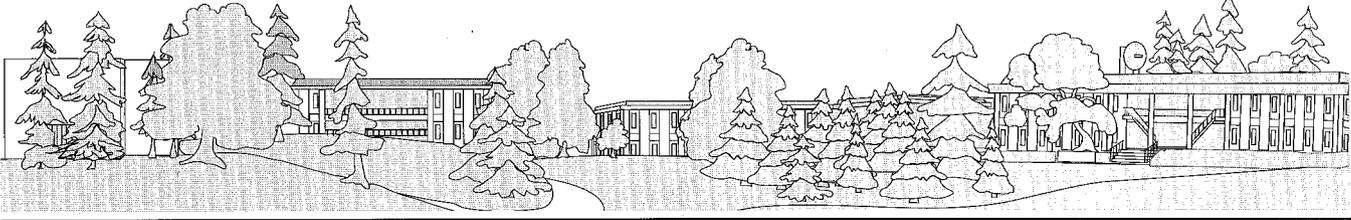


The Interaction Point

Events and Happenings
in the SLAC Community
January 1991, Vol. 2, No. 1



Tiger Team to Visit in Second Half of Year

FOCUS ON ENVIRONMENT, SAFETY & HEALTH PRACTICES

THE TIGERS ARE COMING! 1991 is here and that means that it will soon be SLAC's turn to host a Department of Energy Tiger Team. A cornerstone of Secretary Watkins' 1989 ten-point plan to improve the environment, safety, and health practices at national laboratories, the Tiger Team assessment program dispatches a pack of highly trained and motivated experts to inspect the labs, from top to bottom and inside out, and report back to the Secretary on their findings.

The message should be crystal clear by now. A DOE facility that cannot conduct its activities in accordance with relevant and applicable ES&H requirements, whether it be a nuclear production facility or a research laboratory, will simply not be allowed to operate.

—James D. Watkins
Secretary of Energy

It is hoped that last week's presentation by Martin Blume of Brookhaven National Laboratory has started you thinking about what you need to do to ensure that SLAC is ready for the Tigers. To maintain the momentum that Blume's talk ignited, this and

future *Interaction Point* articles, plus special news bulletins on specific Tiger Team topics, will provide advice and pointers to help everyone prepare for the work that is to be done in the months ahead.

Central to the Secretary's plan for improving safety at the national labs is the idea of ongoing self-assessment of the labs' approach to ES&H. Before the Tiger Team arrives, they will expect to receive from SLAC a "Self-Assessment Report," in which SLAC describes how it sees its own performance with respect to ES&H. That assessment has already begun. The reorganization of the SLAC Safety Policy Committee into the energetic ES&H Coordinating Council and the recommendation of that Council for the creation of the new ES&H Division are a couple of results of the increased attention that SLAC is paying to its attitude and organizational approach toward safety. In addition, an independent audit of OSHA compliance, waste management practices and emergency preparedness was conducted last fall, the findings from which are currently being analyzed and acted upon. Part of that analysis is reviewing the specific findings to determine what root causes at the management and organization level could have prevented their occurrence.

There is a long way to go before we can truly say that we have

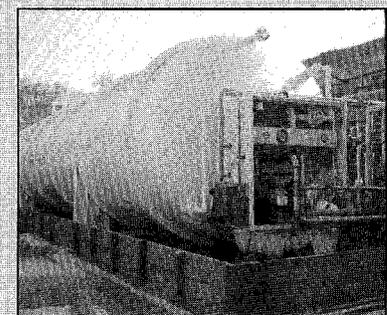
(cont'd. on pg. 2)

Photos Depict Deficiencies

THE TIGER TEAM will be looking to see if SLAC is complying with requirements pertaining to environment, safety, and health. In order to increase awareness of deficiencies that need correcting, *The Interaction Point* sent a photographer into the field with an ES&H group member. The photos that follow are typical deficiencies (no locations mentioned) that need correcting or addressing. Just because these examples are not in YOUR area does not mean that they do not occur there. The examples depicted are intended to show the types of things the Tigers will be prowling for (*more photos on page 2*).



Electric cart being charged by sign that does not allow sparks in area



No content label on tank

(cont'd from pg. 1)

assessed our ES&H performance. In the coming months, every person at SLAC will be called upon to contribute in some way to our self-assessment. Whether your level of participation is serving on a committee, performing an inspection, writing a manual, or being asked questions about the way you do your job, your contribution to the process is vital.

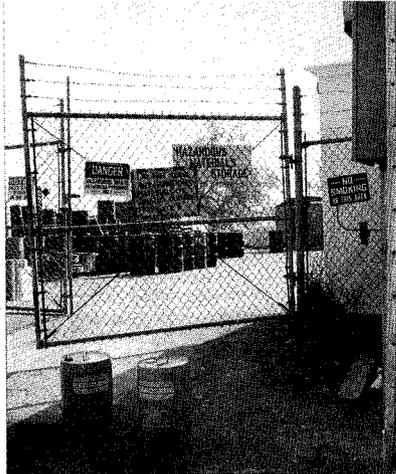
"One of the first things that we all need to do is to clean up our work areas," says Matt Allen, ES&H Associate Director. "On a recent site walk-through with Martin Blume I was deeply concerned at some of the things we saw. We have an enormous housecleaning job to do before we can conduct a proper self-assessment."

The creation of the new division for Environment, Safety and Health demonstrates the laboratory's recognition of the importance of ES&H to SLAC's continued ability to conduct world-class research. If SLAC is to succeed in achieving its objective, we all need to recognize that fact. Responsibility for maintaining a healthy and safe work environment has always been, and continues to be, the responsibility of every individual at SLAC. It is the goal of the new Division to provide the necessary guidance, resources, and advice for the line organizations to carry out their ES&H responsibilities. According to Allen, "Cooperation is going to be the key to accomplishing our goals. I look forward to everyone's support in bringing SLAC up to the standards against which we will be judged by the Tiger Team and to the standards we should all hold for ourselves."

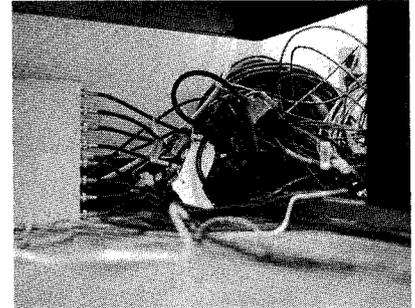
Continued dedication to Environment, Safety and Health must become central to the way we do our jobs.

—Mary Hall Ross

Abuses Tigers Growl Over



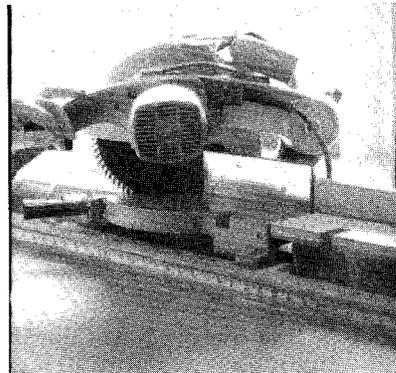
Sign speaks for itself (this was not a setup shot!)



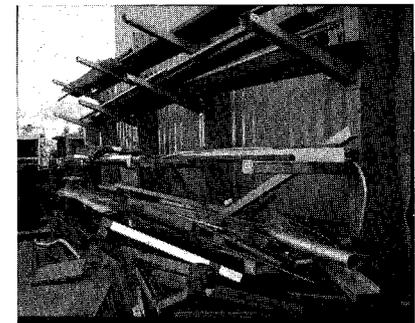
Cable rat nest under office desk



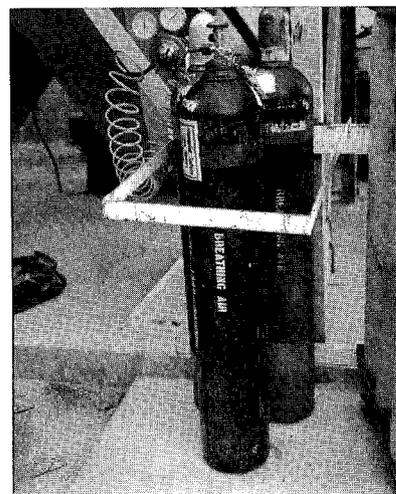
Improper storage



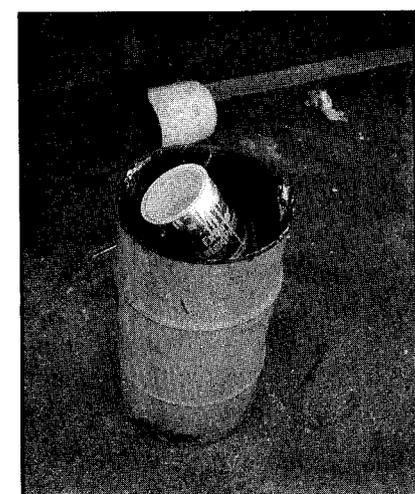
Safety guard is non-functional



Housekeeping problem



Improper restraint



Improper disposal

AMANDA WEINSTEIN—A VALIANT LITTLE. . .TEENAGER?

IF YOU GO to the Publications Department and ask Crystal Tilghman what the most popular publication is right now, she will tell you that it is SLAC Report 370. Every second or third request that comes in from outside SLAC is for this report. Of the 400 copies that came back from the print shop at the end of August, only about 50 are left, and a second printing will definitely be required.

It is interesting to note that the requests are coming in from all over the world—such far-away places as France, Germany, Italy, Northern Ireland, Canada, Australia, and New Jersey. Some of the requests are from places one would expect, such as the Max Planck Institute in Heidelberg. But what about the Hartford Steam Boiler Inspection and Insurance company? Or the Royal Melbourne Hospital? Peculiar to say the least.

So one might ask what this report is all about, or perhaps more interestingly, who is this great physicist at SLAC who manages to capture the attention of the world at large to such an extent? Surely nothing short of the full unification of all field theories or the discovery of 25 new particles, or perhaps definite proof that cold fusion works after all, could generate such an overwhelming global and cross-disciplinary response.

Well, nothing like that. When you look at SLAC Report 370 you find that it is entitled, "*A Valiant Little Terminal—A VLT User's Manual*," and that it is written by Amanda Weinstein. VLT is a terminal emulation program for the Amiga personal computer, but I won't bore you with the details here. Instead, let me tell you about Amanda.

Amanda Weinstein was born on November 11, 1974, the day of the "November Revolution" in high-energy physics. On that day,



Amanda Weinstein

the charmed particle J/ψ was discovered here (and elsewhere at the same time). Amanda is now a junior in high-school and a top-notch student. She has won several awards in various disciplines. She does her homework in T_EX on the Amiga at home and is one of the Amiga computer's staunchest supporters (for example, she hates Macs). She also strikes a mean bow on the violin and used to play in a baroque chamber orchestra.

During the summer, she worked at the Computing Center on the manual for VLT. At the time, she was all of 15 years old. Now, I should say this much about VLT: it has a *lot* of features, some of which are pretty darn complicated. The documentation Amanda had to work from consisted of a three-year-old manual that partly described the features of an ancient (and very different) version of VLT, plus some four or five documentation files which briefly described subsequent releases. Sometimes *very* briefly. Unfortunately, the art of VT100 and Tektronix emulation is not taught much in high-school anymore, so all this was quite new to Amanda. Frankly, I didn't dare hope that she would be able to

complete the manual in the nine weeks she was here, and of course I was right. She completed it in six weeks instead. Okay, seven if you count the first week, but it was mostly spent setting things up. She wrote it entirely in T_EX and, with all pictures and tables, the manual is 114 pages in small type, single spaced. A remarkable achievement. Guess who's going to be hired again next year. . . .

—Willy Langeveld

[Editor's Note: Typical comments on requests for Amanda's report are "We have several users of this terminal program at our facility (Sandia National Laboratories) and the Manual would be a big help in tapping into the full power of the VLT program." "VLT has been a solid easy to use program and I would like to thank you folks for making it available free to the rest of us." "If we can be of service as evaluators please let us know."]

February 22, 1991

Applications Due for SSP

SLAC SPONSORS a Summer Science Program (SSP) that provides a unique opportunity for minorities, females, and other students not traditionally found in the science and engineering disciplines.

The participants are selected from colleges and universities throughout the United States. Applicants must be undergraduates and interested in physics, math, engineering, or computer science.

The nine-week program typically combines a technical work assignment, lecture series, and tours of local research labs. This year's program dates are June 23–August 23. If you know of students who may be interested in applying, please have them contact Anne Wood, ext. 2354, or Teresa Cervantes, ext. 2353, in Personnel. The application deadline is February 22, 1991.

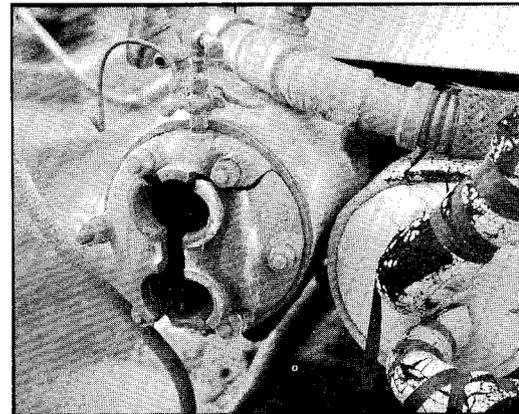
—Anne Wood

The Big Chill . . .

MOTHER NATURE GIVES SLAC CO

THE WEATHER PRECEEDING the Christmas weekend had been very cold, but the true nature of the Big Chill would manifest itself only after everyone went home for the holiday.

Over the evening of December 21, 1990, local temperatures dropped below 20 degrees Fahrenheit and caused damaged pipes and crops all over California. SLAC was not exempt from this damage, for we were in the middle of a long down time and had most of the equipment and systems shut down for maintenance; therefore, no heat was generated, and the inactive piping systems sustained major freeze damage.



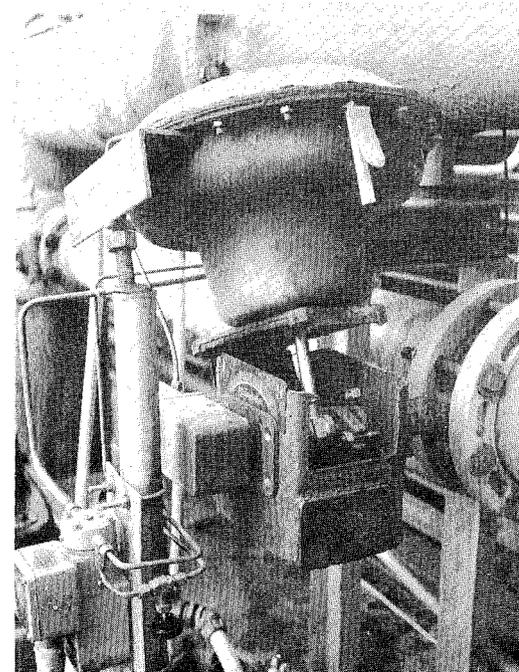
Cracked cast-iron chiller condenser heads.



Scott Willis, Mercury News, 26 December 1990

The surveillance mechanics for Plant Maintenance were the first to observe the growing problems from the freeze. Ray Radau, working swing shift on Friday, December 21, noticed temperatures were dropping rapidly and closed all the Gallery doors to reduce wind chill effects. Gene Holden, owl shift, started getting indications of the problems SLAC was to encounter. She secured the water lines to the Campus and Main Control Center cooling towers since the valves had failed. The temperature was 16 degrees F at

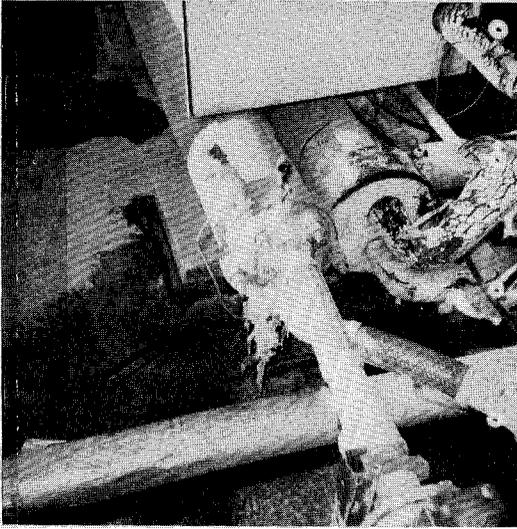
Sector 20. Pete Thunen showed up for day shift and started receiving maintenance calls almost immediately. Donning a rainsuit for protection, Pete worked on valving off a fire riser that had broken outside his building. When he came back in, his rainsuit was covered with ice! As the temperatures went up with the break of dawn, the "fun" really started for Pete. As ice in the pipes melted, the ruptured components leaked, slowly at first, then turning into veritable geysers. By mid-morning on the 22nd, he called for reinforcements.



Damaged valve on a linac cooling tower (not broken bracket on actuator; angled unit would normally sit flat).

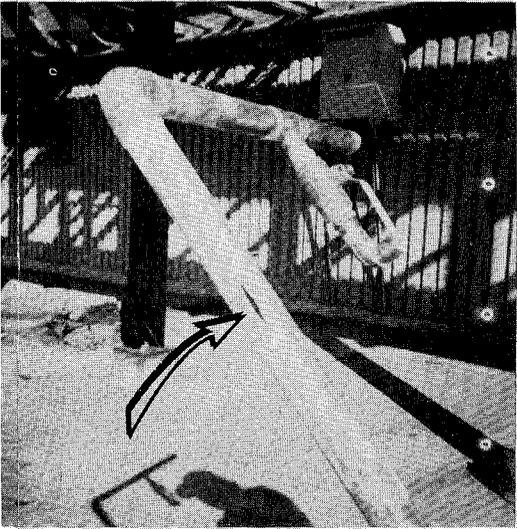
All exposed water piping froze and downed water, LCW, waste treatment, and fire sprinkler systems were down, additional damage. Most of the damage was inside the radiation gallery. The day was so great, the water main along the gallery was down. In the Klystron Gallery all the piping was down. In addition, there were plumes of steam rising from the damaged air conditioning piping system through the site; in the Klystron Gallery also

OLD SHOULDER FOR HOLIDAYS



Sal Fazzino

Damaged water chiller condenser for the air conditioner system at IR-2.

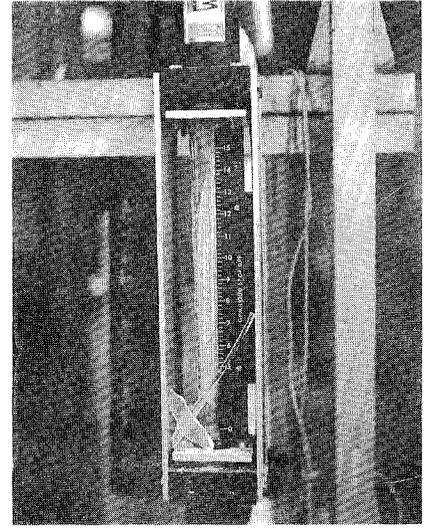


Sal Fazzino

Damaged domestic water piping at IR-2. Note split in center of pipe, a typical problem of the exposed copper piping serving buildings.



A Trane contractor repairs piping at the pump for the chilled water system.



One of the 600 broken flowmeters in the Gallery.

On Wednesday after Christmas the repairs to the systems began, and replacement parts started arriving immediately even though it was a difficult period to contact suppliers and contractors. At the peak there were 25 plumbers making repairs to the various systems—that's why you couldn't get one at your home for three days!

Some of the most expensive-to-replace components in the accelerator are the klystrons and SLED cavities. All 240 klystron/SLED units were potentially affected when water froze in most of the pipes and passages of the LCW system cooling the accelerator and its associated microwave subsystems. Expanding ice inside tubes and cavities could conceivably cause vacuum failures, water leaks, or, in a more subtle way, metal deformation leading to a change in the rf characteristics of the device. Subsequent vacuum pump readings and heater operation shows the tubes are still under vacuum. And out of 30 klystrons that have been pressure-checked, a few water leaks have been found but will require repair only (rather than rebuilding). Three klystrons

from the gallery have been tested and all operated at the same performance level as when they left the Test Lab, even though one had shown severe ice damage in its water channels. A SLED cavity in Sector 7 was tested and the resonant frequency was found to be very close to where it should be, though some retuning may be required.

It may take a while (and a good amount of money) to recover completely from this Big Chill, but it's incidents like these that let the remarkable capabilities and qualities of your fellow SLAC staff members shine through—a hearty thank you to ALL involved in securing and repairing our site.

—Harry Shin, George Caryotakis, and Gordon Ratliff; Coordinator: Janice Dabney

[Editor's Note: As of January 16, out of 87 damaged fire sprinkler systems, 73 had been repaired and 14 were still down.]

domestic water, chilled and hot water, cooling tower and chiller systems were affected. In fact, so many of the fire guards were hired to patrol the critical areas. A security fence, and because the number of leaks on Saturday, the Klystron Gallery and the PEP Ring had to be shut down. Access to the restrooms and drinking fountains froze. In addition, water leaked from the roof of the A&E Building as a result of ice dams. Glass water flowmeters (rotameters) broke all over the place. One, 600 units had their glass tubes fractured.

HEUSCH COMBINES PHYSICS, MUSIC

CLEM HEUSCH, an experimental physicist from UC Santa Cruz, and the founder of the Santa Cruz Institute for Particle Physics, has been a SLAC user for 20 years. He feels that doing things other than physics actually makes him "fresh for physics." In keeping with that philosophy, he is an accomplished violinist, and an accredited music critic who regularly covers the San Francisco Opera season. He occasionally teaches a course on "Theory and Practice of Musical Criticism," at UC Santa Cruz. In fact, when contemplating the direction his career was to take at age 18, Clem decided that although he loved music, he would never be a Heifetz—and mathematics, his other love, was too abstract; so physics, a field he "didn't know but wanted to," became his chosen direction.



Clem Heusch

In addition to physics and music, Clem has other interests. His love and study of languages have led him in directions that combine physics and language interests, such as his effort to involve other countries in the physics activities in the United States. He was a member of the Spanish HEPAP for five years and later was invited to several US/Latin American workshops to concentrate on common experimental work between this country and Latin American nations. He has also taught courses on Mesoamerican Culture and Precolumbia Anthropology at UCSC.

He was instrumental in the first US/Mexico workshop on particle physics that focused on the Supercollider (SSC). The workshop took place recently in Guanajuato, Mexico. (Guanajuato is an old goldmining town that just happens to possess a "wonderful opera house.") Clem's hope, and one of the goals of the workshop, was to help make Latin American physicists true partners in current physics research, and that emerging partner nations will eventually be able to build up their own laboratories and related industries. Since the SSC is to be an international laboratory, Clem asks, "Why shouldn't the Latin American physicists work on items of development for it, and maybe equally on a future linear collider?" The Guanajuato workshop will be followed by a second conference in Brazil, and later, a third conference in Argentina.

Currently, Clem is on sabbatical leave at CERN, although he plans to return every two months or so to maintain contact with his students and research projects. He is very pleased with, and proud of, the UCSC/SLAC relationship. The physicists at UCSC consider themselves members of the SLAC family, and the affiliation of their smaller group with the large SLAC community has "made it possible for UCSC to act in a bigger way."

—Anne Warren

Kudos to Gene Holden

PRAISE AND THANKS to Gene Holden, Utility Mechanic, Plant Maintenance, who recently used her own truck to personally pick up and deliver ten large boxes of used medical charts to the AIDS Health Project in San Francisco. Not only that, but a quick phone call proved it to be raining in San Francisco, and Gene decided to delay her departure (4 p.m.) until she could "contact one of the guys" so that she could cover the boxes with plastic.

This is the second time that Gene has volunteered to help the SLAC Medical Department donate used office materials to this project. The materials are used in the same manner in which they are here, to maintain patient records.

—Marion Lisotto

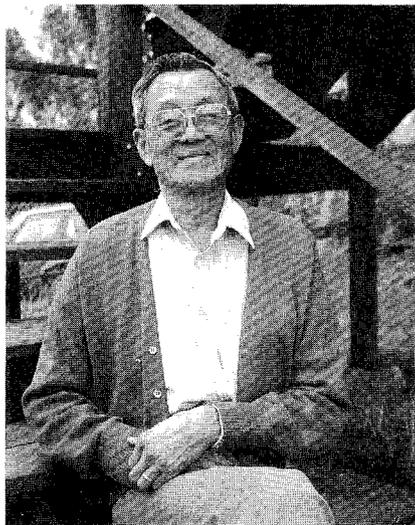
[Editors' Note: This is the type of article we like to publish. Please keep us informed so that we have more of these kinds of things.]

SLAC WELCOMES NEW EMPLOYEES

WELCOME TO: Paolo Arcioni, Group C; John Azevedo, Purchasing; Forrest Brown, Plant Engineering; Mary Jo Campbell, Computing Services; Carol Chatfield, Library; Ronald Chestnut, Controls; Jean Pierre Coulon, Group I; John Davis, Mechanical Systems/CAD; Christina Garden, SLAC; Reade Grigory, Group B; Walid Hosseini, Group C; Rex Jameson, Group B; Laura Keller, Mech. Design; Richard Ledon, Telecommunications & Technology; Robert Lerner, SLD; Leif Lonnblad, Theory; Jose Martinez, Information Services; Justine Mello, Power Conversion; Thomas Morse, Power Conversion; Rand Pendleton, Klystron; Pilar Prieto, Phys. Electronics; James Rogers, Mech. Design; Michael Saleski, Accel. Operations; Robert Siemann, Accelerator Theory & Special Projects; Cynthia Stevenson, Personnel; George Vertin, Controls.

FAREWELL TO LONG-TIME EMPLOYEES

Ed Wong. . .



ED WONG, who logged in almost 30 years of service, retired at the end of August. Recently, he celebrated his 70th birthday!

Ed was hired by Stanford in 1962 and first worked for SLAC in the Beam Switch Yard. His real wonder years as a designer started in 1967 when he was assigned to the Bubble Chamber group (now the Cryogenics Group), his home group ever since.

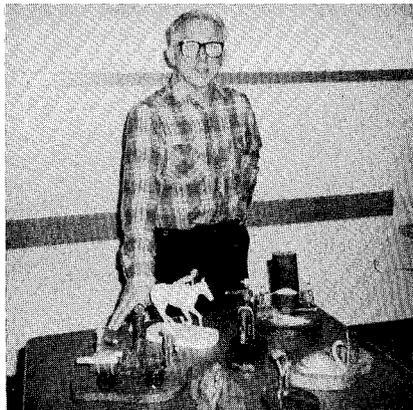
He has been a major contributor in the design of every cryogenic project here, starting with the 40-inch Bubble Chamber, and later on the 15-inch Bubble Chamber. LASS, Mark II, TPC, HRS, SLD, SCFF, and CRID, he has worked on all of them!

If you wonder why you can still meet up with Ed at SLAC, the answer is easy: we asked him to come back and help us with ongoing cryogenic designs.

We all hope that Ed still wants to come and work with us; we don't quite know how to get things done without him.

—Henning Petersen

Erik Sorensen. . .



ERIK SORENSEN, an electrician for the Plant Maintenance Services Group, retired in November to enjoy the good life.

Erik was hired in 1970 as an electrician, then went on to work on power supplies for EFD. Over the next 12 years Erik became known as "The Crane Man" as a result of his dependable repair work on cranes around the site. Recently, he organized the inventory and storage of electrical motors throughout SLAC.

In retirement, Erik plans to relax and pursue his favorite hobby of whittling figures. We wish Erik well!

—Paul Franey

[Editor's Note: Erik's donation of a carving of Santa Claus and sleigh was one of the grand prizes at the Holiday Party drawing last month. Bernie Lighthouse, party coordinator, said that Erik approached the committee almost apologetically and asked if he could donate one of his carvings. "Erik was modestly shy as he unwrapped Santa and showed it to admiring committee members," relates Bernie. In addition to Santa and sleigh, Erik has carved sports figures, cowboys on bucking broncos, and one of his latest works is a swan accompanied by small duck-lings, one of which is perched on the back of the swan. Erik's next task is to get some business cards to formally announce his new line of work.]

Frank Barrera. . .



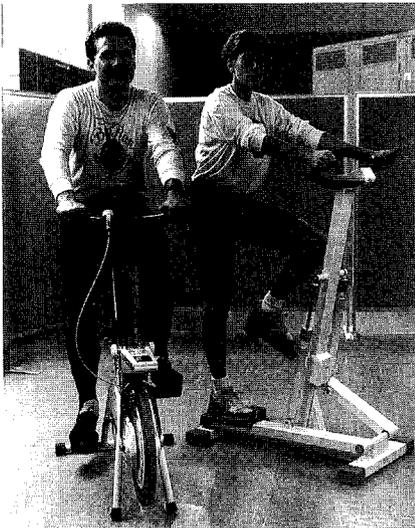
AFTER MORE THAN 22 years of service to Stanford University, Frank Barrera retired in November. A veteran of WW II, he circled the globe while in the Merchant Marines and later served with the U.S. Army in Korea.

Frank received both his B.S. and M.S. degrees in Mechanical Engineering from UC Berkeley. And, fortunately for SLAC, he landed a job with the 72-inch Bubble Chamber that was later to be expanded to 82 inches; when that chamber was moved to SLAC, Frank migrated with it.

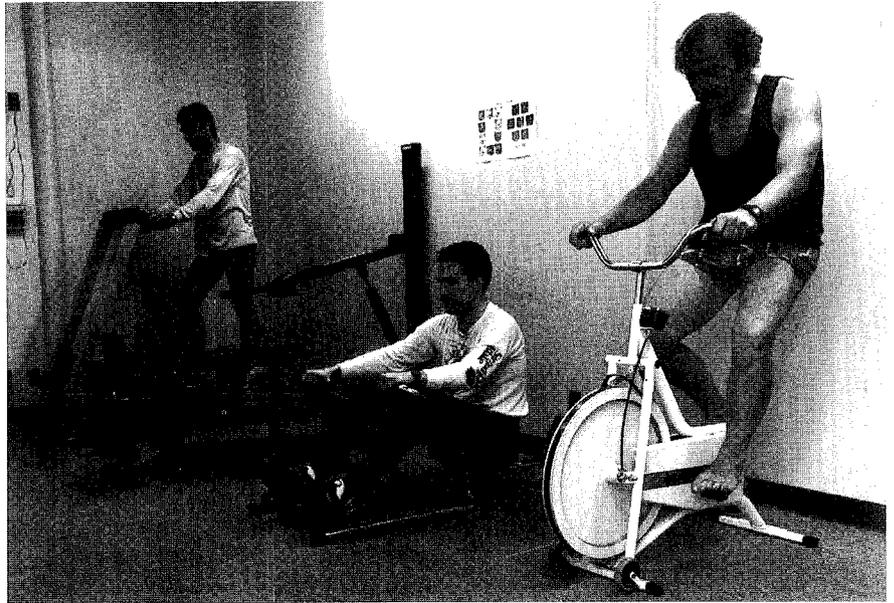
Frank was involved in the successful installation and operation of the 82-inch Bubble Chamber and was the project engineer for the 15-inch Fast Cycling Bubble Chamber. As the duties of the Cryogenics Group expanded, Frank continued to be instrumental in all cryogenic engineering projects, including coordination of the cryogenic engineering efforts for the Liquid Argon Calorimeter of SLD, and finally, the conceptual design of the SLC Superconducting Final Focus magnets.

—Henning Petersen

SLAC EXERCISE CLUB ADDS EQUIPMENT, SPACE



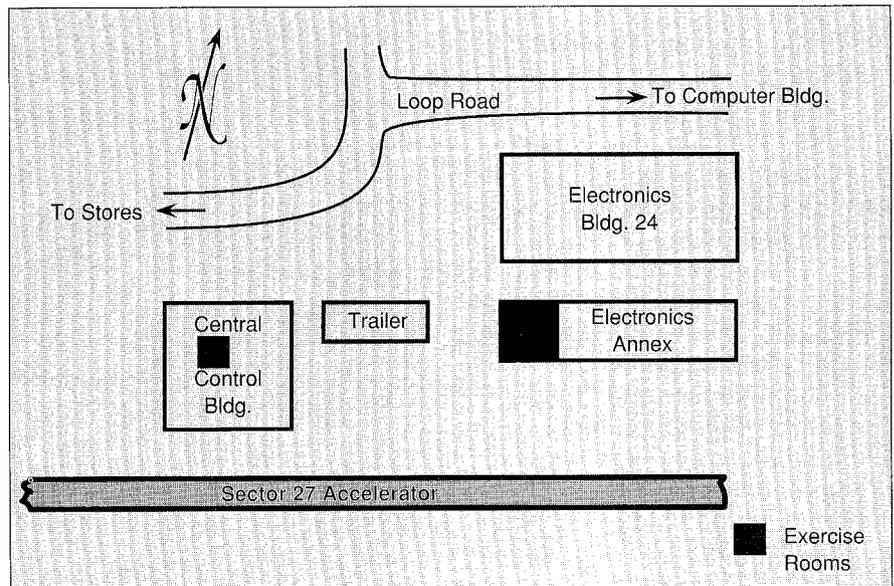
Hugh Vassar and Chris Charbonneau try new exercycle and stair stepper.



Front to back, Cameron Pierce, Hugh Vassar, and Bob Traller use exercise equipment during recent lunch hour.

IF ONE OF YOUR New Year's resolutions is to get more aerobic exercise, you might want to join the SLAC Exercise Club. If you are already a member, you'll be happy to see the new exercise room and equipment. Due to user demand, the SLAC Exercise Club has added new exercise space and equipment to its facilities. The club now has two exercise rooms, located in the Electronics Annex (west end) and in the Central Control Building. The Electronics Annex room is accessible 24-hours a day with a member's key, and the Central Control room is available from 8 a.m. to 5 p.m. during the work week.

The equipment presently available in the exercise rooms includes a TRIMAX exerciser, treadmill, Nordic skier, two stair steppers, four stationary bikes, two rowing machines, two inclined boards, a static back stretcher, and a ballet barre with a mirror. Possible new items being considered are carpeting for the new exercise room, a high-end rower, and a TV with VCR for exercise videos. Other suggestions from club members are welcome.



University employees at SLAC, SLAC Users, and Visiting Scientists at SLAC are eligible to become members of the Exercise Club. The cost is \$12.00 per year plus an initial refundable \$7.50 for a key deposit. The fee purchases new equipment and keeps old equipment in repair.

For inquiries, suggestions, and complaints (or praise) about the Exercise Club, the Board of

Directors are Bob Gex, Charlotte Hee, Ray Jensen, Tom Knight, and Ken Witthaus.

—Ken Witthaus

The Interaction Point is published by Information Services of Stanford Linear Accelerator Center. Editors: Rene Donaldson and Bill Kirk; Photographer: Tom Nakashima. Deadline for articles is the first of every month. Submissions may be sent on SLACVM to RENE.D or by SLAC mail to Rene Donaldson, Bin 70. Phone (415) 926-2585.