed. DNA studies are complex and involved and are succinctly described in the article for those who want to explore the methodology.

Because Peter is connected with the Microscopy program at Merritt

(Continued on page 4)



*Psilocybe allenii*. USA, CA, Oakland, 5 January 2006 leg. Peter G. Werner. Photo by Peter G. Werner.

### Definitions

#### For those not familiar with some terms:

Pileus: Gr. a cap, the mushroom cap.

Cheilocystidia: Gr. A brim, margin or lip (cheilos): bladders (cystidia)

Pleurocystidium: Gr. A rib (pleura): a bladder (cystidium)

Spores: reproductive structures of mushrooms.

The ribs on the underside of the cap are the surfaces where spores are formed on the bladder-like structures.



*Psilocybe allenii*, holotype. A— cheilocystidia, B— pleurocystidium, C— spores. Scale bar is 10  $\mu$ m. Photos by Jan Borovička

**NOVEMBER 14 SFMS MEETING AT MERRITT COLLEGE**

When I arrived, shortly after seven, the room in which we were meeting, D-243, was already quite full of members and guests and several of the fine microscopes were already in use. Dr. Wayne Lanier, whose article about his field work was reported in the September 2011 issue, (Vol. 6, #3), set up his camera and recorded video footage of algae and associated organisms from one of the ponds in the south end of San Francisco Bay. You can access his videos: [http://www.flicker.com/photos/w\\_lanier](http://www.flicker.com/photos/w_lanier) and <http://youtube.com/user/WLanier>. (w\_lanier@pacbell.net)

Two new members paid their 2013 dues at the start of the meeting. We welcome Debbie Klein who has just bought a new microscope, an AmScope Model B100A-MS-P binocular compound with a camera that captures

still and video images which she has not yet set up. Debbie is an architect and is looking forward to taking one of the Bioscience courses offered at Merritt.

Gaby Martinez also is a new member.

Other members attending were: Peter Werner, (President), Bill Hill (Vice President), Myron Chan, (Treasurer), Mary Ann Scott, (Recording Secretary), Henry Schott, (Communicating Secretary), Tavy Sophorn, Dr. David Wolfensohn, Mike Kahn, Michael Leedie and Dr. Brian Rowning, of Merritt College.

Myron brought a "pocket" microscope that he recently bought, made in Germany and equipped with lenses that magnify up to 240X. He demonstrated how it could be used with LED flashlight illumination.

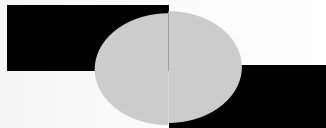
**A New Officer Volunteer**

The rush to fill vacancies on the SFMS board is truly underwhelming. Stand in the way of the hoard of office-seekers and the silence of their footsteps will make you wonder if you are deaf. Is it so easy to imagine that the Society would continue to function with no one in the "engine" room & that each member would rather sit at home and contemplate his or her imaginary fire in the fireplace? Or are we still polluting the air with real fires? Hard to say!

Fortunately, without any prodding, we have invited Mary Ann Scott to take on the position of Recording Secretary. Mary has been a mature student in the microscopy program at Merritt and a member for two years. We much appreciate her willingness to take on the work that Linda-Anne

Wraxal performed for many years and that Debbi Brusco fulfilled during the crucial period when the Society was seeking and successfully attained the non-profit status.

Please read the section on ELECTION in this issue. Your willingness to run for office need only be seconded at the January 9, 2013 meeting for you to be a write in candidate. Vacancies on the board often occur without prior notice and knowing who would like to serve is very helpful in both filling vacancies and in providing chairmanships for needed committees. You must be a paid-up member to run for office so please mail in or bring your \$12.00 dues to the meeting. HS



**MERRITT TO OFFER NEW PROGRAMS RELATED TO MICROSCOPY**

Merritt College Biology Department held a *BioFest* on October 28, 2012 in what used to be the student lounge, a large room with an expanse of glass that gives a breath-taking view of the San Francisco Bay Area when the curtains are not closed. Spread over several tables were microscopes and literature describing

forthcoming courses. Other tables offered a healthy variety of vegetables and fruit with an occasional delight such as chocolate chip cookies.

Of interest to microscopists are courses such as Emerging Technologies in Microscopy (Biosci 20)



which started on November 20th and runs through December 8, 2012. It is an intense

course that examines how new breakthroughs in histotechnology are improving human lives through better and faster diagnosis.

The purpose of this event was to introduce the general public to emerging careers in biological sciences which train for the jobs of tomorrow in the exciting fields of Genomics and Microscopy. This festival included interactive activities for all ages and was held in conjunction with the Bay Area Science Festival.

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HS

## SMALL WONDERS

The December 2012 issue of the *Scientific American* carries an article by Kate Wong that focuses on "Light microscopy reveals marvels of the natural world". If you are not a subscriber, go to your local library and enjoy looking at these excellent micrographs and discover what now is possible with the advanced instruments. What makes the instruments so special is the computer processing that the images can undergo as well as the careful and systematic procedures that are used to collect the information. In the simplest terms, the computer program can operate the microscope so

that a stack of 20 images is collected from a particular point on the slide, each displaced by a small fraction of the vertical focal plain. (Think of a stack of twenty CDs each a picture of the same spot but with the focal plane changed by a small fraction.) For each image, remove all the out-of-focus pixels then combine all 20 images where every item is sharply in focus.

The best modern light microscopes depend upon computer programs that collect and process the information and also drive the microscope performance once the parameters are set.  
HS

## A NEW FUNGAL SPECIES

(Continued from page 2)

College, the Bioscience Microscopy Facility received mention in the title. If you have never visited the laboratory and seen the excellent microscopes available for use in the program developed and conducted by Dr. Gisele Giorgi, a member of the Society, you should avail yourself at the next opportunity and bring with you one or more of your favorite slides for viewing.

In an article in the San Francisco Bay Guardian, Alan Rockefeller of the SF Psychedelics Society and Peter Werner responded to questions by the Guardian

reporter about *Psilocybe allenii*. It was recognized as early as 1976 in Golden Gate Park but was misnamed *Psilocybe cyanescens*. Later, when its psychedelic properties became well known, it was named "*Psilocybe cyanofriscosa*", a name that is not properly recognized in botanical circles because it was never described and published in a peer reviewed scientific journal. There are many mushroom species and all which stain blue when damaged and have dark purple brown or black spore prints are psychedelic according to Alan.

HS

## COMMUNICATIONS

*Debbie Klein, a new member, provided some background information at our request. Those who share her interest in Mycology and/or Photography can reach her at [debbiej.klein@gmail.com](mailto:debbiej.klein@gmail.com).*

Dear Micro News:

My interest in microscopy is related to mushroom identification. I took a class in the local fungi at the SF State Sierra Nevada Field Campus near Yuba Pass in June 2010. We used microscopes in that class. When I find interesting mushrooms, I usually try to get micro-

scopic images to show the unusual features of the spores or other structures.

My mushroom interest developed in 2008 when I got a new digital camera, and photographed many mushrooms that had come up after a lot of rain in Martha's Vineyard. In 2010, I often hiked in Tilden with dogs, and wondered what mushrooms I was seeing. I joined some mushroom clubs and Yahoo groups, and got some ID's for the 2008 finds, as well as what I was finding then. I still find many mushrooms, and am interested in being able to

study what I find microscopically.

I've done a good bit of photography over the years, with a Pentax Spotmatic and occasionally with a Rolleiflex before the digital age, and now mostly with a Canon PowerShot ELPH. I used to develop and print pictures at the ASUC Studio on the Berkeley Campus and was photo manager at the co-op I lived in. Now I take pictures of the mushrooms I see and post them on Picasa and Mushroom Observer. I have also documented wildflowers I find on

hikes as well as the hikes in general.

I tried the new microscope I recently bought last night, and it works, but not completely. I'll need to talk to someone who has the same scope or to Amscope, and see if I can get the last bits to work.

I look forward to participating in the club!

Debbie Klein

(See image pg 5)

**DNA sequencing machines**

Modern next-generation DNA sequencers, which have a completely different technology from conventional DNA sequencers used for the human genome sequence, enable us to produce a large amount of data with massive parallel sequencing. The procedure of next-generation sequencing is that DNA is broken down into small fragments, and the two strands of its double helix are split apart to form two templates. These templates are fixed to a spot and treated with a solution of DNA building blocks (A, C, T, and G) plus a DNA-making enzyme. Depending on the specific technology, each specific base incorporation is recognized by either a fluorescent marker to the base or a tiny visible light emitted as a result of DNA making enzyme activity. After each base-adding step, a camera within the sequencer snaps pictures of all the fragments, showing which base was just added to each; these pictures are later processed to compute the full sequence for all of the fragments.

By Shawna Williams: OIST, Facilities Staff, Genomics, DNA Sequencing Section

**VOTING AND ELECTIONS**

There is a fellowship among the members who serve or have served on the SFMS Board that has a feeling of affection and respect. Former board members remember how they dealt with problems that were solved, often through the team effort of the entire board. Current members learn to depend upon each other to resolve issues that need to be addressed and support each other when help is needed.

When one member is overwhelmed by personal problems or ill health, others step forward to make sure the responsibilities are met. That is why it takes five members to make up our board.

Our constitution calls for January elections. If we were a large group of participants, it might be possi-

ble to find others who are willing to stand for office. We are relatively few and many have served in past years and no longer feel an obligation to again serve. Some have moved away while others, who only recently joined, feel unprepared to serve. If that strikes a chord with you then the emphasis for you is that serving on the board is how you learn to help other SFMS members. Pick an office, ask a member to nominate you at the January meeting and be a write-in candidate. If you loose, the board has committees that need a chair and the president will most likely appoint you. It is a valuable way to start getting experience.

We all must be replaced eventually. Some, having served a long time, are hoping that you will step for-

ward and become a much needed replacement.

The constitution does a poor job of defining the work of the officers so there is room for some improvement. Do you have a legal or organizational mind? Help to rewrite the constitution.

===== **NEW MEMBERS**

- MICHAEL A. LEEDIE, rejoined for 2013.
- GABY MARTINEZ, member 2013
- JONES A. UTUK, member 2013
- DAVID WOLFINSOHN, member 2013
- DEBBIE KLEIN, member 2013
- STEPHEN SAMUELSSON, PhD, member 2013
- EDGAR LEHMANN, member 2013



Debby Klein, a new member, looks at a sample through one of Merritt College's excellent microscopes. See her communication on page 4.

**NEW MEMBERS  
ADD TO OUR  
GROWING ROSTER**



Dr. Steven Samuelsson, Treasurer of the Northern Ca Society of Microscopists is a new member of SFMS. Here he is addressing the NCSM meeting in SF on November 16, 2012.

## INSIDE AN EXTRAORDINARY SFMS BOARD MEETING

The dry facts of the meeting on Sunday, October 28 would surely keep you from reading this article but if you have reached this far, let me assure you that I will do my best to entertain you with what transpired on that fateful day. I could equate it with any other board meeting that some would call a "Boring Meeting" rather than a Board Meeting but that would be false reporting because what occurred was nothing if not extraordinary in the annals of the SF Microscopical Society.

If giving up a Sunday seems like a sacrifice, it is made more palatable by having some lunch before the meeting starts. Myron can be counted on to bring something tasty to this pot-luck affair and the table will also sport some

other items such as soup and bread, cold cuts, fruit and beverages, nothing fancy but hearty and sustaining for the two hour meeting to follow.

Conversation at the table gives us a chance to catch up on the activities that we have been pursuing and Myron is sure to pull out of his sack his latest find at the flea market, an extraordinary microscope from the last century that he recently acquired, cleaned, restored, repaired and lubricated. If one of the members comes, it is no surprise since all of our meetings are open and announced by e-mail in advance. Whoever shows up on time, 12 noon, is fed and we have never run out of food.

If an agenda has been circulated in advance to board members,

something that occasionally occurs and that was the case on October 28, no great surprises await the members unless they fail to read the document from stem to stern. (Have you ever wondered what part of a boat a "stem" is?) All four of us were up on the fine print on that day so there should not have been any surprises. Because there was a vacancy on the board, we did not have a recording secretary, the communicating secretary took notes as soon as the president opened the meeting. One addition to the agenda was agreed upon regarding an invitation to a May 2013 speaker, Dr. Brian Ford, a British scientist who will visit the Bay Area.

Reports from the board members were the next order of business.

The president agreed to find a speaker for the January 9 meeting. The treasurer brought with him the past three months of bank statements and reported on the balance in the treasury. But the truly good news was that the Society had met all the requirements of the IRS and had been awarded a letter making it an official 501(c)(3) non-profit organization. This is a singular achievement since without the perseverance of the former secretary Debbi Brusco and treasurer Myron Chan, this would not have occurred and SFMS's recent windfall would have been taxed. We owe these members a special thanks for their perseverance.

What happens at our five general

*(Continued on page 7)*

## ONLY EAT MUSHROOMS FROM THE STORE

It is good advice! In addition, make sure you cook them in oil before you eat them. It helps to bring out the flavor and makes them more digestible.

For two days, on December 1 & 2 SFMS members shared their expertise with the many visitors to the Fungus Fair at the Lawrence Hall of Science where the San Francisco Mycological So-

ciety held its annual Fungus Extravaganza. In addition to the wide-ranging display of freshly collected specimens, there were cooking classes and discussion groups.

The illustration on this page Dr. Niel Straus explaining what to look for in the specimen under the dual viewing Olympus BH2 microscope provided by Myron Chan, our treasurer. Other members



who participated were Michael Leedie, Helmut Will, Peter Werner and Henry Schott. Bill Hill shared tables with the Society but as president of the Lichen Society,

spent most of his time dealing with the visitors to the display of the lichens and identifying specimens that others collected or brought in from the field.

We also had several microscopes from the college. The ability to show fluorescence made for an interesting display.

(Continued from page 6)

meetings is decided at board meetings. Hard as we try to find ways to entice members to attend, we can only manage to get a few of you to each meeting. I wish you would tell us why! Send us an e-mail; suggest interesting alternatives. Your board needs your participation since it is not running SFMS for its own benefit but for the good of the microscopical community. Would you like to have refreshments? No problem! What we need to hear from you is "HOW TO GET MORE PARTICIPATION". If I seem to be screaming, it's because I have been saying it for a long time and getting little in the way of a response.

So far, nothing so very *extraordinary* but I hope that I have kept your attention. I would not like to disappoint you with a false headline so let me set the scene with a little background. The board is conservative when it comes to finances. We have never been short of funds in part because a former treasurer, Helmut Will, was able to put aside significant amounts of money in the 1990's and early 2000's. Board members are not wealthy, certainly not 1%'ers. We believe that we are examples of the poor and the middle class. We know we are much better off than the majority of the people of the world but in our society, we are average. Now, for the first time, the board had before it a motion to give away a significant amount of money. The figure in the motion was \$6,000 and had been selected by the maker of the motion as a "nice round figure" large enough to do some good but not enough to do a great deal of good. The society could continue to give away this much money every year for ten years and still have more in its treasury than it had at the start of 2011. It did not commit itself to that course of action but it did vote to do a one-time *call for proposals* due by December 10 to spend up to that amount in the furtherance of some aspect "*of magnification, microscopy, microscopy education, microtechnique, optics, or imaging ... applicable to microscopy.*" *The public good* was also included as a criterion. The discussion was fruitful and lively since none of us had ever been in a position to make such a grant happen. This motion and the subsequent three supporting motions were passed unanimously creating the first large grant in the history of the Society, a truly momentous event.

Members can request to have a copy of the minutes of the SFMS board meetings e-mailed on a regular basis after they have been approved by the board by sending a request to our new Recording Secretary, Mary Ann Scott at: [masiete@yahoo.com](mailto:masiete@yahoo.com)

## SFMS — NCSM COOPERATION WILL BENEFIT BOTH ORGANIZATIONS

*Editorial*

The NORTHERN CALIFORNIA SOCIETY FOR MICROSCOPISTS (NCSM) has been an on and off organization for some time but it recently was revitalized by the concerted effort of Steven Samuelsson and Larry Ackerman who reached out to businesses and to institutions to call together individuals who wanted to see the rebirth of NCSM. While most of the members are oriented toward electron microscopy, health science and biology laboratories use both electron and light microscopes so there is interest in both fields. At one of the three meetings in 2012, members expressed interest in hearing speakers and sharing time with other microscopists, in other words, networking. What they did not volunteer for was forming a board and working to make the organization grow. Sounds familiar? There is only so much that one or two individuals can do. If people do not want to serve as officers, then an organization has to hire out the work that needs to be done or it will fail. But hiring help means

steep dues and expensive memberships means fewer participants. It's a Catch-22!

The two organizations, having some common interests, can benefit by shar-



NCSM meeting on Nov. 16, 2012 in SF. Note Peter Werner, lower left and Myron Chan, center.

ing membership lists and offering a joint membership dues structure. The additional coordination would be minimal but the ability to inform a larger audience and have more participation would make it more appealing to individuals interested in microscopy.

SFMS has reached out to NCSM by purchasing an institutional membership. Some SFMS members have joined NCSM on their own and Steven Samuelsson has joined SFMS. Now is the time to further cement the relationship between the two organizations. HS

Stamp



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FROM:

## Micro News

San Francisco Microscopical Society  
20 Drake Lane  
Oakland, CA 94611-2613

TO:

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President Peter Werner at the Fungus Fair in November setting up a display. Over his right shoulder can be seen the fluorescence microscopes that was used to demonstrate mushroom fluorescence. The multi-viewer Olympus BH2, set up here for just two viewers, is in the foreground.

Dr. Francis Tucker Jones (1905—1993) was born in Rocklin, California. Sparked by his mother's knowledge of agates, Dr. Jones hunted them as a child on the beaches and on the railroad tracks to his swimming hole. Many years later, he received his Ph.D. in chemical microscopy from Cornell University. In 1977 the mineral Jonesite was named in his honor. Dr. Jones discovered the first crystals and published the optical data and first crystallographic description of this mineral.

(From the display at the Lawrence Hall of Science, Level C hallway.)