MicroNews

San Francisco Microscopical Society

Volume 4, #3 August 2009

"It is not at all obvious that there is a realm of tininess in balance with the heavens. One of the first to explore this new territory was the English scientist and architect Robert Hook (1635-1703). His book *Micrographia* (1665) was a best seller and was noted for its detailed engravings (some of which may have been made by Christopher Wren), ..." (1) pp100

(1) YOU ARE HERE: *A Portable History of the Universe. By Christopher Potter. Harper Collins 2009*

Please send to: HSchott@aol.com short accounts of what you have observed through your microscope.

The Diamond Microscope

You have heard of Francois Marie Arouet but not by his birth name for later in life he adopted the honorary title "de Voltaire", the name we associate with this French philosopher. Born in Paris in 1694, he received a good education and lived to the age of 84 despite his poor constitution. He wrote a great deal and while we would not easily identify his stories as 'science fiction', they had originality and imaginative foundations that indicated he was able to think "outside the box". All science fiction involves fantasy, but the reader must be given enough imagery so that the story, even if not believable, can be rationalized as possible in some other time and sphere. Gulliver's Travels had already been published (1726) and Voltaire had probably read it. The science of astronomy in the 18th century had not advanced very far. Stars and planets were known but their true nature, the fact that stars could not be the dwelling place of any creatures, was yet to be discovered.

(All italic portions are direct quotes from Voltaire's writing as translated by Tobias Smollett, Heron Books, 1969.)

Micromegas: A Philosophical Tale starts with the description of the central character, Micromegas, who originates in the 'country' of Sirius (a large star or a planet of that star) and is proportionally larger than earthlings, *being one hundred and twenty thousand royal feet tall.* If size is distorted (by our view) so too is time since he reached the latter end of his childhood after four hundred and fifty years. He arrives at the planet Saturn and observes that this being a much smaller globe, the inhabitants are also in proportion smaller. He sees them as pigmies and dwarfs even though they are about "*one thousand fathoms high*". The Saturnian is a philosopher that he meets and he turns out to be companionable so there is conversation between Micromegas and the Saturnian before they venture together to go exploring this little ant-hill we call earth. *Coming from Jupiter, they could not but be moved with compassion* at the earth's small size.

(Continued on page 2)

INSIDE

septerr ber 8 rr eeting, tuesday

There is a congruence between art and science that is exemplified by Leonardo da Vinci. Science has become more complicated since his day and today serious scientists no longer have the time to develop great artistic skills but many do both appreciate and practice their artistic abilities.

Phil Ross, our presenter this evening, is an artist who has looked for inspiration in science and particularly in the microscopic world. A fellowship for an artist let him travel to Australia where he had access the fine microscopes and the technical help to make the best use of this opportunity.

Phil is teaching art at USF and has created CRITTER, a program that opens to the community at large an experience where art and science interact. His presentation will explore both his Australian experience and the mission he has set for himself to bring meaningful science experiences, such as the upcoming "An Enormous Microscopic Evening with CRITTER!" on September 12 in the Mission .

Come and share in this interesting evening. See page 8 for more information.

San Francisco Microscopical Society

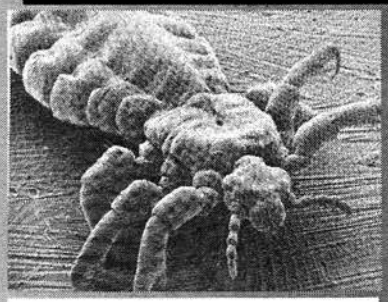
SF ZOO BUG DAY

MICROSCOPISTS TO PARTICIPATE

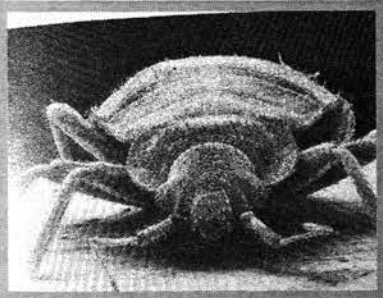
Patrick Schlemmer, Insect Zoo Keeper at the SF Zoo, and member of SFMS, is organizing a Bug Day to celebrate the 30th anniversary of the Insect Zoo. The celebration will take place at the SF Zoo over the weekend of September 26/27, 2009. Microscopical Society members are asked to volunteer to set up microscopes with interesting insect slides or specimens. We need someone to coordinate and make final arrangements with Patrick as well as participate on the two days. It is an excellent opportunity for the Society to distribute SFMS information and membership applications as well as provide a public service. We need new members and local events are a good recruiting opportunity.

(You may even learn something new about bugs as well as other insects!) Please contact Secretary Linda Wracall (510) 236-8468 if you will coordinate and then contact Patrick to participate.

PatrickS@SFZoo.org, Patrick Schlemmer, President, San Francisco Naturalist Society. (415) 753-7053



A head louse (above) and a bedbug. From: *The Invisible World*



EDITORIAL

Besides bringing the society's news to members, I have tried in this issue to show that artists and authors have made efforts to explore the world of microscopy in their own, and often interesting way. I have not researched this idea but have collected the material as I came across it in my reading or wandering.

You must also have noticed in your own experience that science and microscopy often crop up in the most unexpected places. Micro News is a good place for you to share these experiences with other members and to enliven our understanding of the role of the microscopist in our society.

I have, on occasion, pointed out that there are more microscopes in use today than in any time in history even when we estimate this on a per capita basis. The understanding of the effective use of these instruments unfortunately lags far behind their wide-spread use as does the general scientific knowledge of the American people. Our SFMS can, in a small measure, help change this deficit.

(Continued from page 1)

The Diamond Microscope

They stooped, they lay down, they groped in every corner; but their eyes and hands were not at all proportioned to the small beings that crawled upon the earth. In short, they could not see humans and argued over the question of the absence of life. *and perhaps the dispute would have known no end, if Micromegas in the heat of the contest had not luckily broken the string of his diamond necklace, so that the jewels fell to the ground, consisting of pretty, unequal stones, of small size, the largest of which weighed 400 pounds and the smallest fifty.* The dwarf (Saturnian) helped pick them up and perceived that they were so shaped that they were lenses and thus *answered the purpose of a microscope. Though they were of excellent powers, the observers could at first perceive nothing by their assistance, so that they had to adjust them. At length, the inhabitant of Saturn discerned something almost imperceptible moving between the waves in the Baltic: this was no other than a whale, which, in a dexterous manner, he caught with his little finger and placing it on the nail of his thumb, he showed it to the Sirian, who laughed heartily at the excessive smallness peculiar to the inhabitants of our globe.* Then they found a boat, the size of a whale, but were unable to see the people who manned the boat and who believed themselves to be tossed in a storm upon the rocks.

...but at first he suspected nothing more; for the microscope, which scarcely rendered a whale and a ship visible, had no effect upon an object so imperceptible as man.

In an aside, Voltaire remarks on the foibles of mankind who fight great battles to gain two villages only to have to surrender them again. The microscope, however, does redeem the observations that Mi-

ence in observing the motion of those little machines, (humans) *in examining all their pranks, and pursuing them in all their operations! With what joy did he put his microscope into his companion's hand; and with what transport did they both at once cry out:*

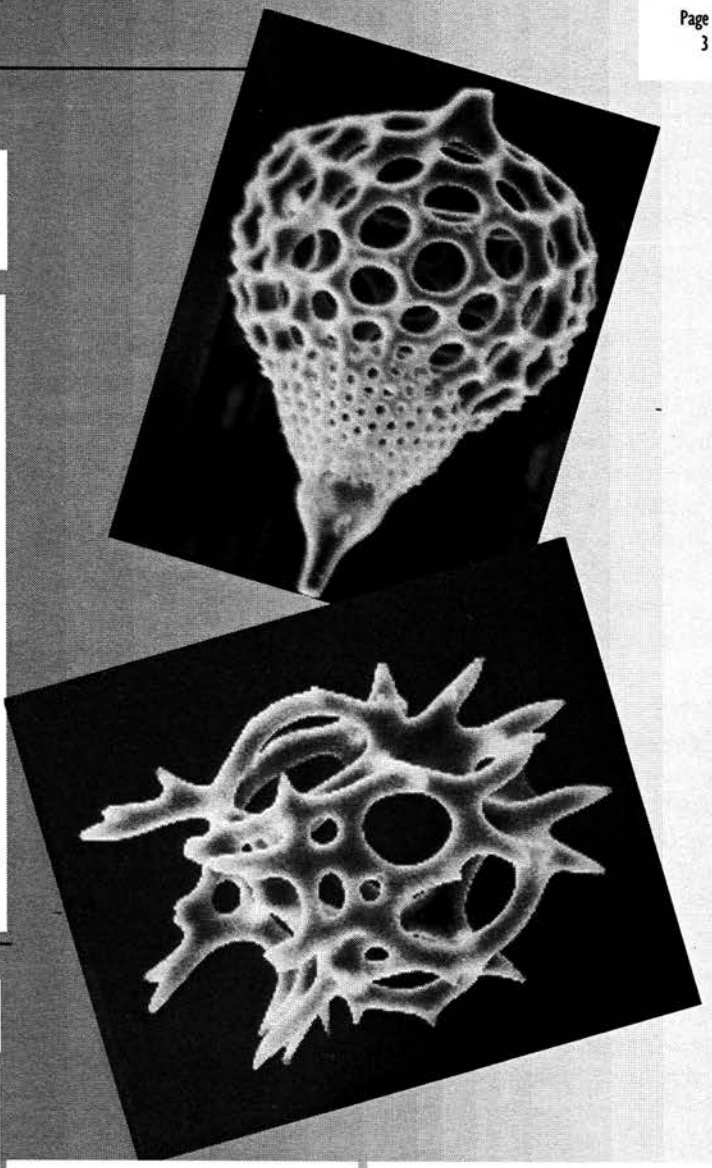
'I see them distinctly, – don't you perceive them carrying burdens, lying down and rising up again?' While they were speaking, their hands shook with pleasure at seeing such uncommon objects and with fear at possibly losing them. – The Saturnian, making a sudden transition from the most cautious distrust to the most excessive credulity, imagined he saw them in the very work of propagation and cried aloud: 'I have surprised nature in the very act.'

'Nevertheless, he was deceived by appearances: a case too common, whether we do or do not make use of microscopes.'

Prepared by HS

Radiolarians, Diatoms & Foraminiferans:

The Art of Photography



Visiting relatives and some coincidences made it possible for me to view the photographic work of Claudia Fährenkemper, a native of Germany, whose photographs were exhibited in the small Wildling Art Museum in the obscure, but tourist frequented town of Los Olivos in southern California. The exhibit consisted of 29 scanning electron microscope images taken in 2005 and 2006 at the Zoologisches Forschungsmuseum Alexander Koenig in Bonn, Germany. The Radiolarian images were the stark white of the skeletal structure on a black background and had magnifications of 250 to 1000 x. Foraminiferan images were at a lower magnification of 25 to 80 x. These two categories represented the majority of the specimens but none were identified by their scientific name leaving them as unique shaped tests formed by organisms but unrelated to any scientific knowledge. Claudia Fährenkemper has trained as an artist and the images have been selected for their artistic qualities but this should not prevent her from using them to enrich understanding of these amazing forms by the observing public.

Prepared by HS

Deimos and Zooplankton

The planet Mars has a moon named deimos, so it seems only appropriate that the ocean observatory MARS in Monterey Bay have its own deimos. This deimos, however, is an underwater acoustic package designed to monitor movements of fish and zooplankton.

MARS, which stands for Monterey Accelerated Research System, consists of a node the size of two compact cars that serves as both a power strip and a high-speed internet connection for scientific instruments. Connected to the California coast by a 35-mile-long cable carrying power and data, MARS went live late last fall 3,000 feet below the surface in Monterey Bay.

Most recently connected to the node is the University of Washington-designed deimos, which stands for Deepwater Echo Integrating Marine Observatory System. deimos uses an echo sounder to transmit and receive an acoustic signal used to reveal what's in a narrow cone of water above the instrument. deimos can discern everything from zooplankton to whales. [This is quite a range, better than my microscope.]

DEIMOS was connected to MARS Feb. 28. John Horne, UW associate professor of aquatic and fisheries sciences and leader of the deimos project, has been able to sit in his office in Seattle and see the data as it is collected.

Scientists need to know the density, distribution and dynamics of what's living in the water to understand how ocean life responds to tides, nutrients upwelling from deeper waters, storms, the changing seasons or El Nio events, Horne says. That information can then be used to investigate effects of long-term environmental changes.

What's new is that Horne's package can be controlled from land and operate far longer than those relying on batteries, thanks to the power supplied via MARS. The Monterey Bay Aquarium Research Institute operates MARS as a test platform for the National Science Foundation's Ocean Observatories Initiative. Researchers use MARS to test instruments before they are hooked up to deep-sea observatories off the U.S. and elsewhere.

The whole package had to meet certain size and weight restrictions, for example weighing less than 300 pounds, to be deployed by ROV Ventana, one of the institute's remotely operated vehicles.

DEIMOS emits an acoustic signal that spreads out in a cone shape from the 16.5-inch diameter transducer to a 115-yard circular area at the surface of the ocean and has been designed to not disturb marine mammals or other animals that are being monitored. Look for more about deimos at http://www.acoustics.washington.edu/.

San Francisco Microscopical Society

ANNOUNCEMENT

Amazing Bird Photography of Walter Kitundu

Thursday,

September 10, 2009

Randall Museum, 7:30-9 pm

Walter Kitundu was born in Minnesota, but spent his early years in Tanzania. He moved to the Bay Area in 1998. Often described as a renaissance man, Kitundu is inventor of the "phono-harp", a stringed instrument incorporating a phonograph. After hearing the instrument, the Kronos Quartet hired Kitundu as their "instrument builder in residence". Kitundu is a "Multimedia Artist" with the Exploratorium, artist in residence at the Headlands Center for the Arts, and a Distinguished visiting professor of "Wood Arts" at the California College of the Arts. In September 2008, Kitundu won a MacArthur fellowship. Kitundu is also a wildlife photographer, with a specialty in hawks and other raptors. He will be showing us some of the amazing images he has captured. . For more information, go to www.sfns.org (Natural Sci.)

or contact Patrick at JKodiak@earthlink.net or (415) 225-3830. Free.

Os-q-la-tion *

by

Philip Wylie : Finley Wren

Life is but a passing spasm
In an aggregate of cells
Kiss me pretty protoplasm
While your osculation dwells
Glucose-sweet, no enzyme action
Or love-lyric can reduce
Our relation to a fraction
Of hereditary use.
Nuclear rejuvenation
Melts the auricle of stoic
Love requires a balanced ration -
Let our food be holozoic;
Let us live with all our senses
While anabolism lets us -
Till - with metaplastic fences
Some catabolism gets us,
Till, potential strength retreating
Leaves us at extinction's chasm
And since time is rather fleeting
Kiss me, pretty protoplasm.

*** The actual title to this poem is unknown to me so I invented another.**

The Leitz Ultropak.

Shedding Light On The Matter

By John Field, Member SFMS

A great many different types of illumination have been devised for studying objects with the optical microscope. Systems of illumination may be categorized in many ways. One basic division is whether the illumination is ***transmitted*** or ***incident***. Transmitted illumination is brought to the specimen on the side opposite the objective of the microscope, so that the illumination is transmitted through the subject under observation. When light is brought to bear on the same side of the specimen that the observer is on, in which case the object of study need not be transparent, the object is visualized by reflected incident light.

The Leitz Ultropak is a fine system of incident illumination in which that incident illumination is entirely outside of the pathways of all the light rays which form the image itself – – a situation sometimes referred to as "darkfield incident illumination". I find for many opaque objects that I study that this type of illumination is significantly more satisfactory than illumination thru the objective itself ("brightfield incident illumination") (which is what many incident illuminator do – – their illumination rays sharing, at least partially, the pathways of the image forming rays). Brightfield incident illumination thru the objective itself in some situations leads to haze and reflections which can greatly obscure the image.

To accomplish this darkfield incident illumination, the Ultropak objective itself is constructed in a cylindrical housing of much smaller diameter than the usual objective, and that smaller objective is itself surrounded by a coaxial light gathering, or condensing system, focusable on that spot of the specimen which is under observation. The condenser for the 22 and higher magnifications is the same for all powers, so one can just screw into it the 22, or 32, or 50 objective, etc., however, the condensers for the magnifications below 22 are each unique, so we need the correct condenser for each of these objectives, (which is how they are usually found).

In addition to the standard condensers, there was available a large mirror condenser, usable with the objectives from 22 to 100, and a ring condenser for relief observation, (available for dry objectives from 3.8 up) which provides illumination very nearly tangent to the surface under study (Leitz called it "very grazingly oblique"); this emphasizes vertical features of the subject.

There were also a series of immersion attachments - long glass cones with polished flat end surfaces - a separate one was made for each objective between 3.8 and 22 power.

The objective magnifications offered included (some at different times), 1.5, 2, 3,

(Continued on page 5)

The Leitz Ultropak.

(Continued from page 4)

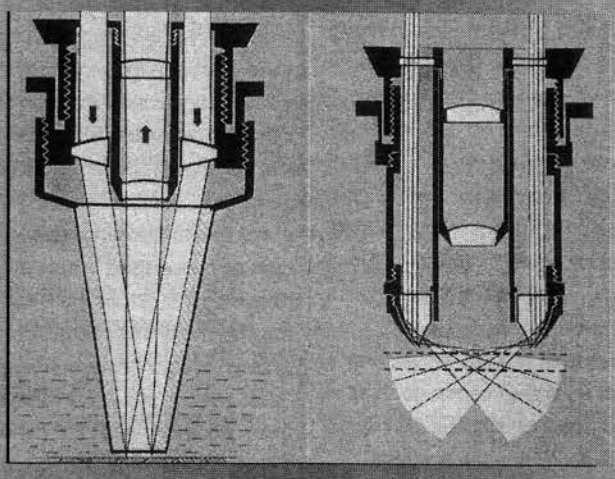
3.8, 4 (the 4 is a later replacement for the 3.8, and nice as it has a shorter working distance), 5 (early production only), 6.5, 9 (very early production only), 11, 22, 32, 42, and 50. Water immersion included 23, 55, 75 and 90. Oil immersion included 23, 60, 75, and 100. There may have been still others.

The Ultropak objectives are designed for a tube length of 185mm, which happens to be what you get when you remove the revolving nosepiece from most Leitz microscopes, and substitute the correct Ultropak adapter. Ultropak objectives are not all parfocal, (although 22 and up are parfocal), and the working distance of the lower power ones is significant – in fact, the 1.5, 2, and 3, have such a long working distance that they were usually used with microscopes on boom stands, as most conventional instruments could not accommodate their uncommonly long working distance.

An Ultropak nosepiece was available for most models of Leitz microscope during the period of about 1930 to 1980 during which they were very popular - - in addition to specific nosepieces constructed for the Ortholux, Orthoplan, etc., there was a common basic Ultropak nosepiece which fits into standard RMS threads, allowing its use on a great many microscopes. The Ultropak condenser-lens assembly is simply slid into the dovetails on the Ultropak nosepiece, and turned about 90 degrees to lock it in. The most generally useful objective-condenser set-ups are the 3.8 (or the 4), the 6.5, 11 and 22. This set makes an excellent basic Ultropak outfit.

It is interesting, though confusing, that Leitz also offered a very similar system known as the Panopak, during the "early Ultropak years" – Panopak objective-condenser combinations will fit the Ultroapk, mechanically, but are not optically correct for it – – the Panopak lenses I have seen are corrected for infinite tube length. Ultropak objectives are engraved "U-O" on the outside of the objective itself. As a practical matter, the Panopak objectives are far less common today than are the Ultropak – which reduces opportunities for confusion between the two.

By the "late Ortholux-early Orthoplan" era, Leitz had begun to offer other designs of incident light dark-field objectives, though I do not know of any such other system which was as extensive. Additional information is available in a more detailed article in the 2009 issue of the Journal of the Microscope Historical Society. — oo —

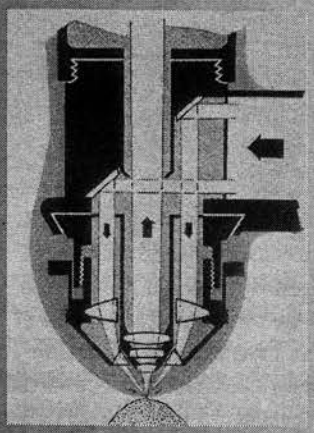


Immersion cone

Relief Condenser

OFFICERS FOR SFMS

I know the reluctance to serve! BUT you are <u>needed</u>. Just as the Uncle Sam poster used to say: "Uncle Sam (SFMS) Needs You!" so your society needs your participation. Serve as an officer starting in January and the board members will support and help accomplish your responsibilities. The officers meet three times a year and plan meetings, field trips and service events. All positions are open and all you need to do is let Bill, Linda or Henry know that you will serve on the board. Call 510-236 8468 (Linda) or 415-686-6146 (Bill Hill), 510 339-9609 (Henry.)



Basic Ultrapack apparatus

COMMUNICATION FROM RANDALL MUSEUM

A very big THANK YOU to you all!

BUG DAY remains the most popular family event day of the year at the Randall. This is due in full because of your wonderful contributions year after year. The Randall Museum Friends Welcome Table counted 1143 visitors.

From viewing bugs under the scope, to watching beekeepers work the bees, to touching live giant bugs and eating small ones all with the musical backdrop of incredible jazz from the Honeytones, Bug Day just could not happen without each and every one of you. Teaching people to understand and appreciate all that insects do for us is our reason for Bug Day. I appreciate all of your enthusiasm, expertise and willingness to give us a whole day with you. Thank you very much. And hopefully, we'll see you all next year so that we can do it all over again!

This year Bug Day was partially funded by a grant from The Bernard Osher Foundation and co-sponsored by San Francisco Recreation and Park Department, Randall Museum Friends, and San Francisco Bee Keepers.

Nancy Ellis

SOME NOTES ON THE SFMS BOARD MEETING
Held: April 17, 2009
By Linda Wraxall, Secretary

This board meeting was well attended with the three board members, Henry Schott, Linda Wraxall and Bill Hill joined by Ray Wong, (the immediate past president), Bob Griffin, a past president, and Neil Straus, a new member. These meetings are more fun when they start with a lunch to which everyone contributed.

Bob volunteered to represent us at Bug Day at the Randall Museum on April 25.

Henry, the treasure, pointed out that the payment for the web site had been made and that the books balanced with the bank statements. "Our shortfall is membership and participation, Funds are available for any good and approved project." This is the position of the treasurer.

Ray Wong offered to loan the society a digital camera for use with the Ultraphot III microscope but has not yet delivered it. The photo-tube has been filed so that it will fit on the microscope. The society needs a good camera that will feed a picture into a laptop from the microscope.

The brochure, a trifold that is an invitation to join the society will be revised and should be available by the next meeting. The board agreed to print 400 copies.

Linda Wraxall, Secretary

A Radio You Can Hear But Not See

It is worth noting that miniaturization has been an ongoing effort or mankind since—who knows when. The computer chip comes to mind as one of the most successful efforts of recent years. On the other end of the scale, making small things larger, is also a technical achievement. Pyramids of Egypt are an early example and the laser facility in Livermore where they are trying to produce a fusion reaction are good examples of grandiose schemes.

In 2007, The Berkeley UC physicist Alex Zettle, invented the nanotube radio composed of a single carbon nanotube that is tuned to a broadcast signal and then sends it too external speakers. To see the nanotube receiver you would need a transmission electron microscope (TEM).

Described in the March 2009 issue of the Scientific American, the radio is small enough to fit inside a cell where such a device may function as a means of activating drug action after being absorbed or attached to a cell that has been targeted.

"In July 2008 [Zettl] announced in *Nature* that he and his group had coaxed an electron microscope to image individual atoms of hydrogen, nature's smallest atom."

A Grain of Sand: Nature's s Secret Wonder.

We all have had our toes in the sand at one time or another. The granules have stuck to our wet skin or gotten into our shoes. Great mountains have been worn down and carried away by streams and rivers in the form of sand. Waves on ocean beaches have converted gravel banks into tiny particles of sand.

Microscopists Dr. Gary Greenberg, has made a study of sand, both as a professional endeavor and as a hobby. Close inspection of sand granules reveals many minerals make up the sands of beaches and desserts. Additionally, portions of foramens, corals and other marine organisms add color and interest to beach sands, particularly those from island beaches.

As with all soil materials, we need to define terms such as sand, mud or silt and clay. Sand ranges from 2 mm for very coarse sand to 1/8 mm for very fine sand. Mud or silt is 1/16 mm or less and clay is just a few thousands of a millimeter (0.004 mm or less). These are arbitrary scales but are useful in understanding these particles.

Dr. Greenberg, who has been issued seventeen patents for 3D microscopes, developed an illumination process that creates such images in magnification that range from 100 to 1500 times. He then manufactured the Edge microscope that was sold in the 1990s to universities and research labs.

His book, *A Grain of Sand*, is a collection of photographs of sand grains from around the world, some artistically arranged and others illustrative of the variety of minerals and biogenic materials. The text gives good explanations of the formation of these sand grains and provides a suitable introduction for the many excellent photographs. He strongly believes "*that science and art are not mutually exclusive, and that they fit beautifully well together. For me, there is little difference between the two. They're both ways of exploring nature and the human condition. They both require creativity, originality, and passion.*"

The microphotographs are excellent color renditions, particularly those from islands surrounded by reefs.

"*I've looked at so many things through the microscope in thirty years that it has shaped the way I see the world. Understanding how things come together on the microscopic level adds to my appreciation of the ordinary, everyday events of life — hopefully it has done the same for you. The universe is endlessly beautiful and praiseworthy.*"

www.sandgrains.com
www.edge-3d.com

A Grain of Sand: Nature's secret wonder. By Dr. Gary Greenberg, Voyageur Press, 2008. 109 pages + Index

ISBN-13: 978-0-7603-3198-9

Annals of Microscopy

SFSM owns a number of copies of the Journal of the New York Microscopical Society. I would like to share with you some of my observations. In volume I #1, some eight years before my mother was born (she was born in 1893), the Proceedings of the Society report on five meetings, usually on two week intervals. On October 3, 1884, twenty two persons were present, on October 17 thirty seven attended, on November 7, there were 45. The high point was reached on November 21 when seventy five showed up but by December 5 the number was down to 45 and on the 19th only 27 came. The number of attendees is impressive by our standards.

At each meeting, "objects" were exhibited. These must have been microscope slides prepared by individuals and included such specimens as *Pulex irritans*, made transparent by hydrogen peroxide, *Pleurosigma angulatum*, shown by the electric light, groups of insect eggs, crystallized Natrolite from Weehawken Tunnel and Pond Life from Staten Island.

To show by electric light was a novel advance in illumination and was by no means widely used, but those who were at the forefront of microscopy were experimenting and adapting their instruments to take advantage of this new possibility. Listen to what Dr. F. Y. Clark was reported to have said and listen to the language. Does anyone talk like that today?

"In my experiments in the use of electrical illumination, I have found the chief obstacle to success to consist in the difficulty of getting a suitable battery. I have, however, finally procured one which works admirably. It is the Haid Electric Battery, a recent invention, and was made by the Excelsior Manufacturing Co., of this city. It has three elements, and it runs from one to three hours. It is portable - it can be carried in one's pocket, and it is easily managed. In my experience the electric light is far the best for the examination of objects, be they transparent, or opaque; and it does not weary my eyes."

The idea that a battery is "easily managed" suggests that other batteries must have been a bit of a puzzle on how to connect them to a lamp.

The president of the society, Mr. C. Van Brunt, had quite a lot to say about the use of incandescent lamps and their carbon filaments but that a rheostat was needed to control the strength of the current so that the filament can be brought to a white heat, ending by prophesying that *"electric illumination will come into use for microscopical purposes everywhere, particularly in delicate work."*

This aspect of microscopy was then a novelty but now is taken for granted.

The Editor H.S.

XYLARIUM

Where do you go to find out about xylum? A xylarium would be a good place to start. Xylum is one of the vascular tissues of trees and plants. Most of the tree is xylum.

The desire to collect seems to be a common human trait. It should surprise no one that there are collectors of wood samples and that a complete collection would include over 80,000 species of trees. An avid collector, such as Richard Crow of England who may have the world's largest private collection, has over seven thousand species. A typical standard sample is 3"x6" by ½ inch; the space occupied by such a collection is considerable. There is an International Wood Collector's Society founded in 1947, with over 1,100 members.

The Forest Products Laboratory (FLP) in Madison, Wisconsin houses over 100,000 wood specimens. Since there are many duplicates, the number of species is much smaller. 14.000 species in the FLP collection are in a database accessible via the Internet. (www.fpl.fs.fed.us)

Raimund Aichbauer has collected for over 25 years and is a member of the Dutch Society of Wood Sample Collectors. Besides thirty-five hundred identified wood samples, he has seven hundred microscope slides of wood samples.

Carlsen, Spike, A Spintered History of Wood: Belt Sander Races, Blind Woodworkers & Baseball Bats. 5th Ed., Harper Collins, 2008

ARE YOU ENJOYING THIS ISSUE? Your comments and suggestions will help to make future issues even better. Send e-mail to the editor, HSchott@aol.com

Next Meeting

Stamp

SFMS

Tuesday, September 8, 7:30, Randall Museum

CRITTER! SCIENCE, MICROSCOPY AND ART.

A Personal Journey. By Phil Ross

The November meeting is scheduled for Tuesday, Nov 10, 2009 at the Randall

FROM:

Micro News

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

TO:

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 2010 dues of $12.– made out to SFMS. Life membership is $144.00

CRITTER! *Location*: 3579 17th St, San Francisco, between Dolores and Guerero.

An Enormously Microscopic Evening

Saturday, September 12, 6:00 to 9:00 PM

SFMS members are invited to participate in this event .

We live in a golden age of microscopes, in which new forms, designs and applications for this fantastic tool are constantly being developed and employed. In this evening event CRITTER will celebrate, demonstrate and display a variety of these magnification devices, and invites people to get small in a big way. From simple water lenses, single lens devices, and home made scopes, to state of the art equipment and futuristic gadgets designed to see the invisible. Organisms and live cells will be on display, and people are invited to bring in their own samples to view and inspect.

Images will be projected onto walls, fog, cell phones and surrounding buildings, in addition to the more traditional ways of peering down the tubes. There will be ongoing demonstrations for how to build you own sophisticated microscope, using easy to find materials and simple construction techniques. Learn how to make the same microscope that Leeuwenhoek, the father of microscopy, first used to see and describe his 'little animalcules'.

Natural Science Cultural Center, SF. Phil Ross

mephilross@hotmail.com

Communication

HOW I CAME TO MICROSCOPY

It is a bit difficult to untangle exactly how I came to microscopy. For a long time now I have had friends who conduct research that requires a fair use of microscopy, and they would always show me these mesmerizing, very rare and sublime images. The tools and the displays had come to be powerful and cheap, yet most people never get to see some of these interpretations of the world. The resolution, tunability, and signaling possibilities in these instruments made me consider the cinematic potential in creating video microscopy. About two years back I spent four months in residency at The University of Western Australia's forensic imaging lab in their department of human physiology, all part of a program called SymbioticA. I had 24 hour access to their stands as well as technical support, full lab resources, etc.

When I returned from my four months in Australia the IPhone had just been released. I was sitting around a table and several people had the new gadget. Folks where showing me the GPS function in relation to a map of the city overlaid on that, in addition to showing where all their other friends with IPhones were on the map.

I had just been in front of an illuminated screen for so long, looking down on lives from another scale, taking in all individuals as well as the surrounding environment- and this felt like the same thing. It makes me think that the microscope is as much a navigating tool as it is an imaging device. So, I am interested in microscopy for these more philosophical reasons as well. Phil Ross