The First and Next Thirty Years

SLAC OBSERVES THIRTIETH BIRTHDAY
by Greg Loew

It is hard to say exactly when SLAC really started, except for the original moment of conception symbolized by our April 1957 proposal. However, the three little memos quoted here [see p. 3] strongly indicate that our official birth took place thirty years ago.

Being one of the sixty people who were here in 1962 and are still here today, I have been asked to write a few words to celebrate this anniversary. Those early days were indeed exciting. We were all in a frenzy designing, testing, and building. Many of us were learning how to make PERT charts, cost estimates, preparing specifications, and procurements for the first time in our lives. Excavation was starting and our staff was growing at an incredible rate. New faces appeared every week. Above all, we all wondered, with some...

Excavation and construction of the beam switchyard are well under way in this photo from the mid-sixties. Note the vintage automobiles in the foreground.

Development (SLED), single bunch beams, 65 MW klystrons, and the SLAC Linear Collider (SLC). In addition, we have made many first-class developments in new instrumentation, detectors, particle theory, had many successful experiments and publications culminating in Z-mass measurement, and recently, Zs with polarized electrons in the SLAC Large Detector (SLD). It looks like we even survived the Tiger Team!

The arduous task of making the SLC work has resulted in the most incredible and sustained flurry of accelerator physics innovations. The team that has been reporting every morning at the 8:00 AM meeting for the last five years is one of the most brilliant I have ever seen, and it certainly produces the best theater in town.

For all these reasons, I believe we can congratulate ourselves on this thirtieth birthday. Looking at the future, there are some very exciting enterprises to work...

(Cont’d. on p. 3)
ADMIRAL WATKINS TOURS FACILITY

Jonathan Dorfan (right) explains features of a mock-up of the proposed SLAC/LBL B Factory to Admiral James P. Watkins, Secretary of Energy, on Watkins' May 26 visit. Listening are (l. to r.) Donald Pearman, Acting Director of the DOE Office of Administration; Barry Daniel (partially hidden), Director of the DOE Office of Public Affairs; David Hiltin, Professor of Physics at Caltech; and SLAC Director Burt Richter.

Budget Update

CONTINUING OUR coverage of budget developments, following is a shortened version of Burt Richter's June 12 All Hands memo.

I have some encouraging news from Washington, DC. The House Appropriations Committee has largely endorsed the President's request for funding of the base high-energy physics program, which includes about $143 million for SLAC operations, equipment and other expenses. Given the budget pressures, we are fortunate to obtain such a result.

The Committee also acknowledged the excellent work SLAC, LBL and our user community have been doing on the B Factory proposal to the Department of Energy. Although they did not allocate specific funds for construction in FY93, they did take note of the B Factory, thereby indicating a certain sympathy for the project. The Committee also granted approval to move into the primary engineering phase (DOE willing) which would normally require project approval:

Because of budget constraints, the Committee has not provided funds to initiate significant new programs. [However] the Committee has no objection to a low level of research and engineering to develop this proposal for possible future submission.

In this round of the budgetary process SLAC also enjoyed bipartisan support from the entire California Congressional delegation, led by Congressmen Don Edwards and Carlos Morehead. Without this added support, SLAC could have easily fared much worse.

Z REPORT

IN MAY WE reported the initial success in producing polarized Zs in an engineering run. As we go to press with this issue reports are coming in that SLC and SDL are continuing to take off in a successful physics run, having already produced 2000 polarized Zs. Next month we hope to report our progress in achieving the 10,000 events needed to give us substantial data to report physics results.

—The Editor
Record Crowd for Fitness Day

A CROWD OF 238 PEOPLE spent the noon hour on May 20 walking more than two miles in the third annual Employee Fitness Day. Among them was probably the youngest participant ever, Chris and Bob Traller's baby Robert in his stroller. The guards cheered us along as the largest turnout yet for this event wound its way past the Sector 30 gate, up and down and around the observation road, and finished back at the A&E parking lot. The ice-cold drinks waiting there were a welcome sight to those of us who were slightly overheated.

A competition is held each year for most creative costume, most participants from a department, and 100% participation from a department. The following departments won this year:

Most participants: Klystron

Most creative costume: Operational Health Physics

100% participation: A four-way tie among Mechanical Engineering, Travel, Mail Room, and Affirmative Action was resolved with a drawing. The Mail Room won.

Camaraderie more than competition was the driving force for the crowd of walkers and striders as they completed the annual Employee Fitness Day walk.

Costumes this year were exceptionally creative. Operational Health Physics wore giant dosimeters; Environmental Protection and Waste Management tied their group together with yellow caution tape and carried giant hazardous waste labels; and Affirmative Action disguised themselves as the Marx brothers.

It's not too early to start thinking about your distinctive costume for next year, so encourage your department to participate, and we'll be looking for you next May.
Rock of Ages

A ROLLING STONE GATHERS NO MOSS

A LARGE GEOLOGICAL phenomena was discovered on the steps of the A&E building the morning of May 4: the Big One. No, not the “Big Quake” we all dread, but a rare object called an accretion nodule. After some digging through the SLAC Archives, TIP reporters unearthed the facts of the SLAC Rock history, now portrayed in the following plates by SLAC Archivist, Robin Chandler. Robin is shown at left deep in thought over the archival possibilities of this artifact. The inscription beneath The Rock reads: ITIS AROC AN DITIS ABI GONE.

1. Paleoparadoxa mistakes rock for egg, perhaps explaining this species’ demise.

2. Camp Fremont’s Commanding Officer orders the rock buried after discovering that it is an inappropriate cannon ball.

3. The Rock resurfaces during excavation for the SLC Damping Rings, perplexing SLAC engineers.

4. At the History of Particle Physics Symposium, Pief Panofsky announces the discovery of the topmost and heaviest quark, the SLAC Rock.
WHEN LESS IS BEST

WASTE MINIMIZATION PREVENTS pollution to our environment from both hazardous and nonhazardous wastes. We discussed strategies successfully used to address reduction of hazardous wastes (Interaction Point, April-May 1992). Some of the following suggestions for ways to reduce waste can be used at home and on the job.

Nonhazardous Wastes
Reducing the sources of waste generation and recycling are the main waste reduction measures to use for nonhazardous wastes. It has been estimated that approximately 25 percent of SLAC's nonhazardous waste is diverted for recycle to the Stanford Recycling Center (SRC) or to SLAC’s Salvage Department. SLAC cannot recycle all of its nonhazardous wastes, but it can improve its recycling efforts. Based on observation of trash sent to site dumpsters, some specific measures to increase recycling are:

* Separate wet wastes (food stuffs) from recyclables such as white paper, newspaper, and other recyclable papers. Consider using a desktop collection box to accumulate recyclable papers that can later be forwarded to a nearby SRC collection container.

* Separate white paper from colored papers and junk mail (Note: colored paper, junk mail, and magazines are all collected in a separate SRC container. Use a nearby existing SRC collection container for colored or mixed papers and consider using a desktop collection box.

* Add empty plastic containers from milk, bottled water, and beverages to the SRC collection containers supplied by the University for recycling glass.

* Cardboard and brown Kraft paper should be neatly stacked (unfolded where practical) for pickup by Facilities staff in accordance with agreed upon locations, or outside existing trash dumpsters.

* Reuse Styrofoam packing beads from incoming mail or parcels for repackaging the goods that you plan to be stored or mailed.

* Send electrical equipment, scrap metals, and wire (called white goods) to Salvage and not the trash.

Hazardous Wastes
Consider the following measures, particularly where technically and economically feasible. Keep in mind that the cost of spill cleanup, waste disposal and waste transportation contribute to the potential or actual cost of using a hazardous material or product.

* Substitute more hazardous materials with less hazardous materials.

* Buy only what you need to avoid generating unused out-of-date chemicals.

* Observe inventory control to avoid duplicate purchases and overstocking of raw materials or products.

* Check with the manufacturer to find out if the product or product containers are recyclable, and the manufacturer's arrangements and requirements, if any, for container pickup.

* Segregate nonhazardous materials from hazardous waste to reduce the volume of hazardous waste disposal.

* Reduce the scale of an experiment or a project, where practical, to reduce the volume of hazardous waste generated.

* Promote in-line process controls or changes to improve process efficiency and to reduce the frequency of hazardous waste generated.

* Observe good spill prevention practices by periodically inspecting hazardous material containers for leaks, by keeping container lids sealed, by using secondary containment (Interaction Point, August 1991), and by protecting or covering containers to keep out the rain.

Effective, responsible waste minimization requires everyone's cooperation. The results, less waste, and less threat to our environment, benefit us all. Let us know about your successes and ideas to improve our efforts at SLAC.

—Rich Cellamare

Welcome Guests and New Employees

Benjamin Brau, Experimental Facility; Thomas Burwick, Theory; Martha Curran, Environmental Protection & Waste Management; Hans Dykstra, Theory; Alon Faraggi, Theory; Chad Fertig, Experimental Group A; Brian Frey, Environmental Protection & Waste Management; Helenna Haggerty, Controls; Ann Hankinson, Theory; Yoji Hasegawa, Experimental Group B; Yoshihito Iwasaki, Experimental Group B; Kelly Moore, Controls; Gagan Pabla, Radiation Physics; Carsten Peterson, Theory; Francisco Rivera, Mechanical Engineering; Jesus Rivera, Mechanical Engineering; Jacklyn Scott, Theory; Richard L. Taylor, Large Detector; Valeri Telnov, Director's Office; Bruce Youngberg, Operational Health Physics.
BEE FACTORY SWARMS FOR BAY TO BREAKERS

AT THE CRACK OF DAWN on May 17, 20 people donned bee costumes to walk/run for 7.48 miles carrying a B Factory (hive) created by Tony Bell and Mike Lateur—complete with bees (made by Ruth Consul) and particles.

Queen Bee Priscilla Lukon organized and expedited most of the arrangements of the centipede with the help of her Lead Seamstress Bee, Robbin Nixon. Many behind-the-scenes worker bees did the rest. The bees, walkers, runners and support group certainly deserve sweet recognition. Let’s not forget Top Coordinator Bee, Eileen Derr, without whose efforts this whole flight would never have gotten off the ground.

—Marion B. Lisotto

Elementary Introduction for a General Audience

Standard Model Simply Stated

THE STANDARD MODEL of particle physics is a phrase we see and hear often, but how many of us really know what it is? The recent noontime lecture on by Patricia Burchat answered that question in layman’s terms. Sponsored by the Women’s Interchange at SLAC (WIS), the talk was aimed at a general audience and was attended by more than 80 people. Using snowball-throwing ice skaters to illustrate her talk, Pat explained the evolution of the standard model of the fundamental particles which make up all matter and the interactions between them. She discussed the key ideas behind the model, and both the questions it answers and those it leaves unanswered.

Pat is an Assistant Professor of Physics at the University of California at Santa Cruz. She has worked on the Mark II experiment at PEP and SLC and on the development of an asymmetric B factory. A videotape of the presentation is available in the library. The full text of her talk is printed as SLAC–PUB 5835.

A color poster of the standard model is available from Science Kit, 777 East Park Drive, Tonawanda, NY 14150-6782. For more information call 1(800) 828-7777.

—Janet Dixon

Next WIS Forum

On June 23, WIS presents Sharon Traweek on Women in High Energy Physics Labs: Changes in Our Midst. Most of the jobs in these labs are highly segregated by gender, and often by ethnicity and class as well. How does this segregation shape working relationships between men and women and affect opportunities for women at national HEP labs in the US and Japan? How has this changed over the last twenty years? What are the prospects for the next twenty years? These questions and more will be addressed in the talk.

Traweek is an associate professor at Rice University in Houston, Texas, and is the author of the book Beamtimes and Lifetimes: The World of High Energy Physics, based on her anthropological study of SLAC, Fermilab and KEK.

—Janet Dixon
REMEMBERING JOHN KULP

John Kulp Died on May 13 in Los Angeles, California. Retired just over two years ago, John came to SLAC in 1979 as a member of Main Control Center Maintenance, and later worked with the Accelerator Maintenance Special Systems group on power conversion of fast pulsers.

He was a man of many and varied experiences in life, especially in electronics (no matter what area of electronics, John had some experience with the circuit application). A Sergeant in the Signal Corps in World War II, he could send code at better than 35 words per minute. John held two antenna patents from his ten years in the physics lab at Philco-Ford. He did magnetometer surveys in Bolivia with French helicopter pilots for an Italian company. Putting Spanish endings on the Old French he learned at the Sorbonne after the war, he developed a fine Spanish vocabulary. Always ready to help someone, he later taught electronics to young students at the Opportunities Industrialization Center, a local job training center in Menlo Park. He worked as a translator of technical French and could quote poetry in more than ten languages. He greatly enjoyed fishing and reading, especially science fiction, loved to play guitar and sing German Lieder, and was always working on an electronics or radio project after work. He was a truly remarkable person and a good friend. Those of us who knew him will miss him. He is survived by three daughters, a granddaughter and a grandson.

—Wes Asher and Shirley Boozer

VM CLASS AND XEDIT EXIT

There is an imminent change in the direction of computing at SLAC from the IBM mainframe system to a distributed computing environment, where a variety of machines will be used. Because of this, the introductory class which teaches people how to operate the VM system will be discontinued. Appropriate training will be offered after this transition period, when need and direction are clearer.

A distributed environment vastly lowers the cost while still offering similar net power. However, handicaps include weaker security and the added difficulty of disseminating uniform tools to the users. Solutions will become clear when the computing direction at SLAC is better known.

—Trevor Payne

All meetings are held in the Orange Room, unless another location is listed. Please notify the Public Affairs Office of any additions or changes by calling ext. 2204 or sending e-mail to NINA@SLACVM.

June 1
Senator Johnston/Proctor Jones Director’s Office
June 3–5
US–Japan Cooperation Meeting Hawaii
June 5
BES Collaboration Meeting
June 5
SU Commencement Tours Mem Aud. Campus/Bus Route
June 15–19
SDD Week (TBA)
June 15–29
Particle Accelerator School Stanford Campus
(H. Wiedermann, W. Harrison, R. Siemann)
June 18, 9–4
SUBB Mobile Blood Drive Auditorium Lobby
June 18–19
Makrometer Calibration Workshop
SSRL, 3rd floor (R. Fulland, B. Bell)
June 19
US Tau-Charm Collaboration
R&D Meeting Group 1 Conference Room
June 19, 2:30–6 PM
3rd Annual Juneteenth Cafe Picnic Area (Jean Hubbard/BASE)
June 20, Noon
SLAC Day at the Stick Busses to Candlestick
June 21, Noon
SLAC Summer Science Program Reception A&E Courtyard (Hilda Korner)
June 22–July 3
Physics Teachers Workshop H. Quinn, A. Erzberger
June 24–27
3rd History of Particle Physics Symposium Auditorium (M. Riordan, L. Hoddeson, M. Dresden, N. Stolar)
June 30
DOE Institutional Review Washington, DC (M. Chang)
July 13–24
SLAC Summer Institute (SSI) Auditorium/Lobby/Breezeaway (D. Leith, L. Dixon, D. Burke, J. Hawthorne)
Mysterious Winning Streak Holds
EXPERIMENTALISTS WIN SECOND YEAR

Theory team supporters (l. to r.): Mieko Kuribayashi, Kathy Gallo, Tina Neubert, and Mary Lou Linton-Morningstar.

EXPERIMENTALISTS 0 3 3 2 0 2 5 0 1 16

NO MODERN-DAY SPORTS rule doubles, but no such rule was agreed to this year so every hit into the Grove was a “live” ball. And balls hit into the Grove have a nasty habit of eluding capture or, worse yet, disappearing. The Theorists heroically tried to duplicate the Grove strategy but their wimpy sky shots fell agonizingly short.

Experimentalist pitcher Dick “The Knuckler” Zdarko yielded only 15 hits to the Theorists, largely due to the sure-handed precision of his supporting infield. Time after time, inning after inning, sizzling grounders were scooped up and fired to first baseman Bill “Full Stretch” Kirk (3 hits)—spoiling any potential game-winning rally.

The Experimentalists excelled in other areas as well. Burt “Bullet” Richter (2 hits) aggressively drew out a single into a double in the third inning. The Bullet sparked his team to a 3-run rally resulting in a 6-4 lead. The lead was short-lived, however, as Designated Theory Captain Lance Dixon cracked a 2-run RBI in the bottom of the inning to tie the score at 6-all.

Both pitchers surrendered two runs each in the fourth inning. Carl “The Hammer” Schmidt crushed a solo homer for Theory that almost landed on the steps of the A&E Building. It was the longest shot of the day and tied the score once again at 8-8.

The Theorists loaded the bases in the bottom of the seventh with no outs. By now tension was so thick you could cut it with an electron beam. In a freakish and cruel turn of events, the heart of the Theory batting order dribbled two easy outs and a pop-up to the catcher to end the rally. The crowd was shocked, statisticians huddled and a Monte Carlo distribution was quickly modeled. Zdarko’s pitching continued to waver, resulting in three late-inning runs. Although the Theorists’ offensive attack continued to mount, solid and timely fielding by Experiment’s stranded base runners.

Two women graced the field this year, Mihoko Nojiri (Theory) and Nina Stolar (Experiment). Typically, the male players moved in, anticipating weak-hitting females. But after sizzling shots by both women, the infields retreated to their normal positions, ever watchful for that embarrassing and potentially crippling line drive.

Most players were relieved when this year’s championship clash was over. Post game healing took place at Sid Drell’s house. Aches and pains were soothed and powerful thirsts quenched by good spirits. Theory’s strategy for next year has already been formulated: schedule the game when Ron Castle is out of town and formalize the Panofsky Grove ground rules.

—Nina Stolar