MicroNews

San Francisco Microscopical Society Volume 8, #2 APRIL-MAY 2013

FORD FEATURED SPEAKER

Renown English scientist Brian J. Ford, will be our speaker on Wednesday May 15 meeting which we will share with other organizations including the Northern California Society of Microscopists and several other groups. We will meet at Merritt College, 12500 Campus Drive, Oakland, in the Student Lounge, Building R, room 110 at 7:30. Park on the west side of the campus ($2.– in quarters). Refreshments will be served.

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General Meeting: SFMS at Merritt College

Wednesday 7:30 PM, May 15, 2013

Please see the information above which is not repeated here.

If you have had the pleasure and privilege of hearing Brian Ford in the past, you know he always surprises his audience with his insightful presentations on science and microscopy in particular.

He was presented with the inaugural Köhler medal in America for his work in microscopy.

We have invited him to talk about the astonishing views that primitive microscopes presented to past scientists.

Brian takes us back to visit the Netherlands in the 1600s and also to London. Where Leeuwenhoek and Hooke gave birth to the science of microscopy. Profes-

BRIAN J. FORD

GENREAL MEETING, January 9
ELECTION OF OFFICERS &
PRESENTATION by Dr. Eric Gonzales

Dr Eric Gonzales-Edsinger is a postdoctoral researcher in Daniel Rokhsar's lab at both UC Berkeley and OIST.

Dr Eric Gonzales describes and summarizes his research interests as follows:

"My research is on the genomics, development, and evolution of marine invertebrates, including gastropod and cephalopod molluscs. I'm interested in the evolution of animal body plans, biomineralization, cilia, nervous systems, and transparency. I am also interested in next-generation imaging technologies, such as light-sheet microscopy, and in the development and integration of metazoan anatomical and lifecycle ontologies with the Tree of Life and hypotheses of homology. The initial focus of my postdoctoral research is on species selection and development of a model system for cephalopods, most likely from within the pygmy squids and/or octopuses."

"At Merritt College, we have been involved in a student project using widefield and confocal fluorescence imaging to visualize the developmental stages in embryos of limpet snails from several species of the genus Lottia. By understanding the developmental biology of these species and comparing them to those of other mollusks, the idea is to better understand the evolutionary developmental biology of this group. Comparative developmental biology ("evo-devo") has emerged as a key area in understanding evolutionary biology."

His presentation was very well received and we saw some excellent illustrations of his work. The meeting was well attended.

Northern California Society for Microscopy

NCSM INFORMATIION

You are invited to our next chapter meeting. The evening will include socializing, business discussions, a light meal and scientific presentations. If you have not registered for membership into this local affiliated chapter of the Microscopy Society of America you can obtain an application form from the web site. Membership is $40 per calendar year.

The Northern California Society for Microscopy is a sanctioned, local affiliate society (LAS) of the *Microscopy Society of America*. Sponsorships of NCSM are available for your company or organization; please contact me directly if you are interested in making a donation as these funds are needed to support chapter activities. We are also in need of your help in running this chapter and welcome your participation.

The meeting in March included these speakers: Michael Isaacson, PhD. Narinder Singh Kapany Professor, Director, Center for Sustainable Energy and Power Systems, Jack Baskin School of Engineering University of California at Santa Cruz: **"Microscopy Through the Centuries: An Exploration of Microscopic Imaging without Lenses"**

•Danielle Jorgens, graduate student, Lawrence Berkeley National Laboratory and Oregon Health & Science University: **"Seeing cells in 3D: a tale of multi-modal imaging"**

Ailey Crow, Image Acquisition and Analysis Specialist, Genentech Inc.:

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BOARD MEETING MARCH 17, 2013

High lights of the board meeting reflect the effort that the attending members invest in the Society. Peter reported on his effort to secure the Merritt College Student Lounge as the venue for Brian Ford's presentation on *THE FIRST MICROSCOPES—WHAT COULD THEY TRULY REVEAL?* Come to the meeting, Wednesday, May 15, See the front page article.

Bug Day is a big celebration at the Randall Museum in San Francisco and we have a booth where we help young people see the fine buggy details. WE NEED YOU THERE to help from 10 to two in the afternoon on Saturday, April 27. Call Myron or Peter 415 585 4747 or 415 261 7114. You will enjoy it & get a free lunch.

The board recognizes the need to improve our web site and will consider how much to invest in this effort. Your input is needed to tell board members what you would like to see on our web site.

MEMBERSHIP stands at 45 of which 24 are life members. Six 2012 members have not paid their dues. If you read this and want to pay, but are uncertain if you have paid, look for the stamped envelope we sent you or call Myron, our treasurer.

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Who is Mary Ann Scott? First in a series ***To Know Your Members***.

Mary Ann Scott is our newly elected Recording Secretary and a member of the board. This position requires taking notes at our board meetings and producing the minutes of these meetings. She also describes what occurred at our regular meetings so that readers of Micro News will have at least some idea of the topics discussed. This is not an easy task.

Mary Ann Scott was born in Berkeley and grew up in Alameda, Ca. She spent her childhood enjoying camping in Wyoming and Idaho, skiing and ballet lessons. Mary Ann studied entomology as a child, and loved her first microscope.

She went to college near Mt. Shasta, Ca. where she took a liberal arts course and was a member of the National Ski Patrol. Mary Ann transferred to College of Idaho where she continued a liberal arts course majoring in Sociology and Psychology. After graduation (BA Sociology) she worked as a co-manager of a bookstore in Pullman, Washington, and took a graduate course. Mary Ann then returned to her first love of ballet and studied seriously for 25 years. She took classes with the New York City Ballet and danced professionally in the East Bay. Mary Ann also lived in Sun Valley, Idaho where she worked as a nanny, and as a teacher's aide and a dental office clerk.

In 2007 after returning to the Bay Area she returned to school focusing on math and science. She then worked as a dental office clerk. She was an intern at UCSF Helen Diller Cancer Center where she performed experiments that focused on cell growth and proliferation. Specifically, *Rheb* was targeted to discover how it affects the growth and proliferation in cancer and tumor cells. Mary Ann was attracted to microscopy from memories of her first microscope and the love of small creatures. She earned a Certificate in Bioscience Microscopy from Merritt College and she took a course in SEM from Ohlone College. She is continuing her education at San Francisco City College in the Stem Cell Program. She owns 2 microscopes, a com-

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"Angiogenesis: Imaging & Image Analysis"
For additional information: info@ncsmicroscopy.org.

Best regards,
Steve Samuelsson
Treasurer, NCSM

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The IRS refunded SFMS $700.– that we paid as part of the 501(c)3 application process. That was nice of our government. Thank you.

We own 55 shares of *US Microscope Company , Inc.* but are unable to determine if they have any value. Any ideas?

President Peter Werner made a presentation of MUSHROOMS UNDER THE MICROSCOPE at the March 13 General Meeting. His interesting PowerPoint show and actual demonstration of slide making was well attended and received by a roomful of attendees.

One grant was funded at $3,229.83 to David Armitage at UC Berkeley.

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Presentation by Dr. Eric Gonzales Edsinger on January 9, 2013

President Peter Werner called the meeting to order at 7:15 pm and after some opening remarks introduced Helmut Will, a life member, who ran the election of officers scheduled for each January. Nominations from the floor were encouraged and the slate of officers introduced. Ballots were passed out to 13 members present and the count indicated that the slate was elected unanimously. The officers are recorded elsewhere in this issue. (See report of the Board Meeting 1/24/13)

President Werner introduced Dr. Eric Edsinger who gave a talk on ***Imaging Data in Gastropods and Cephalopods Genomics and Development***.

Dr. Edsinger began his talk dedicated to new types of microscopy: confocal and light sheet and open source storage of microscopy data.

Open source microscopy includes *Open SPIM* and *OMERO*. Open *SPIM* (Selective Plane Illumination Microscopy) is an open access project to build an accessible entry level implementation of SPIM. SPIM is variation of light sheet microscopy that uncouples the illumination and detection axes in an optical set up allowing imaging of biological specimen with low photo damage. *OMERO* handles all images in a secure repository. Microscopists and scientists can view, organize, analyze and share data from anywhere that has internet access. He then turned to the new light-sheet microscopy and compared it with confocal microscopy. New advances in light-sheet and light-sheet based functional tools provide a method for capturing live imaging throughout the embryonic life cycle of an organism because there is no photo toxicity with light-sheet illumination. Instead of vertical illumination, light-sheet illumination is introduced horizontally. Zeiss came out with the first version. Eric then showed video with Drosophila and Zebra Fish heart examples of time lapse with xyz cameras capturing images in real time.

The anatomy of a 15 hour embryo of the sea snail Lottia gigantea was illustrated and ex-

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i F u S E

Children, at the age when they can explore and give in to their natural curiosity, are easily intrigued by what the microscopic world offers. While most parents will expose them to a magnifying lens, most children will not have an opportunity to see real objects magnified between 10 and 100 times until they are in a middle school science class unless they are fortunate to end up in a classroom that has benefitted from the iFuSE program developed by JH Technologies. Inc. of San Jose.

The acronym, when deciphered, reveals that the intent is to ***inspire Future Scientific Exploration*** by providing teachers the tools to illuminate young minds, principally microscopes. JH Technologies refurbishes microscopes that it takes in trade when it sells new sets and provides them, free of charge to K though 12 schools that cannot afford to buy this equipment.

As a result, students under the leadership of skilled teachers develop investigative skills and an understanding of a world invisible to the unaided eye.

Science education has suffered severely in part due to the cost of good equipment and the unwillingness of teachers to use available resources.

For more information about iFuSE email: iFuSE@jhtechnologies.com

KNOW YOUR BOARD MEMBERS

Henry Schott, Communicating Secretary & Editor, Micro News


Henry Schott preparing a demonstration during a workshop.

Everyone starts somewhere in life and most likely travels some distance from where they are born so it should come as no surprise that Henry was born as Enrico, in Milan, Italy, in 1928. As he likes to say " I was born in Milan because that is where my mother was." It is also where his father and brother were. Both parents were German and his family lived in Italy because his father conducted his business there.

Forced out of Italy by a Fascist law that passed in 1938, his family moved first to England and then, in 1940 to Berkeley, California where he attended Berkeley High School and then UC at Davis and Berkeley.

After serving in the US Army (Veterinary Corps) during the Korean war and working in NY for almost two years, he returned to San Francisco to earn a Master in Biology and a secondary teaching credential from SFSU.

He began his teaching career at San Leandro High School where he remained for eight years before joining the faculty at Merritt College in 1964 with the newly formed Peralta Community College District. His interest in microscopy, which UC and SFSU had nurtured, was given a boost by the large slide collection that Merritt had available for students but it was Henry's interest in making use of every available visual aid in both lecture and laboratory that helped his students learn anatomy and physiology. He particularly liked pointing out the relationship of cellular structure to physiological processes, an area that for him continues to be intriguing.

He and first wife had three children and now they have five grandchildren.

He and his second wife, Marilyn Little who is a Ph.D. in Sociology, and is also retired, started a business representing companies that produced instructional CDs. He traveled all over the west coast visiting community colleges and universities. When this became unprofitable they focused on real estate.

It was several years after he retired when he first became aware of the SF Microscopical Society. Some meetings were held in Oakland at one of the public libraries. As a life member of SFMS, Henry has served as Vice President & Program Chair, President, Treasurer, and since April, 2007, as editor of the Micro News. He owns three microscopes and a slide collection of human pathology but finds greater interest in recognition and understanding of normal tissues.

He is also involved in the ecology and plant restoration projects of the Friends of the Montclair Railroad Trail. He serves on their board of FOMRRT as treasurer.

PESKY PROTOZOAN IDENTIFICATION

We are trying to improve our web site and are looking for ideas that we can address. Since we have funds to invest in this project, any suggestions you may have would be of interest to the board.

One suggestion wanted the board to consider developing a database for the identification of protozoa, a monumental task. All single celled organisms are interesting since they package all the functions of life in one small package and manage, in their great diversity, to occupy a very wide range of niches.

William Gurske takes great pictures of small organism and has demonstrated his set-up at past meetings. He avidly tries to identify what he sees so I asked him to describe his identification procedure. Here is his response:

"When I try to identify an organism I first refer to 2 books that I have at home, *How To Know Protozoa by Theodore L. Jahn, Eugene c. Bovee*, and *Frances F. Jahn 2nd Ed. 1979 and An Illustrated Guide To The Protozoa 2nd Ed.* Edited by

(Continued on page 6)

FREE FOR THE ASKING

TO MEMBERS:

Donated by W. Gurske, a large collection of unidentified pathology and normal human tissue slides now in the hands of Henry Schott. You can have up to 10 slides for exploration, practicing pathology, histology, or just microscopy. Staining is very good.

hschott@aol,com

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John J. Lee, Gordon F. Leedale, and Phyllis Bradbury, Society of Protozoologists 2000, ISBN No. 1-891276-22-0, 2 Volumes. The first book is for amateurs and the 2 volumes from the Society of Protozoologists are at a graduate level. When I think I have identified the organism by family, or order, or genus, I then Google the name and look at sites such as, *eol.org*, ***Encyclopedia of Life***. I do not know of a single database for microscopical organisms.

The 2 volume guide on Protozoa is excellent for classification of protozoa, but an amateur will struggle with the descriptive terms used in the two volumes."

Best regards,

Bill (William Gurske)

wikgurske@gmail.com

www.edge-3d.com Lists the following: Links to Other Websites and Resources Relating to Microscopes and Microscopy.

http://www.rms.org.uk -"The Royal Microscopical Society."
http://www.msa.microscopy.com/ -"To promote and to communicate advances in microscopy."
http://www.microscopy-online.com -"Resource for the microscopist."
http://www.biofx.com -"High sensitivity immunosubstrates, unique conjugate labeling techniques, and immunosolutions."
www.buntgrp.com -"Bunton Instrument Co. - Analog and Digital 3D viewing and recording solutions for use on stereo/surgical microscopes."
http://www.amc.anl.gov/docs/NonAnl/ComSites.html - "Microscopy and microanalysis."
http://www.vaytek.com -"Scientific Image Processing systems, Deconvolution, 3D rendering."
http://www.DTI3D.com -"Dimension Technologies Inc.- the 3D technology specialists"
http://www3.bc.sympatico.ca/micron/microscope/links1.htm -"Extensive microscopy links page." or http://www3.telus.net/micron/microscope/links1.htm
http://www.bioresearchonline.com -"Digital marketplace for the bioresearch and life sciences industry."

(Continued from page 4) Dr. Edsinger

plained. Lottia larvae can be cultured in the laboratory and followed thru metamorphosis. Adult Lottia do not spawn in the lab so must be gathered from the ocean. Eric showed examples of Lottia larvae at 15 hours with DIC SEM and Confocal. Embryos are not transparent with DIC microscope technique and therefore do not reveal internal anatomy.

Next came images of classical developmental stages now available in digital atlases. Research based on Lottia swimming behavior completed by a group of Merritt College students was introduced. It was determined that there is intense swimming behavior before the onset of the nervous system formation at 30-36 hours. Swimming videos of Lottia embryos at different hours of development were shown as examples of the various swimming behaviors.

Mentioned also, was the research of George Von Dassow that focused on the self–assembly and function of the cytoskeleton during embryonic cell division especially during the induction and maintenance of cytogenetic apparatus – the poorly understood machine that pinches the cell in two.

The complex gene sequence of octopus development formed the sec-

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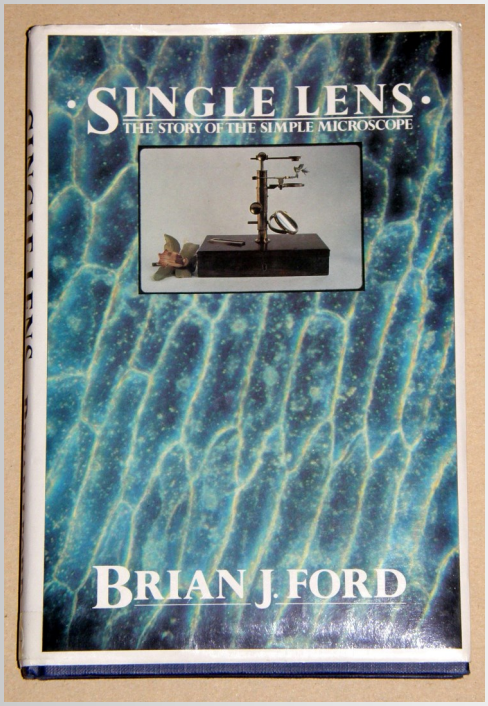
sor Ford has recently succeeded—for the first time in history--in obtaining videos using digital image-capture that recreates precisely what was seen by microscopists in the 1600s. His presentation on this research to the Royal Society of London was a memorable occasion, and today he shows further images from the dawn of microscopy in this vivid presentation.

The lecture is titled: THE FIRST MICROSCOPES — WHAT COULD THEY TRULY REVEAL?

The scientific journal *Nature* reported: "Ford is the world's leading expert on the topic, and what he has to say here makes a good deal of sense."

You are encouraged to come no later than 7:15 so that you have time to refresh yourself and meet your friends and colleagues. HS



One of the many books published by Brian J. Ford. For more information, go to his web site.

http://www.brianjford.com/bjford.htm

Join SFMS

MEMBERSHIP INFORMATION

To join the Society:

Fill in the form available on our web site www.sfmicrosoc.org after printing it. Make check out to SFMS.

Dues are $12. /calendar year, or $144.– for Life Membership.

Mail it to :

SFMS Treasurer, Myron Chan
435 Melrose Ave
San Francisco, CA 94127

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ond part of Eric's presentation. The octopi are Cephalopods as are the squids and cuttlefish. He spoke about the smallest, fastest, and smartest octopus. The Pygmy Squid and Pygmy Cuttlefish are the smallest, Pygmy Octopus and Thaumoctopus mimicus show the most intelligence. Idiosepius paradoxus were collected in Nagoya, Japan, for development of imaging protocols back in UC Berkeley. Eric concluded his talk by adding that O. bimaculoides is the easiest octopus to develop in the laboratory.

Prepared by Mary Ann. Scott

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A report will be provided in the next issue. A second grant is pending but the board decided to postpone any action until it is fully satisfied that the funds will be properly used.

At the Board Meeting, it was decided to postpone any new grants and not send out Requests for Proposals until we have had a chance to review and better organize the entire process. This can be interpreted as skipping the 2013 Requests for Proposals. We need member volunteers to oversee the process and make recommendations to the board.

The imminent resignation of one of the board members creates an opportunity for a member to contribute to the society by offering to serve. You need only contact one of the officers to let them know your interest. Call 415-261-7114 or 415 - 585-4747 or 510-339-9609 or 510-523-4132. Your interest will be much appreciated and you will benefit the society and yourself through this experience.

At the time of this printing, the time and location of the next board meeting is May 5, Sunday, 20 Drake Lane, Oakland at noon for lunch and 1-3 PM for the board meeting. Come!

If you have concerns or ideas that you would like to bring to the attention of the board, please address them to the President and send them by e-mail or USPS to germpore@sonic.net

SAN FRANCISCO MICROSCOPICAL SOCIETY

SFMS

Stamp

Volume 8, #2 April May 2013

FROM:

Micro News

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

TO:

{WE} Bug {YOU} Day at the Randall Museum

April 27, 2013 Saturday, 10 to 2:00 PM

This does not sound like an invitation but it is to the Museum's annual festival of bugs! Our participation in this program is one way we are able to repay the Museum for the use of their facility. It is also a public service that we take pride in providing. Kid of all ages love looking through microscopes at wings, eyes and legs of insects as well as seeing some aquatic insects scurrying about. Your volunteer participation in our booth is therefore requested.

Call Myron, (415) 585-4747 or show up early to help set up the booth. If you work, you get a free lunch courtesy of the Museum.

[**Free admission** (donations appreciated), free and low-cost activities for all ages. If you join Randall Museum Friends on Bug Day at the Family level of $45 we will give you a **free bug cap**!]

Bugs magnified may be the first experience at enjoying microscopy for this youngster. Our microscopes in use at the Randall Museum.