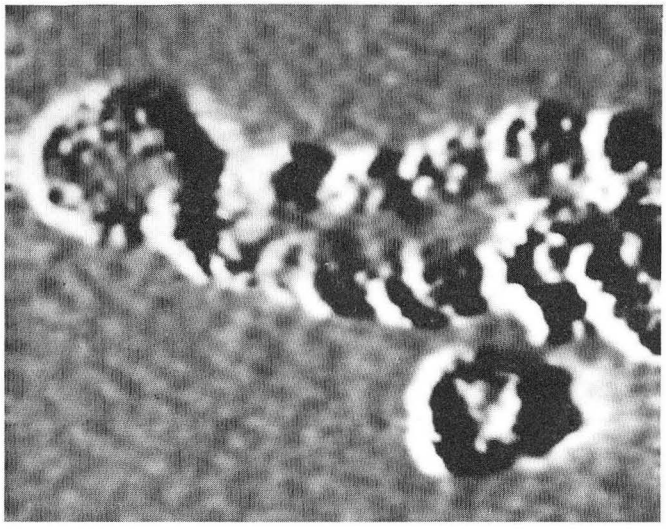
DISCLAIMER

LBL SUMMER TEACHER NEWSLETTER



First View of DNA - The DNA was isolated from calf thymus.

"Through the STM, they (scientists) have been able to see the foundation of both life and matter."

New Imager Opens Up World of Invisible

Imagine a device the size of a classroom light microscope that could open up the unseen world, magnifying objects and even atoms many millions of times. Sound like a Nobel Prize winning idea?

Imagine no more - such a device really exists! The 1987 Nobel Prize in physics was awarded to two IBM scientists who developed the imager at IBM's Research Laboratory in Switzerland.

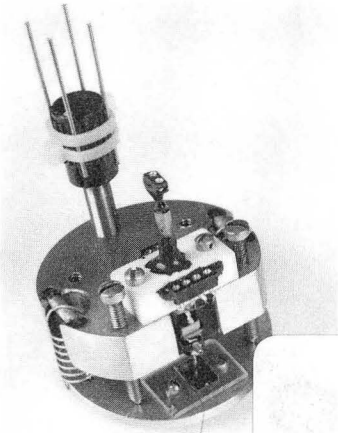
LBL scientists are using variations of this imager, known as the *scanning tunneling microscope* or STM, to observe uncharted new areas of materials science and biology. Through the STM they have been able to uncover the foundation of both life and matter.

A team of LBL and Lawrence Livermore National Laboratory scientists has achieved the distinction of being the first to see unaltered or "naked" DNA - DNA not heavily coated with a metal. This detailed picture has provided scientists with a rare glimpse into the biology of life.

Dr. John Clarke of LBL heads another group of surface scientists who are utilizing the STM's awesome capability. His photograph of graphite atoms offers a unique view into the incredible world of atoms.

The possibilities for the STM are almost limitless. But hold on, another scope is in the designing phase.

Want to learn more about the STM? Fill out and mail the enclosed postcard; you will receive a packet of materials that includes a color picture of atoms, a technical article for further study and MORE!!



At CSEE

The Class of 1989 - -Summer teachers from the Bay area and around the country are shown with the RISE staff and Dr. Glenn T. Seaborg.

LBL Reacts to Earthquake

"We've been very lucky," stated LBL Director Charles Shank.

Preliminary inspection throughout the Laboratory after the October 17th earthquake showed no structural damage and minimal nonstructural damage, such as some fallen plaster and spilled computer tapes.

LBL immediately responded to off-site needs by sending an ambulance with crew and other equipment to assist at the Interstate 880 Cypress structure collapse. A fire truck and crew also went to the aid of Berkeley firefighters. Over the next three days, LBL firefighters worked long hours hoping to find survivors in the 880 structure.

This article was reprinted from articles which appeared in LBL's Currents.

CSEE Expands Family

What an incredible summer!

The summer of 1989 will certainly be a summer to remember. Thirty teachers, approximately thirty five college students and sixty one high school students became a part of the CSEE family.

The centerpiece of this summer's Pre-University programs was the Residence in Science and Engineering (RISE) program. This year's summer teacher program provided an eight week research opportunity for teachers from the national TRAC and local programs. The class of '89 was composed of middle, high school and community college faculty from as far away as St. Agatha, Maine and Palmer, Alaska and as close as Berkeley, California. Their research endeavors ranged from the Human Genome project to the atomic force microscope.

Eighty percent of their time was involved in their research assignment while twenty percent was spent in seminars such as *Elements* which was highlighted by a discussion with Dr. Glenn Seaborg and a tour of the HILAC area with Al Ghiorso and Mike Nitscke. Other seminars included highlighted subjects such as the *Human Genome* and the *Scanning Tunneling Micrscope.*

The High School Honors program was held from July 23rd to August 5th. This program brought in 57 high school students from around the country and 4 foreign students (Japan, West Germany, Canada and Italy) to LBL to learn the latest about the life sciences. For two weeks, the students, who were chosen by their states or countries for exceptional work, heard lectures, went on field trips and tours in addition to their laboratory work. The "cutting edge" lab work included isolating and spooling DNA, gel electrophoresis work and DNA fingerprinting.

"The excitement and energy of the teachers and students in the summer research programs seemed to grow each week until it reached a crescendo in August with a visit from Peggy Dufour, who is the Special Assistant for Education to Secretary of Energy's Admiral Watkins. Peggy met with LBL's teacher research associates, attended the High School Honor's closing banquet and was able to view the undergraduate student's research poster session all in two days," said Center director, Dr. Rollie Otto.

The teachers and students for the 1990 programs are being selected by their state governors, science coordinators or Title II coordinators. Another year is in the works, at CSEE we are hoping it will be as successful as the summer of 1989.

Reaching Out

Survey Results

What do top notch teachers think of their profession? In our first issue, we asked former 1983-88 participants to describe teaching through word association. The interesting results follow:

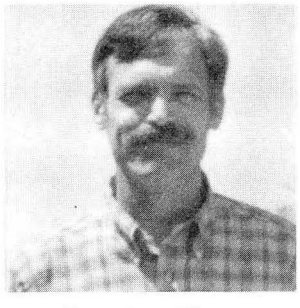
- Innovative, motivation, interacting
- Joyful, challenging, resource poor
- Fun, stressful, teamwork
- The passing on of knowledge and skill
- Pressure with satisfaction
- Sharing
- Stimulating, rewarding
- Frustration-no time to further perfect the job
- Consuming, big responsibility
- Bah humbug!
- Variety
- Exciting
- Sharing experiences
- Invigorating
- Roller Coaster
- Retirement
- Getting students turned on
- Excellence in all that you do
- Chance to integrate material in some comprehensible fashion
- Unpredictable, contradictory - fulfilling but also discouraging
- Uplifting, disappointing
- Preparation, knowing alot of kids
- Kids, fun, interaction, homework
- A marvelously rewarding way to spend over 30 years of work time.

Earthquake Materials

In an effort to provide Bay area teachers with scientific and instructional materials about earthquakes, a packet of information has been compiled. If you are interested in these materials, including seismograms of the October 17th activity, please indicate so on the enclosed postcard.

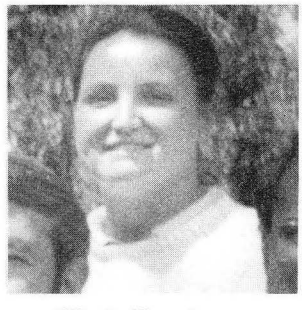
Speaking Out

What was the most memorable part of your LBL summer experience?



Jonathan Knopp
Milwaukee, WI
"Working in a lab is totally different. It's satisfying in an interpersonal way. The group I worked with genuinely enjoyed interacting with each other."

Patricia Terry
Memphis, TN
"LBL was a potpourri for me. I enjoyed most meeting and talking with Dr. Seaborg, Mike Nitschke and Al Ghiorso..."



Gisele Faucher
St. Agatha, ME
"..going up the hill the first time and seeing the signs **Cyclotron** and **Bevatron** and thinking what the heck all those things were. What goes on at LBL is so amazing and impressive."

Dean Rockwell
Macomb, IL
"..so many things. Meeting with Dr. Seaborg and being able to talk to him was remarkable. Working with Tony Hansen and his unique sense of humor was great..."

The first issue of the newsletter asked teachers for possible names for the publication. The following list is compiled from the responses. Please write in your vote on the enclosed postcard. If you have new or additional ideas, they may also be written in.

LBL Focus
Accelerator
Teacher Solstice
LBL DATA
Photon Express
What's News
LBL Log
Connections
News from the Hill
Light Source
The LBL Pulse
R.I.S.E.
Review Update
Teacher's Bulletin

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