



MicroNews

San Francisco Microscopical Society

Volume 3, #2 April . 2008

Meeting in April ?

- Look for a special meeting in April. Check your Yahoo e-mail or go to www.SFmicrosoc.org

This is your publication!

- You can contribute to the publication with any material of interest to the science of microscopy. Also welcome, are proposals for field-trips and speakers. Let me hear from you. Your editor will thank you.

Inside this issue:

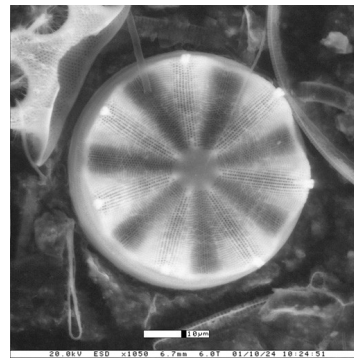
A Virtual Library	2
The Ultraphot Microscope	2
Meetings: Location	2
SFMS Board in Action	3
Amateur Microscopy	3
Why SFMS	4
A Bit of History	4

"Things are seldom as bad as they seem. Looked at through the microscope of time and experience the mighty problems are but a passing frightful bacterium for which a vaccine will soon be developed." (Anon.)

Outreach Committee Holds Organizational Meeting at Tule Pond

Under the able leadership of the immediate past president, Ray Wong, a group of members including Helmut Will and Henry Schott met at 6:45 prior to the regular meeting to organize activities that will continue the effort of the past two years to provide educational services to the communities in the San Francisco Bay Area. The first item discussed was what mission of this committee would fulfill. The simple answer is that the committee would aid the society in the its main mission, to provide educational resources and opportunities to the general public.

A second concern was the development of a syllabus. It was decided that it should be aimed at an 8th grade level since we were



Nigerian PHYTOPLANKTON

most likely going to address audiences that had little or no knowledge of microscopy. We have, in the past, devoted some effort to develop a more extensive syllabus but have realized that this is a very time-consuming task that no one was willing to tackle alone.

Dr. Bleuford, director of the Math/Science Nucleus, and her staff have recently revised their biological guide that includes a well developed guide to microscopy. She has graciously permitted the use of this manual if the society wants to adopt it.

The Outreach Committee wants to capitalize on the success that members had in talking to students at CSU-EB last year and feels that more interest can be developed in microscopy through presentations and demonstrations.

Much planning remains to be done and if you are interested in participating, please contact our past president, Ray Wong at qm3@yahoo.com

HS

Diatoms are Small Things of Great Interest

The March 11, 2008 meeting, held at the Tule Pond Laboratory Facility of the Math/Science Nucleus in Fremont was focused on the photosynthetic creatures that are invisible to the naked eye. They are abundant and often very interesting in both form and function. Their glass-like shell makes them denser than the water they live in but by extending cytoplasmic

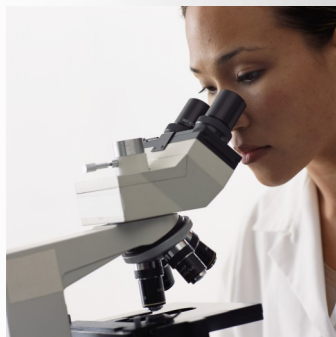
strands out of pores and by producing oil vacuoles, they float and drift with the currents. Some are sessile and others live on land but the vast majority are marine or fresh water inhabitants where they form the bottom of the food chain.

We were treated to a PowerPoint presentation by Ray Wong who

spent much of his professional career working with diatoms. We learned both some anatomy and some taxonomy of these interesting organisms.

John Field brought in some slides that illustrated not only a variety of diatoms but also the artistic arrangements that can be made with these beautiful creatures.

San Francisco Microscopical Society



SFMS Library or *How to Create a Virtual Distributed Library*

While it would be desirable for the Society to have a library, the lack of a willing librarian to oversee such an effort prevents us from collecting books on modern microscopy, some of which are quite expensive. In searching for an alternative during the discussion at the board meeting, Bill Hill mentioned the idea that is currently in operation (?) in the Mycological (i.e. mushrooms and other fungi) Society.

The process works something like this: Members provide the website

of the organization with a list of the books that they own. Software that receives this data may be available from Mike Wood who is the Mycological Society's web master. Members then are able to see this list in a database and those who are interested in consulting a specific book then negotiate with the owner-holder of the books for access. I can visualize that an electronic scan of a page or two would provide some information if that is all that is needed.

The same could be done for mi-

croscope books and microscope slides. What is needed is someone who is willing to create the database and willing members to donate the data for inclusion. The listing could be stored on our web site. Here is a project worthy of time and effort. *Are you willing to pursue this project? Bill Hill will put you in touch with Mike Wood, the web master of the Mycological Society who may provide suggestions and techniques that will facilitate this project.*

HS

Board action and Ultraphot Microscope, continued from pg 3

Training is required to gain access to the very versatile Ultraphot Microscope.

provided) for a joint discussion of possible uses and projects that may be undertaken. Non-member students may apply for training on a space available basis. Space is limited. To apply for training email H. Will at werdorf@aol.com. *There is no charge for these sessions.*

A joint **dinner meeting** with the California Association of Criminalists is in the planning stage. The

featured speaker will be Bryan Ford, a scientist with wide-ranging interest that is always a pleasure to hear. To learn more, Google him and visit his web site. The society contributed \$300 towards his expenses and the cost of the dinner is expected to be in the \$25 to \$30 range.

SFMS will offer ten partial dinner scholarships to low-income students and members who, upon

application, pay a non-refundable \$10.00 towards the cost of the dinner in advance. Students and low-income members will need to complete an application for these funds. Further announcements will indicate the date, time and place and actual dinner cost.

The planned SFMS dinner meeting at a local restaurant has been postponed in favor of the above July dinner.

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Cal Academy of Sciences

The Chronicle announced that the new Sciences Museum building in Golden Gate Park will open on September 27. David Mindell has been appointed Dean of Science and Research, a new position within the Academy that is responsible for the Academy's new high-tech Laboratory for Molecular Genomics where genes will be analyzed to reveal evolutionary trends and adaptations in animals and plants. Dr. Mindell, a professor of ecology and evolutionary biology at Michigan U. is an expert on the genetic underpinnings of biological diversity. He will assume his new position after finishing the school year at they Michigan.

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Meetings:

We have three types of gatherings: Regular meetings with a speaker/presentation theme usually held at the Randall Museum, workshops such as the April training session to be held at the FSA laboratory, and field trip meetings where members visit a facility, a university or an other site of interest. An example of this is the Tule Pond laboratory or the proposed camping/motel visit to a ranch.

Members find it difficult to attend meetings, particularly if they are students who are working as well as studying. The second Tuesday of the month has been our main meeting

Location, Location, Location

time and the vice president and program chair, who currently is also the acting president, has been exploring where we can meet that might also attract new members. That has been the reason for meeting in Hayward where we were exploring a new site.

We now depend upon the Yahoo group-notice to remind members of our meeting time and place. If you are not receiving this notification, you need to let Bill Hill know how you prefer to be contacted.

Bill Hill will consult with Hank Fabian, Department Chair, and Guisel Giorgi, Lead Microscopy Professor at Merritt

to see if there is a opportunity to meet with students. Peter Barnett suggested that we explore the possibility for a meeting at Merritt during laboratory time on a day when students will report to their classmates and attending SFMS members on their projects or lab experiences. We would have the opportunity to present what we do as an organization and invite their participation in the Society. Because microscopy classes are held Tuesday and Thursday evening and Saturday afternoon, students are currently unable to attend our meetings.

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SFMS Board Charts Future OfThe Society

Meeting on Saturday, March 15, the Board and two attending members, reviewed the financial status of the Society and looked ahead to plan a course of action that is in keeping with the main mission of the organization; to provide information and education about microscopy.

The treasurer will contact the IRS to affirm our status as a 501C3 non profit . With this confirmation document we will be able to transfer funds to other banks and open CDs to insure that the funds

we have will yield the best rate for the Society.

The **Ultraphot** microscope that is currently housed at the FSA Laboratory will require some guidelines to make it accessible to members. Guidelines were proposed by Peter Barnett and are under revision at this time but were adopted as revised by a resolution passed by the board. Use will be limited to those members who have completed with satisfactory standing a training session in its use. Access to the

Ultraphot Microscope is at the sole discretion and convenience of FSA Laboratories since this is a working facility.

When the guidelines become available, they will be published in the Micro News and will be available through the FSA Labs, i.e. Peter Barnett

The First **Training Sessions** are scheduled for **Saturday, May 10 from 10-to 1 and 12 to 2** with the overlapping lunch hour (pizza

(Continued on page 2)

Amateur microscopy: Fixation, Alcohol and Formaldehyde

Fixation is the term used to describe the process of taking a small piece of tissue that is to be prepared for microscopic examination and preserving it for processing. While a quick examination can be carried out by freezing the tissue with dry ice and then slicing it into thin sections, bacteria will in a short time destroy the specimen if it is not treated with a preservative. Two of the most common preservatives are alcohol and formaldehyde. There are many different types of alcohols of which you may be familiar with

ethyl and methyl alcohol. Ethyl alcohol is what is found in alcoholic beverages and can be detoxified by your liver at a slow rate while methyl alcohol is toxic and your liver fails to have the enzymes necessary to detoxify this poison so you must breath it out of your body if you ingest it. Meanwhile it attacks the nervous system such as the optic nerves causing blindness and the brain, causing death. You must be licensed by the Federal Government to buy reagent grade ethyl alcohol. Fortunately, you can go

to your local drugstore and buy isopropyl alcohol (isopropanol) that works sufficiently well for your needs. It must not be ingested since it is also toxic not only to you but also to bacteria. The other major fixative is formaldehyde that is usually sold by biological supply houses as formalin, a 40% solution of formaldehyde and water. It kills bacteria and other organisms and is used in embalming fluid. A 10% solution of formalin is sufficient to fix a tissue sample soaked for 24 hours. HS

The First Ultraphot Training Sessions are scheduled for Saturday, April 19 from 10-to 1 and 12 to 2 with the overlapping lunch hour (pizza provided) for a joint discussion of possible uses and projects.

How Alcohols affect tissue samples

Most animal tissues are composed of densely packed cells, each of which is filled with cytoplasm that is a water solution of organelles and other cell constituents. Plunging them into a solution of 70% or higher alcohol solution will create osmotic forces that will disrupt cell membranes, thus damaging the sample. The diffusion of water out of the cell will cause the cell to shrink. Water will diffuse out more rapidly than alcohol will

diffuse in to replace the water since the rate of diffusion though the cell membrane is dependent upon the characteristics of each substance. The process of fixation is usually begun by using a small sample (1/2" cube) and passing the specimen through a series of baths of increasing concentration such as 35%, 50%, 70% and 95%. Since diffusion is a slow process over a distance of 1/4 inch, the time of immersion in each bath is

dependent on the distance the fluid must diffuse, always a matter of hours.

Proteins constitute a significant portion of the cell content. Strong alcohol solutions coagulate proteins. Alcohol has a tendency to shrink and over harden tissues. For finer histological work more complex solutions are used.

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The “business” of the San Francisco Microscopical Society.



Section 2. The object of this Society is the promotion of the Microscopical Science in all its branches, to be accomplished by the holding of meetings for scientific intercourse and discussion, by the reading and publication of papers relating to microscopical and kindred sciences, and by other suitable means.

For more information contact: H. Schott, 510-339-9609 or HSchott@aol.com or visit www.sfmicrosoc.org

Micro News

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MEMBERSHIP INFORMATION

To join the Society, fill in the form available at www.sfmicrosoc.org and mail it to the above address with your annual 2008 dues of \$12.– made out to SFMS.

Life membership is \$144.00

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How SF Microscopical Society Got Its Start

“The San Francisco Microscopical Society was formed in 1870, when the California Academy of Sciences declined a proposal by two members, Hiram G. Bloomer and Henry G. Hanks, to form a section devoted to the use of microscopes in scientific studies. Within a year the Society was nearly inactive. However, interest revived the Society in 1872, with new organizational structure and fees to support equipment and other expenses.

Members met monthly to discuss their research and to promote scientific study. Paper on the subjects such as geology,

biology, and botany were presented for discussion and visiting scientists were brought in to share ideas and demonstrate new scientific equipment. The Society also elected corresponding members from other states and countries. Through exhibits, receptions, a journal, and proceedings published in local newspapers, the Society publicized the member’s research efforts.

The Society disbanded just before the 1906 San Francisco earthquake and fire. Its property and library were donated to the University of California at Berkeley. The society was re-formed in 1946 by George H. Needham

and continues to this date.”

This passage is taken from the on-line description of the holdings of the Bancroft Library in Berkeley where two boxes of 14 volumes are available for research regarding the Society.

The material contains Annual reports, History, Minutes of meetings from 1872 to 1905 and Correspondence. 1874 to 1898.

