

SLAC is operated by Stanford University for the Department of Energy

Physics in Space



IN AN UNUSUAL INITIATIVE for SLAC, under the leadership of Elliott Bloom (pictured left) Experimental Group K is designing a large detector to be hurled into space on a rocket. The detector, called Gamma-ray Large Area Space Telescope (GLAST), is proposed as part of an astronomical satellite observatory to be launched by NASA from Cape Canaveral in 2005. It is being designed to make a comprehensive gamma-ray survey of the sky and make new

of Energy, is now in the research and development stage.

The GLAST detector, which originated in early 1992 through the efforts of Bloom and Bill Atwood of SLAC and Peter Michelson of the Stanford Physics Department, will be based on the highly sophisticated technology for gamma-ray detection and tracking developed for high energy physics experiments at SLAC and other high energy physics laboratories. The telescope consists of twenty-five identical modules called "towers." A tower stands about three feet tall with a cross section of about one foot square, and consists of a stack of sixteen converter/tracker layers above a cesium iodide (CsI) calorimeter.

A gamma ray entering from the top of the tower is detected when it converts into an electron-positron pair in one of the thin lead converters. The gamma ray's direction is inferred from tracking the pair. Its energy, which is invested in the pair, is measured primarily by the CsI calorimeter at the bottom of the tower. Ten thousand charged particles (protons) strike the

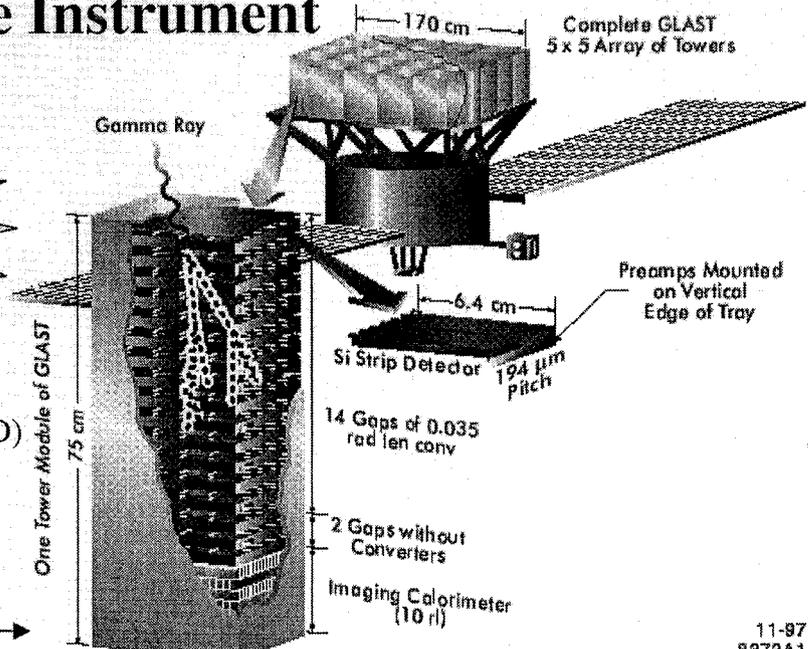
(Continued on Page 3, Column 1)

GLAST Baseline Instrument

Pair Conversion Telescope followed by E-M calorimeter

- Scintillator anti-coincidence detector (ACD)
- Silicon strip tracker (0.7 r.l. distributed)
- Imaging Cs I calorimeter (10 r.l.)

Single Tower →



SLAC Plays Host to Public Affairs' Staffs from DOE/Labs

ASK LINDA WARE WHAT she does in Public Affairs at Thomas Jefferson Lab and the answer is "Everything." Speaking with her soft Virginia accent, Ware says that since Jefferson is a small lab, her duties range from "talking to the neighbors, talking to reporters, writing the newsletter, visiting Washington, you name it!"

Ware and her Public Affairs colleagues from 12 other DOE labs will gather at SLAC early in October to share issues of common concern and "war stories," says Berkeley Lab's Ron Kolb. "You folks at SLAC have it easy when it comes to community involvement. The good citizens of Berkeley keep us busy, no doubt about it," asserts Kolb.

Headquarter staff from DOE Secretary Bill Richardson's office will give updates on the national perspective. Staff from the DOE Oakland Field Office will talk about local issues such as the shipment of spent fuel through Concord. SLAC Director Burton Richter is scheduled to talk to the group about his view of community affairs and the importance of good relations with the neighbors. Attending for SLAC will be P.A. Moore, Assistant to the Director, and Nina Stolar, Manager of Public Affairs.

Family Day Invitation

YOU, YOUR FAMILY, AND friends are invited to SLAC's Family Day on Saturday, October 24,

1998. The party starts at 10:00 a.m. Mark your calendar so you won't miss...

- Barbecue Lunch
- Horizontal Bungee Jump
- Orbotron
- Joust
- Tours of SLAC
- Obstacle Course
- Giant Slide
- Carnival Booths
- The Brothers Owen Band
- Clown Shows
- Face Painting
- Volleyball Tournament

...and much, much more! All for FREE!

Updating your W-4?

W-4 CHANGES ARE HANDLED by Payroll, not Personnel. If you need to change your W-4 form, call Ellen at x2303 for names beginning with the letters A-K, and Linda at x4233 for names beginning with the letters L-Z. Payroll is located in the A&E Building, Room 216.



GET READY FOR SLAC's 27th Annual Run, Walk, 'n Roll! It will be held at noon on November 5, 1998. Check out the event website (<http://www2.slac.stanford.edu/clubs/slacrace>) for more information about this year's event, past race results, committee membership and minutes, progress of this year's T-Shirt design (see Logo above for 1997 design), and a form you can use to register as a volunteer.

—Ruth McDunn, x2014



SSRL Users Meeting

THE 25th ANNUAL SSRL Users' Conference will be held October 19-20 at the SLAC auditorium. The conference will feature scientific highlights and recent developments at SSRL, as well as vendor exhibits and an outdoor poster display. The keynote speaker is Elizabeth Getzoff of The Scripps Research

Institute. To our great pleasure, SSRL's previous director Artie Bienenstock will also be here to talk about his first year at the Office of Science and Technology in Washington DC. The first day of the conference is dedicated to general scientific talks and SSRL-specific talks. The second day of the conference will be divided into four scientific sessions: Environmental Science, Materials Science, Biology XAS and SAS, and Protein Crystallography. The conference will conclude with an Instrumentation Development session. Detailed agenda and registration information can be found at <http://www-ssrl.slac.stanford.edu/ssrl25>.

Work Safe, Work Smart

There have been no new claims involving days away from work since the incident that occurred on 8/10/98, according to Workman's Compensation Coordinator Sharon Haynes. To date (9/21/98), the number of calendar days between claims involving days away from work is 42 days. SLAC's record number of days between claims remains at 150 days.

Physics in Space *(continued from Page 1)*

tower for every single gamma ray. Because the protons must be ignored, the whole tower is wrapped in a high-performance anti-coincidence shield to help reduce this charged particle background.

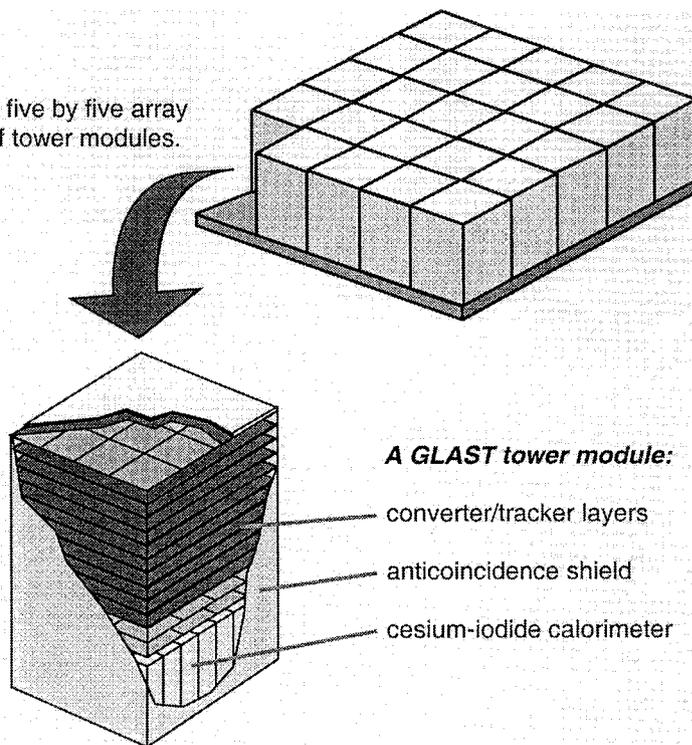
A prototype tower module is being built by the GLAST collaboration, and SLAC's contribution is now under the watchful eyes of the members of Group K, including technician John Broeder, engineer Bruce Feerick, and physicist Gary Godfrey.

The practice of building gamma-ray detectors for export is a specialty of Bloom. In the late 1970s he was one of the leaders of a collaboration that designed and built a large detector called the Crystal Ball for an experimental program at the SPEAR storage ring (which in those days was used primarily for high-energy colliding-beam physics rather than synchrotron-radiation physics as it is now.)

When that program was completed, the collaboration (considerably augmented by new members) improved and expanded the Crystal Ball and carted it off to the DESY laboratory in Hamburg, Germany, to carry out a series of experiments at the DORIS storage ring for the following five years. In that move the large but delicate detector traveled from California to Hamburg aboard the Air Force's largest cargo jet, the C-5A, an exotic ride for a high energy physics detector. GLAST's ride aboard a Delta rocket from Cape Canaveral will be even more exotic.

-John Rees

A five by five array of tower modules.



A GLAST tower module:

converter/tracker layers

anticoincidence shield

cesium-iodide calorimeter

FermiNews Essay Winners



FERMINES ESSAY CONTEST WINNERS collected their prizes in Washington DC on July 22. Here with Congressman Vern Ehlers (R-MI) are Joe Lykken, a theorist from FermiLab (center), and Glen Crawford, an experimentalist from SLAC (right). Lykken's second place prize was the pictured flag which had flown over Congress. Crawford's first place prize was a bottle of Moet et Chandon Perignon Cuvee 1990. There were 36 entries in the Fermi essay contest on the subject "Why should the US remain a world leader in the science of high energy physics?"

The following is an excerpt from Crawford's winning essay.

"...When people ask why we should continue to do research about a world so removed, so different from our own, I say the reasons are just the same as in the exploration of space, or any other new frontier. The journey is in some ways an end to itself: You never really know what you're going to find until you go. From Lewis and Clark to Aldrin, Armstrong and Collins we have explored new territories because they were exciting, challenging, and because we learned so many new things just getting there."

Ambassadors' Corner



(r) Charlie Young (Group A) explains the nature of particles tracked by the cosmic ray detector to interested families at the Visitor Center.

THE SOAP BOX DERBY rolled down Sand Hill Road on Sunday, September 20, 1998. Highlights of the event can be found on the web at <http://www.sandhill.org>. While the community gathered outside our gates, lab staff hosted an open house for our neighbors.

Visitors were greeted by staff members in the Visitor Center, offered tours of the laboratory, and given the chance to explore the World Wide Web. For details of the Laboratory Open House, see the SLAC Ambassadors to the Community page at <http://www.slac.stanford.edu/grp/pao/ambassador.html>

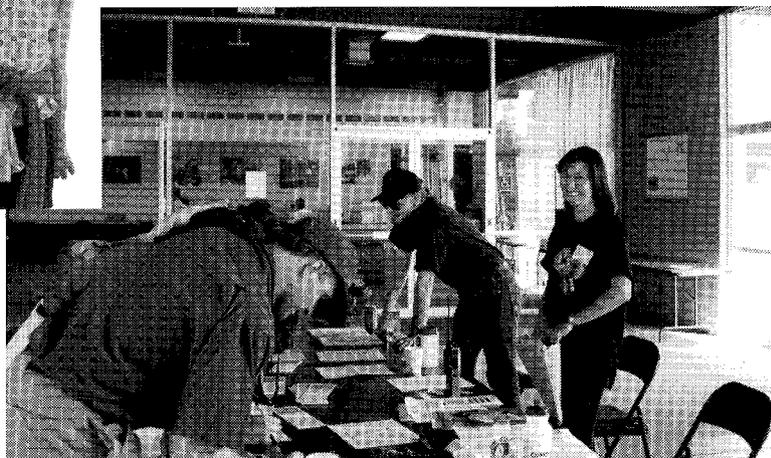
—Nina Stolar



A happy crowd gathers around Al Menegat (just right of center, with baseball cap), to take a walking tour of the Test Lab.



Throughout the day, Soap Box Derby participants and their families came to SLAC, where docents spent time with them in the Visitor Center. Almost 300 people toured the lab and many more stopped by to learn about what we do here.



(Pictured center and right) Greg Bologoff (Purchasing) and Antonia Bolton (Public Affairs) greeted people with smiles and information, launching tours to the experimental areas throughout the day.

Another BaBar Milestone Reached



HELD IN THE HANDS of Brunel graduate student Jane Tinslay (pictured left) is a sample cesium iodide crystal for the BaBar detector. Tinslay and Adrian McKemey were at the San Francisco Airport with others from Group E to meet the cargo plane containing the final module of the endcap calorimeter (see related article in September issue of *The Interaction Point*). The arrival at SFO on September 10 marks a major milestone for the completion of the calorimeter, which is at the heart of the BaBar detector. The detector uses 6580 of the crystals, grown from high purity salt and doped with thallium iodide to make them emit light.

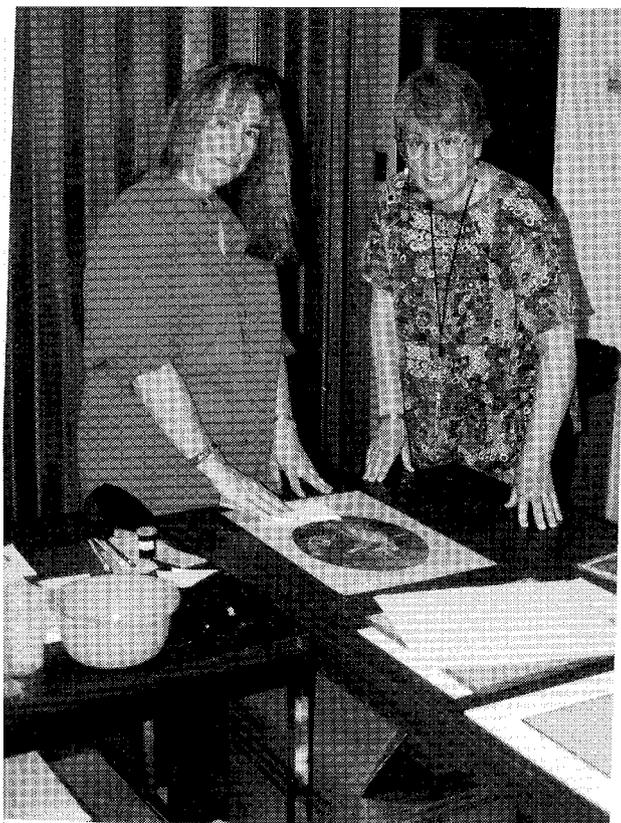
Archives Students Tackle Dirty Records at SLAC

RESTORING OLD FURNITURE? TRY a bit of glue and a clamp, maybe some solvent to strip off the old paint and a finish to restore the luster. Some paper documents to preserve? That's quite a different process, as California archivists recently found out.

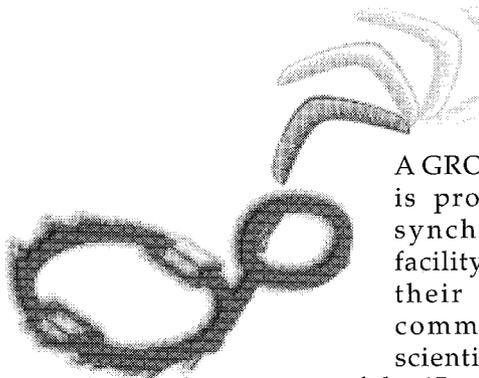
The Twelfth Annual Western Archives Institute, jointly sponsored by the Society of California Archivists and the California State Archives was held in Palo Alto last month. On Thursday, August 6, Institute students visited SLAC, where they spent most of the day in a "hands-on" workshop in the preservation of historically valuable records.

Susan Rogers, a conservator at the Huntington Library in San Marino, led the visiting archivists through the various steps in surface cleaning of paper documents. She instructed students on humidification and flattening of rolled papers and photographs, construction of protective enclosures for brittle or fragile items, and mending of tears and holes in paper items. While they were here, the visiting archivists also had a tour of SLAC, an orientation to the SLAC Archives program, and tour of the Archives' storage area in Central Lab Annex.

The Western Archives Institute is the only program of its kind in the western United States. Held annually, it is designed to offer an introduction to basic archives theory and practice to those whose jobs require a fundamental understanding of archival skills. Core sessions of this year's Institute were taught by Terry Eastwood, Chair of the Master of Archival Studies (MAS) program in the School of Library and Information Studies at the University of British Columbia in Vancouver.



(l-r) Conservator Susan Rogers from the Huntington Library in San Marino and SLAC archivist Jean Deken practice cleaning accumulated grime from a paper document using shredded bits of rubber erasers and a cloth.



A “Boomerang” for Down Under

A GROUP IN AUSTRALIA is proposing to build a synchrotron radiation facility there to better serve their growing user community. Australian scientists currently have to travel abroad to use any of the 45 synchrotron radiation sources now in operation around the world.

Five Australian scientists visited SSRL on September 1 to learn about the latest applications of synchrotron radiation and the plans to rebuild the SPEAR ring to meet third generation source standards. In his welcoming remarks, SLAC Director Burt Richter urged the visitors to “plan for an electron energy in the several GeV range.” According to Richter, the higher energy range produces hard x-rays which are essential for applications to structural molecular biology and molecular environmental science. SSRL staff scientist Peter Kuhn and LBNL staff scientist David Shuh discussed these applications in more detail during their presentations.

The Associate Director for SSRL, Keith Hodgson, gave an overview of activities and plans for the synchrotron division, including statistical information about users and funding. Herman Winick gave a tutorial

on properties and sources of synchrotron radiation. There was particular interest in industrial applications, covered in a talk by Piero Pianetta and in the design and status of the plan to rebuild SPEAR, the SPEAR3 Project, presented by project director Tom Elioff.

At the end of the afternoon there was a lively discussion of the various options that may be considered by the Australians. The options ranged from starting their program by purchasing a small superconducting 700 MeV ring as a turn-key operation from industry, to going immediately to a higher energy and possibly replicating a 2.5 GeV ring now in construction in Germany.

The previous day the Australian group had visited the Advanced Light Source at LBNL. After the SLAC visit, they went to Saskatoon, Canada to learn about the design of a 2.9 GeV light source expected to be approved for construction there.

One of the suggestions that came out of the discussions at SSRL was to name the Australian facility “Boomerang.” Now that they have a name, the only remaining challenges for the Australians are funding and politics.

—Herman Winick

Safety & Environmental Discussion Update



THE ANNUAL SAFETY & ENVIRONMENTAL Discussions were held on February 27, 1998. SLAC employees and users formed 88 discussion groups around the site for the two-hour sessions. A total of 164 issues were identified. Of these, 40 are being addressed on a site-wide level and 124 are being handled by the group or division which identified the safety concern.

addressed as part of the site-wide pathways and lighting project, scheduled to be completed by FY00.

Finding Updated Discussion Information on the Web

If you would like to find out the status of any of the issues or tasks identified at the 1998 discussions (or any of the previous discussions), you can find this info, in searchable format, on the Web via the ES&H home page under “Programs.” The URL for the Safety & Environmental Discussion Program is: <http://www.slac.stanford.edu/esh/standdown/standdown.html>. Then click on “S&E Discussion Searchable Database.” To find out about your group’s discussion items, click on “Issues” and enter the last name of the discussion leader for your group and use pull-down menu choice “1998 S&E Discussion” for the Audit ID, then click the “Search” button. If you need any assistance using the searchable database, please contact Ellen Moore at x4298 or emoore@slac.

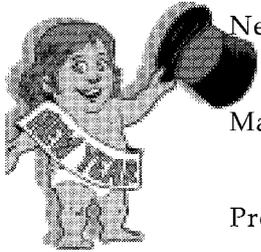
—Ellen Moore

Status of Tasks

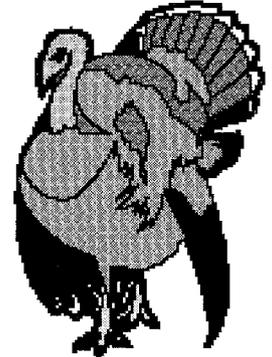
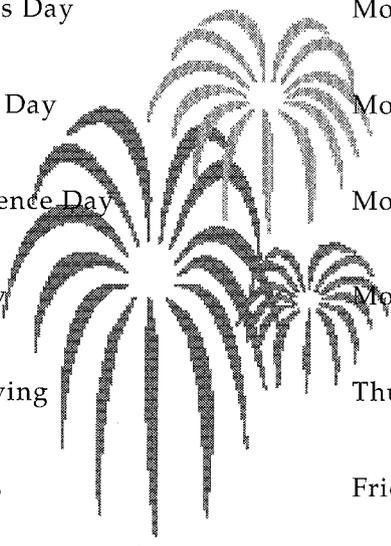
As of August 1998, 50% (82 of 164) of the 1998 tasks have been completed. The remainder are scheduled for completion before the end of the year, or are being

1999 Holiday Schedule

THE DATES FOR THE observance of the designated University holidays in 1999 are listed below:



New Year's Day 1999	Friday	January 1, 1999
Martin Luther King Day	Monday	January 18
President's Day	Monday	February 15
Memorial Day	Monday	May 31
Independence Day	Monday	July 5
Labor Day	Monday	September 6
Thanksgiving	Thursday, Friday	November 25, 26
Christmas	Friday, Monday	December 24, 27
New Year's Day (2000)	Friday	December 31, 1999
Birthday Holiday*		



*The Birthday Holiday may be taken on the employee's birthday or any other work day mutually agreed upon by the supervisor and the employee that falls within 365 days following the employee's birthday.

Frequently employees ask to have time off to observe days of religious or other special significance, other than those days designated as University holidays. Because of the flexible scheduling allowing for the Birthday Holiday, employees are reminded that, with the concurrence of their supervisor(s), they may schedule their Birthday Holiday to provide paid time off on a day which has special significance to them. Supervisors are encouraged to accommodate requests for vacation or personal time off to observe days of religious or other special significance.

Winter Closing Schedule



THE UNIVERSITY HAS AGAIN allowed schools, departments, and administrative units to close down operations during the Christmas and New Year holiday period.

SLAC will be closed during this entire period, with the exception of staff who are requested to work for a critical reason, and those needed to insure site safety and security. Employees not specifically requested to work are asked not to come to the site.

This year Christmas falls on a Friday. The Laboratory, except for a few very limited areas, will be closed from the end of the day Wednesday, December 23, 1998, at midnight, through the end of the day

Sunday, January 3, 1999, at midnight. Thursday and Friday, the 24th and 25th, are University holidays; the 28th, 29th, and 30th are non-paid days when staff will have to use personal time or vacation time to maintain full pay. Thursday the 31st is a paid day off and Friday, January 1, 1999, is a holiday.

To maintain your pay during the three non-paid days, you may use vacation or all of your personal time off (PTO). We will make an exception to policy and allow you to borrow from future accruals if you have no vacation available. Of course, you can take time off without pay if you wish.

—Burton Richter

WebWatch: Using the Phonebook Search on the Home Page

Have you wondered about the *Search the Phonebook* box that appears on the top of the detailed and highlighted home pages? Just type in the last name of the person you are looking for, enter return on your keyboard, and the results of the phonebook search will be displayed in your browser window. If you only know an e-mail ID, first name, or extension, use the Phonebook Search link on the home pages. This link will take you to the Phone Directory Search page (<http://www.slac.stanford.edu/comp/telecom/phone-dir/search.html>). From here you can search the phone directory by one or more fields, learn about name dialing, and get to Other Directories (<http://www.slac.stanford.edu/comp/telecom/phone-dir/phone-dir.html>). On the Phone Directory Search page, the "Single field search" form allows you to look up a person by last name or email ID - just fill in either field and hit return on your keyboard. The "Multiple field search" form allows you to search by one or more fields—last name, first name, e-mail, or extension. To use this form, fill in one or more fields and select the "Submit" button to see the search results. Computers are very literal, so if you misspell or mistype the information, you probably won't find the person you are looking for. Sometimes less is more when searching the phonebook.

—Ruth McDunn

SLAC Soccer Club Annual Challenge Match



THE ANNUAL MATCH BETWEEN the SLAC Soccer Club (SSC) and the Summer Institute was held at El Camino Park after the Discussion Session of the Summer Science Institute (SSI) program in August. The SSI turnout was light this year so several members of the SLAC team filled in on the opposing team. This year, thanks to the SLAC Recreation Fund, the SLAC team was outfitted in Kelly Green jerseys for official play.

At halftime the score was 3-0 in favor of the SSC, and both teams broke for welcome refreshments which were furnished by the SSI. The final score was 8-1 in SSC's favor. However, participants indicated the game was closer than the score would indicate. Although the actual playing time wasn't full regulation, there was enough soccer for everyone.

—David Fryberger

SLAC Milestones

RETIRING

GALLEGOS, Alexander, MFD, 7/31/98
GAXIOLA, Ralph, MFD, 7/31/98
MIXON, Alfred, PEP-II, 7/31/98
NEUBIESER, Alfred, AD, 7/31/98
NUNES, Louis, MFD, 7/31/98
SMART, Marjorie, Personnel, 7/31/98
TOLLES, Raymond, MFD, 7/31/98
DRELL, Sidney, Director's Office, 8/31/98
JANASIK, Lucy, BSD, 9/18/98
BENNETT, Billie, SCS, 9/30/98
BROEDLOW, Bob, EFD, 9/30/98
HILOMAN, Roque, BBR, 9/30/98
KELLER, Lewis, BBR, 9/30/98

DEATHS

VOREYER, Bill, FAC/ES&H, 9/8/98
WILLIAMS, Don, PC, 9/5/98

Fire Safety on the Job

IF FIRE STRIKES...

Sound the alarm and call the fire department (9911), no matter how small the fire appears to be.

Leave the area quickly, closing doors as you go to contain the fire and smoke.

If you encounter smoke or flame during your escape, use an alternate exit. Heat and smoke rise, leaving cleaner air near the floor. If you must exit through smoke, crawl on your hands and knees, keeping your head in the "safety zone" 12-24 inches above the floor.

Test doors before you open them. Kneeling or crouching at the door, reach up as high as you can and

touch the door, the knob, and the space between the door and its frame with the back of your hand. If the door is warm, use another escape route. If the door is cool, open it slowly, being prepared to close it quickly if you encounter flames or smoke.

Follow directions for evacuation from fire and security personnel. Once outside, move away from building, out of the way of fire fighters. Remain outside until the fire department says you may go back in.

—National Fire Protection Association