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 mitochondria! 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.