

NEW AND/OR INTERESTING IN MICROSCOPY

Dr. Joseph I. Goldstein, well known in the industry from his work at Lehigh University, as well as from his numerous publications on electron microscopy, has accepted the position as Dean, College of Engineering, Univ. of Massachusetts in Amherst, MA.

Hitachi recently announced the Model S-4500 FE-SEM. With an in-lens SE detector, a resolution of 45 Å is guaranteed at 1 KV, and 15 Å is guaranteed at 15 KV. The in-lens detector also results in the highly efficient collection of SE electrons, yielding ultimate surface detail not seen with a standard SE detector. Hitachi Scientific Instruments. Tel.: (415)969-1100, Fax: (415)961-0368.

MSA has initiated the "Congressional Education Committee" with the goal to improve the level of scientific instrumentation funding at the NIH, the NSF and the DOE. As our elected Congressional representatives do pay particular attention to the interests of their constituents, participants in the Committee will be asked to contact their representatives - often by FAX as many bills are in Congress only for a few days. The Committee will provide sample letters and the addresses of your Congresspersons, as well as progress reports. Interested parties please provide your name, address, both telephone and Fax numbers and any suggestions to Pat Calarco, Fax: (415)476-4845.

The National Center for Electron Microscopy, Lawrence Berkeley Laboratory at the Univ. of California, is offering a fellowship that will allow participants the opportunity to conduct research in their own area of interest using the advanced transmission electron microscopes at the Center. The program is intended primarily for young faculty/investigator electron microscopists who are in the process of setting up their own facilities or are awaiting delivery of new equipment, and who could benefit from a "head-start" with Center personnel. However, other post-doctoral applicants with suitable experience and graduate students at an advanced stage of their thesis work would also be considered. Awards will be made according to the recommendations of the NCEM Steering Committee. Fellowships will be of up to three months duration and will carry a stipend of up to \$6,000 to assist in defraying travel and living expenses. For further information and application forms, contact G. Hermes, Coordinator, National Center for Electron Microscopy, Bldg. 72, Lawrence Berkeley Laboratory, Berkeley CA 94720. Tel.: (510)486-5006, Fax: (510)486-5888.

Geller MicroAnalytical Laboratory announces a new standard for energy calibration of energy dispersive x-ray detectors. The standard is a polished composite material of large grain high purity aluminum and copper powders. The method preferred among EDX manufacturers relies upon measuring the energies of the sharp AlK α and CuK α x-ray transitions. By selecting the area fraction of each element excited by the electron beam the Al and Cu peak intensities can be balanced - allowing for easy and accurate calibration. The standard is 3 mm ϕ and costs \$60.00. Contact Geller MicroAnalytical Laboratory at Tel. (508)535-5595.

Virtual Laboratories, as the result of a drawing at the recent MSA Conference, presented a copy of Desktop Microscopist to William T. Donlon of Ford Scientific Research Laboratories (in Dearborn, M). Their thanks to all that participated in the drawing.

Readers Please Note: A "?" following your name on the address of this issue indicates that we have not received an indication of your interest in continuing to receive a no cost copy of this newsletter. Should you be in this category, and wish to continue to receive the newsletter, please complete the brief questionnaire on the following postage paid readers response card and return to us.

A newsletter *The Seminar* has been started to serve those individuals using SEM (and XRF) in Forensic Science and closely related areas. In an informal format, subscribers share their expertise and experience in methods, applications, and research. For information, contact Dennis Ward, FBI Laboratory, Rm 3342D, Washington DC, 20535. Tel.: (202)324-2982. Fax: (202)324-3407.

Peak Instruments, Inc. adds to their application-tailored FOCUS Wavelength Dispersive Spectrometer (WDS) series with APeX, a new full spectrum WDS for SEMs. Using encoded "in vacuum" motors, APeX allows each of six parameters to be independently set, resulting in new standards for speed, repeatability, precision, and reliability. For further information, including the APeX brochure, contact Peak Instruments, Inc. by calling (609)737-8133 or Fax (609)737-1724.

Arizona State University, for the second time, will conduct a short course/workshop covering the principles of TEM specimen preparation, for a variety of advanced materials and material systems, on January 18-20, 1994. Covered will be a working knowledge, with hands-on experience, of sample preparation from semiconductors, ceramics, composites, etc. Materials, tools, and methods associated with procedures will be covered. For further information, contact Dr. Farhad Shaapur at (602)965-0399.

Congratulations to Dr. Peter Ingram who was elected the Local Affiliate Society (LAS) Director of the Microscopy Society of America (MSA).

Oxford Instruments and WA Technology, both in the U.K., are involved in a joint research project to develop a low temperature scanning tunneling microscope (STM) which should, for the first time, allow STM analysis at temperatures as low as 0.05° K. The new instrumentation should allow spectroscopic, topographic, and physical chemical studies of materials at the atomic level that will advance research in areas such as superconductors, advanced magnetic materials and fullerenes. Oxford is well known for its expertise in cryogenics while WA Technology in Cambridge has pioneered ultra-high vacuum STM methodology.

The Chicago Electronic Materials Chapter of ASM and the Chicago Chapter of ASM are sponsoring a seminar on Optical Microscopy - Sample Preparation and Image Processing on November 19, 1993 at the Galvin Center, Motorola, in Schaumburg, IL. For registration and/or further information, contact Anita Brandes at (708)205-2525.

Mr. Richard T. Heglin has been named President and CEO of Leybold Vacuum Products, Inc. Previously, Mr. Heglin was Vice President and General Manager of Superior Valve Company.

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PO Box 620122, Middleton, WI 53562 - Tel.: (608)836-1970 - Fax: (608)836-1969

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A monthly newsletter dedicated to the unique interests in microscopy of, and published at no cost to, some 11,000 professionals in North America - - - Don Grimes, Editor

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MICROSCOPY TODAY

NEW AND/OR INTERESTING IN MICROSCOPY - CONTINUED

Dr. Lynwood Swanson, President of FEI Company, has been presented with the 1993 Howard Vollum Award for Distinguished Accomplishment in Science and Technology by Reed College. The award is intended to recognize and celebrate each year the exceptional achievement of a member of the scientific and technical community of the Northwest.

Burleigh Instruments, Inc. has announced a new series of Personal SPM™ systems which include Personal AFM™, Personal STM™, and Personal UHV/STM™ versions. These next generation SPM microscopes are very affordable and allow more people to benefit from the high resolution and precise 3D measurement power of AFM, STM and UHV/STM. They are designed to serve as routine new tools and do not require specially trained operators. For further detail, contact Burleigh Instruments : Tel.: (716)924-9365 or Fax: (716)924-9072.

The Department of Energy advises that during the past two years it has executed more than 500 cooperative research and developments agreements with industry. Of those, 26% are in information and communications, 24% in advanced materials and instrumentation, and 22% in manufacturing. Others cover areas such as pollution minimization and remediation and biotechnology.

The National Institutes of General Medical Sciences (NIGMS) has decided to set aside up to 5% of its new-grant budget of some \$150 million for innovative proposals that otherwise would not be funded. Included will be projects that promise unusually significant results and insights, but that could not be previously funded due to their elements of risk.

The Camille & Henry Dreyfus Foundation, New York City, has announced two new programs to advance chemical science research and education. The The Camille Dreyfus Teacher-Scholar Awards Program will focus primarily on individual research attainment and promise, and a commitment to education. The Henry Dreyfus Teacher-Scholar Awards will stress teaching, mentorship, and the nominee's accomplishments as a role model for undergraduates planning careers in the chemical sciences. Each carry a grant of \$60,000.

A Note to Manufacturers and Suppliers:

As a result of the postage-paid reader's response cards in the last two issues of this newsletter, we have received over 600 individual requests from readers for additional information on advertised products and services.

And, from the 15 advertisers in this issue, 9 had previously advertised in these past two issues.

To See Or Not to See Jean-Paul Revel, CALTECH

At the last MSA meeting, Caroline Schooley, the Educational Outreach Coordinator for the Society, had assembled a number of microscopes and magnifiers cheap and simple enough to be used in Middle Schools. Viewing the collection reminded me of how, as an 8 or 9 year old, I used to stand by the window of the toy store in my home town yearning indiscriminately for the shiny black microscope in its small wooden box, as well as for the little steam engine with the red boiler, polished brass fittings and large fly wheel that stood next to it, just in front of the chemistry set. I never did have a chance to play with the steam engine but I eventually did get to look through a microscope very much like the one I had coveted as a youngster. That occurred when I decided I should buy one for my children. By then I was using microscopes professionally myself and I was so very disappointed at the performance of the "children's microscope" that I did not buy it, opting instead to bring the kids to the lab and show them things there. I wonder now if it is significant that none of my children became microscopists. I had forgotten until the Cincinnati meeting how poor that microscope had been, how hard it was to see anything clearly through it. Standing there in the exhibit booth last month, reminded me of all of my colleagues who could never see anything through a microscope. Perhaps their first exposure had been to such poor instruments that they had become convinced early that the whole exercise was pointless.

That could not be the whole story however. Although I was very young when I first had the desire to make myself small and figure out how things worked by studying their minute details, I actually had a lot of trouble making sense of anything at all during my first course in Histology. I could not relate the colored objects I saw in the microscope, to the diagrams drawn by my Profs. on the blackboard. This, even though I had used a microscope previously: my botany teacher, whom I recall as a little demon of a man, with a red beard and an interest in plant galls, used to have us prepare various samples, such as free hand sections of stems of various plants and after specimen preparation, to draw what we saw. Accuracy was paramount. He used to come and ask that we point out the cell we had just drawn. It was a good exercise but I can't say that my understanding of plant structure was enhanced by emphasis on drawing individual cells. Little was said to encourage us to think of experiments in which we would have figured out the function of the various structures we had to draw. I had much more fun a few years later when already a post doc., I was introduced for the first time to onion epithelium. I could see a real nucleus! and worm-like mito-

chondria! so that's how they looked, these organelles where the cell took the last steps in converting nutrients to the kind of energy it could use! The fact that they moved gave them a reality that was far more convincing than the reality of fixed and stained preparations. Swift cytoplasmic currents led mitochondria and other organelles in a frenetic saraband from the juxta nuclear area, down cytoplasmic channels toward the cell wall, and then back. But that revelation came to me while looking through a "real" microscope, like the ones available in college.

I never really learned to use a microscope until I found that I would have to teach Histology to first year Medical Students. Suddenly I could not become disengaged even if I did not understand right away what I saw right away. I had to persevere. It had become my responsibility to explain to others what there was to see, to make sure the students understood the relationship between the organization of the structures on their slides and the function of the organ they were studying. It was both exhausting and exhilarating to teach those things I had myself originally found so difficult to understand.

Now that I am a professor, students often come to me looking for a job in the lab. I found that one useful way to predict how good they will be with microscopy in general is to ask them about their hobbies. Jocks and chess players may be nice people and very bright, but I won't take them if the project I have in mind has to do with microscopy. I look for a photographer, someone interested in painting or drawing, a visual person, a follower of St. Thomas "Seeing is Believing". Of course I also want them to be critical, to question their senses, not to blindly accept what they see (sic). I may well have lost many superior people, but those who came to work with me after this selection procedure have often been superb microscopists and so I stick to it. Maybe I should start keeping notes on what kind of microscopes they had in Middle Schools?

Maybe we can make sure that students have access to adequate microscopes by making sure that unneeded instruments and accessories find their way to the science teachers in neighboring schools. In addition we could perhaps help fire up the imagination of a future microscopist by inviting classes or selected students from neighboring schools to visit our laboratories and look through our equipment and by advising Science Fair competitors. ■

★★
★ In our last issue, we published an EM photo with the inscription ★
★ •Don't Give Up• ★
★ Credit for this photo should have been given to Dr. Del. Philpott, as ★
★ the inscription was on his electron microscope at the Institute of Muscle ★
★ Research, Wood Hole, MA. ★
★★