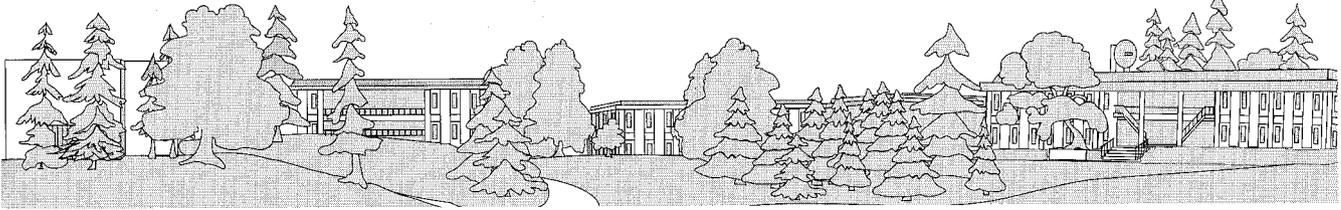


The Interaction Point

Events and Happenings
in the SLAC Community
July–August 1992, Vol. 3, No. 6



Lab-wide Efforts Result In

SLC & SLD: A SUMMER SUCCESS

by Bill Ash

SLC & SLD ARE ON THE ROAD to success, producing new data at a rate that has physicists starting to smile. In the past two months, the years of hard work by so many people in the machine and detector groups have started to pay off.

The graph below, which shows the growing number of Z particles measured by the SLD detector since the beginning of this physics run in May, illustrates the point very well. That number was over 7300 at the end of July—more than 20 times the number the detector measured in last summer's entire run—and we've just begun.

This accomplishment is already pleasing, but there's much more to the story than the numbers: these Zs were produced by a polarized beam, a unique achievement in high-energy physics. The very first polarized Z reconstructed by SLD is shown in the inset on the graph below.

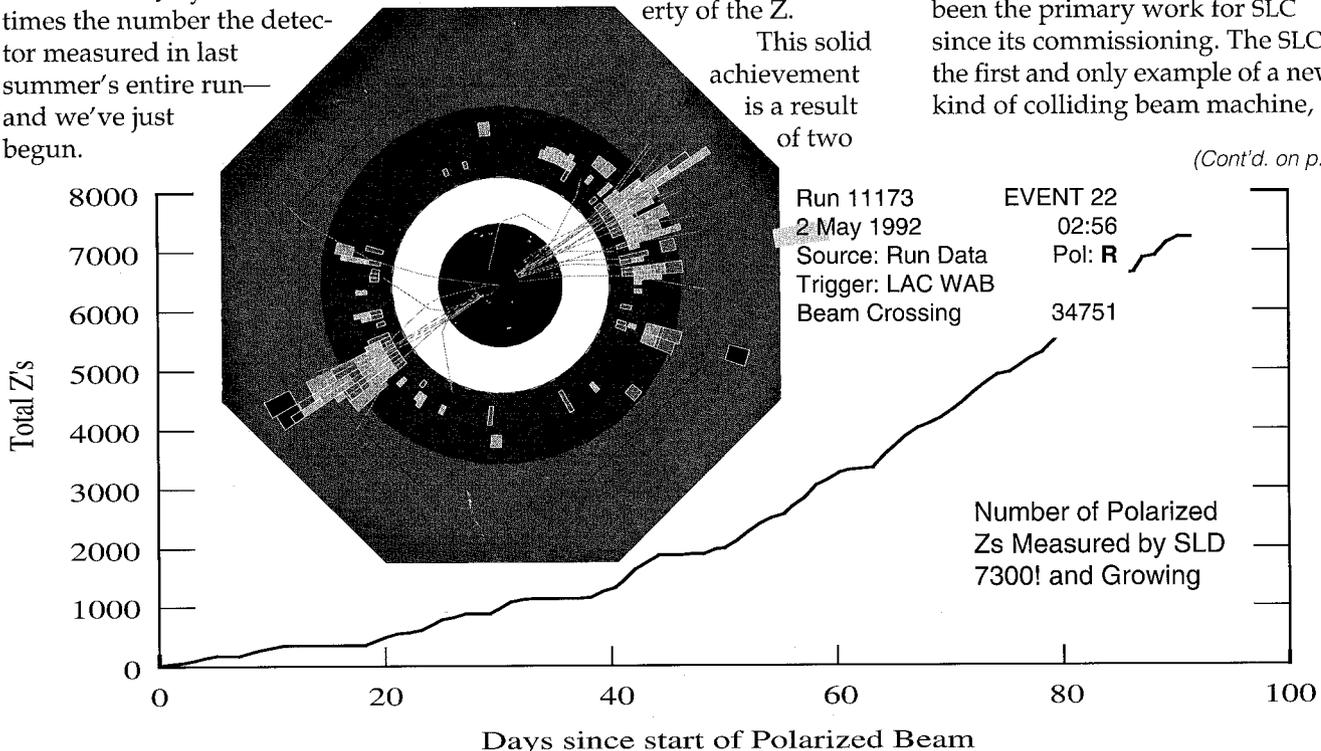
Once 10,000 such events have been collected, which should happen sometime this summer, SLAC and its collaborators will have made a new, direct, and sensitive measurement of a fundamental property of the Z.

This solid achievement is a result of two

lab-wide efforts. The first, and newest, is the polarized beam. The new polarized gun that produces the beam, and the special magnets and monitors that go with it, are the result of an ambitious enterprise described by Lowell Klaisner in the April–May issue of *The Interaction Point*. The second—bringing this polarized beam through the machine to the collision point at a rate that is useful for physics—is another story in itself.

In some sense, that effort has been the primary work for SLC since its commissioning. The SLC is the first and only example of a new kind of colliding beam machine,

(Cont'd. on p. 2)



The first polarized Z, as reconstructed from data taken by the SLD detector. This event was produced by a collision in which the electron beam was predominately right-handed, as noted by the letter R in the box at the top.

(Cont'd. from p. 1)

one that requires the utmost in tolerance of all its components to squeeze high-intensity beams to very small spots and line them up to collide.

But that's only half the battle. Every one of these systems must work just right or the collisions don't occur. And if the collisions don't occur, it's impossible to make progress in understanding what needs to be improved, the classic Catch 22. On the other hand, once the problems of keeping this difficult machine running start getting solved, it becomes easier to keep it running longer. The better it gets, the easier it becomes to make it still better.

The graph on the front page shows this effect. The one-week flat spot at the beginning of May corresponded to a deliberate period of not running beams for collision. Machine physicists worked on a subtle problem in the damping ring that had been limiting the maximum current. Later in the month, another flat spot marks this group's studying the passage of the beams through the arcs. The

result is that the curve is noticeably steeper at the end of the two months; Zs are being produced at a higher rate.

No one article and no single list of names could do justice to the extraordinary effort of so many people and their perseverance in this accomplishment. But it is time to start and we start with the group that reports the machine's performance every morning at 8 AM and keeps it all going in between, the operators.

The photo below was taken between shifts, capturing about half the total crew. This group, and their unpictured colleagues, is on the spot all the time, but particularly shines during the long physics runs. Experience shows that once the machine is set up as best as it can be by the book, its performance continues to improve as the operators tune, locate problems—and improvise. The graphical record on the first page shows where operators in early June pushed the machine to record highs, setting new standards and expectations for the machine.



Front row, left to right: Lawrence Searcy, Richard White, Eric Jorgensen, Cleon Manz, Janice Nelson, Cliff Blanchette. Back row, left to right: David Reyna, Mike Stanek, Josh Hadler, Helen Jarvis.

PEP-II Barbecue



Brad Moore

UNDER THE COVER of summer, the PEP II (B Factory) First Annual Summer Barbecue was held. Work was stopped long enough to get together at Sector 6, where a lot of fun was produced. Many thanks go to those who helped with preparations, cooking, and making the event happen.

—Andrea Chan

Coming Soon: FAMILY DAY

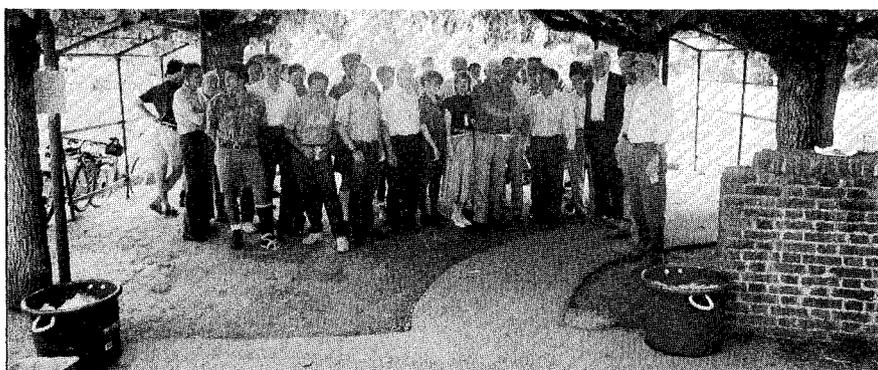
THE FIRST SLAC FAMILY DAY since 1989 is scheduled for October 3. Employee family and friends are invited to attend and enjoy the fun. As in past years, there will be games, food, entertainment, music, and tours of the lab. There will be a drawing for a door prize and a raffle of various gifts donated by local merchants.

Many volunteers are needed to help make this event run smoothly. Needed are: face painters, ticket sellers, people to man the game booths and the front gate, and helpers to blow up and distribute balloons. In previous years, teenagers have had lots of fun helping out. If you, your family, or friends, would like to help out, please call either Robbin Nixon, ext. 4463, or Priscilla Lukon, ext. 4442.

Georgia Row

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Klystron Celebrates Successful Test



Trevor Payne

ON A BEAUTIFUL FRIDAY AFTERNOON, the Klystron and Microwave Department (pictured above) celebrated the successful testing of the XC-5 by eating twelve pizzas, and drinking some...ah...beverages down by the pond at Sharon Heights Park.

The XC-5, designed for the Next Linear Collider (NLC), is a new and better klystron capable of delivering microwaves with a pulse length about five times longer than previously achieved here. So if pizza was left over, we can be assured that they had no problems reheating it.

—Trevor Payne

Aloha, Ginger

AT A LUNCHEON IN JUNE, Ginger Brower celebrated the end of her seventeen years at SLAC and the beginning of a new, and as-yet-unknown, life. Ginger described herself as a "citizen-at-large" who will be traveling to Hawaii to possibly start her new life there. She is also considering moving to the Olympic Peninsula area in Washington where her parents and sister live.

Ginger started at SLAC as a microfilm technician, then worked as a computer operator, computer documentation writer, and finally as a technical writer for the ES&H Division. Her luncheon was attended by many of her long-time and newer friends. People who knew her from the computer building, ES&H, and many other groups showed up to say goodbye. She observed that, "The room is full of people, of all sorts; it is nice to see individuals from SLAC all mixed up together."

Several friends "roasted" her with personal stories about her



sense of humor, her ability to make a person feel important, and her warmth. As thanks for consistently sharing these qualities for seventeen years, many of Ginger's friends contributed to a fund for her to buy a Macintosh computer, and gave her a beam tree, something she really wanted.

In her farewell speech, Ginger commented, "I have been happy here, I have been weird here." She added, "SLAC is ridiculous but that is why I enjoyed working here so much."

Ginger will be missed by many people and the attendance at the luncheon indicates that she is leaving many true friends.

—Cheryl Hultquist

Hank Cutler's Invention

Hank Cutler, of Cryogenics Engineering, has found a way for people to avoid punching unnecessary holes in the wall. He developed a pocket-sized electrostatic voltage detector that beeps faster as you approach the source, a 110 volt AC current. With it, you can find where electric wires are behind the drywall, or if a circuit breaker is hot, without first ripping off the baseboard. The invention also has another function: being able to find these wires in a bundle. This could help avoid a possibly frustrating experience that could lead a person to punch unnecessary holes in the wall if a circuit breaks.

Cutler recently achieved some recognition for his invention, as well as a free trip east and a thousand dollar cash prize, by taking second place in Panasonic's Battery Design Award Contest. The basic requirements of the contest were that an inventor had to develop a product that uses Panasonic lithium batteries, and the product had to be marketable.

According to Cutler, the real virtue of his invention is that when it is not beeping, it draws next to no power from the battery, less than 1 micro amp; when it is beeping, it only draws about 100 micro amps. This efficient energy use allows the battery to last close to its ten year shelf life while in the detector, which, no doubt, pleased Panasonic.

An interesting application of the invention, Cutler said, is as an earthquake detector. During a quake, a piezo-electric effect strong enough to be detected, or an AC pulse, could be emitted. Unfortunately, as of now, Cutler said you would probably have to be standing on the fault to detect it. But the future? Who knows?

—Trevor Payne

3rd History of Particle Physics Symposium

INTERNATIONAL PHYSICISTS GATHER AT SLAC

ON JUNE 24–27, SLAC became an idea collider, hosting the Third International Symposium on the History of Particle Physics. The symposium described the polarized opinions and the quantum leaps of faith that were necessary in creating the very successful Standard Model. And it was as much about the people involved, their drive to understand nature, as their discoveries.

Perhaps it is when they are faced with the task of imposing an



Michael Riordan, Special Assistant to SLAC Director Burt Richter, and Sidney Bludman of the University of Pennsylvania discussing the program of the symposium.

intellectual order on nature that physicists are at their best. Romanticized is the age when Bohr, Einstein, and others were butting heads about the subatomic paradox of how particles and waves behave. Indeed, it was scientific bliss when they determined it could be both, depending on how you looked at it. Where else but in physics could an epiphany come in the form of compromise?

Nevertheless, even without controversy, the Standard Model is a hot topic, and many of the world's finest minds were brought together to discuss its emergence.

The conference was the third in a series; the first two were held at Fermilab in Illinois. According to Max Dresden, one of the principal organizers, a main goal of the sym-

posium was "to get a comprehensive and authoritative history of the development of particle physics," to gather the people who were instrumental in the recent movement of physics and get their thoughts. As Dresden said, "what they remember, how they remember it, and what they think of it."

Helen Quinn agreed with Dresden on the role of these conferences, but she added that the symposium also allowed for people to "basically reminisce." Quinn commented that "some of the people, like Gell-Mann, are getting on in years [and] this gives them a chance to make their retrospective statements about what it is they did."

Assuredly, the record of what exactly happened is an immensely important result of such a conference. Those who attended were interested in sometimes explaining, sometimes recounting, and other times in setting the record straight, or as Dresden said, "making it crooked in the other direction."

With the physics community spreading worldwide, it is no wonder that there is so much to be accounted for. There are labs all over the world, and physicists from almost every advanced country working at those labs. This flavor mixing came through at SLAC; it was an international physics smorgasbord. Dresden, putting physics in a world context, stressed its multinational composition: "Particle physics, more than anything, is really thought of as international."

However, because we are all made up of the same constituents doesn't mean we always see eye to eye. The symposium highlighted the uneasy relationship between the physicists and social scientists.

They sometimes have difficulty standing on the same ground, let alone actually making eye contact. Nevertheless, a symposium such as this helps the historians to keep an objective score, to find out what it is the scientists were thinking, and how they arrived at the conclusions they did.

By recording this in the context of a historical perspective, science can be given a meaning which transcends its own environment. Dresden suggested that the relationship between social science and science is very important: "The social situation has an influence and an impact in defining



Pief Panofsky and Maurice Goldhaber, Directors Emeritus of SLAC and Brookhaven, talking at one of the coffee breaks, especially what's important, and also what's acceptable."

However, the science itself should not be overlooked, for if it weren't for the ability of an amazing few to glean from the atom, none of this would have happened.

—Trevor Payne

4th ANNUAL JUNETEENTH

ON JUNE 19, 1865 GENERAL Gordon Granger and his federal troops landed in Galveston, Texas to emancipate slaves from the owners who were lagging behind the Emancipation Proclamation. To commemorate this date the Black Association of SLAC Employees holds a Juneteenth celebration every year.

Juneteenth celebrates the roots of African American culture. But it is also a celebration of how African American culture has grown and blossomed from its precarious beginnings. It is to educate, draw people together, and have a good time. "There's a lot of love here to share," said Gene Hubbard, a motivating force behind bringing this celebration to SLAC. "We want to share our music, our art, we want to give something back to the community, something positive."

There certainly was a lot shared on the hot Friday afternoon. Gospel and jazz rang out as people ate the ribs and chicken cooked by Big John and company. (If you missed Big John's inspired secret sauce this year it's too bad—this is his last Juneteenth barbecue before retirement.)



In the back row Big John Taylor is flanked by his sons Robert Taylor on the left and Mike Taylor on the right. In the front row are John Taylor, Jr. and Kristy Nelson of the Experimental Facility Department.

In the breezeway leading out to the food and music, there were displays of important African American events and figures. The Civil War memorabilia helped to put General Granger's mission in a historical context. The art presentations—the display of black clowns, the postage stamp collection of great African Americans, the display of black dolls, and the hat display illustrated how black people have enriched and shaped this country's culture. And inspiring greats such as actor Paul Robeson, Jackie Robinson, the first black man in baseball's major leagues, freedom fighter Harriet Tubman, business woman Mary McLeod Bethune, were represented,

"Juneteenth is a celebration to educate, draw people together, and have a good time."

among others, as black role models.

Once outside, the gospel of Effie Clewis and friends started the show. They were followed by the SLAC gospel choir directed by Ms. Dorothy Walker. Irma Frank, Pauline Wethington and Alanda McCarley were featured soloists. The gospel groups sang a variety of songs resonating with the themes of struggle, inspiration, love, and redemption.

Then we were taken out of the gospel and into the jazz. Tony Saunders & Paradize, featuring the vocal chords of SLAC's own Jamie Davis, no doubt smashed some atoms right out there behind the cafeteria. With all those protons flying around it's no wonder everyone was having a positive time. These guys were obviously having a great time, especially Davis, who hit upon the prevailing mood behind the celebration: "The important thing is we love it and we're having a great time." Amen.

Into this levity were also injected



Basking in the sun, replete with good food and good music are visitors and friends with Alfonso Jones (Property Control), Ed Wilson of the Power Conversion Department (hat and glasses), and Kristy Nelson (Experimental Facility).

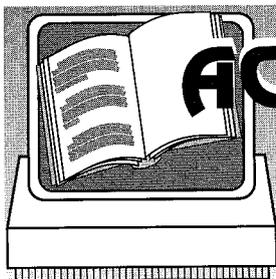
some serious sentiments. Professor Clayborne Carson, the director and senior editor of the King papers project at Stanford University, talked of the black family and African American history as the powerful influences that shaped King into the dynamic leader he became.

Carson credits the role of King's family and his ties to African American culture in his development. For this reason, he feels culture and the family is especially important; if they are fostered, more black leaders are bound to emerge. As Carson concluded:

"I think that one of the things we can do in celebrations like this is begin to talk, especially to young people, about the importance of seeing individuals in the African American experience, seeing them not only as heroic figures, icons, something that is completely separated from the likes of people we know, but rather some people who came out of the same kind of circumstances that we came out of, that were beset with the same kind of doubts and insecurities, but somehow managed to overcome them."

With that sentiment and gospel and jazz as a backdrop, people listened and ate and enjoyed the celebration as the sun beat down.

—Trevor Payne



ACCESS TO INFORMATION

DID YOU KNOW that you can view postings of job listings at SLAC from your own computer? That you can log into the Stanford library systems from your office and request Stanford materials through the SLAC Library? Maybe you've heard that you could. But do you know how?

In this monthly column the SLAC Library, SLAC Computing Services (SCS), Telecommunications, sometimes Information Services, and other groups report on ways you can manipulate, massage, and manage our information environment in ways that work for you. Requests for topics you'd like to hear about should be directed to one of the following people:

SLAC Library

Carol Chatfield, ext. 2411,
e-mail carolfey@slacvm

SLAC Computing Services

Ilse Vinson, ext. 2368, e-mail
ilse@unixhub.slac.stanford.edu

Telecommunications

Janet Dixon, ext. 3688,
e-mail dixon@slacvm

Information Services

Rene Donaldson, ext. 2585,
e-mail rened@slacvm

To contribute an article about access to and retrieval of information, please send it to Ilse Vinson.

Making the Most of Voice Mail

Voice mail is a standard phone feature at SLAC as of July 31 (although not everyone has to have it). Voice mail can help us avoid the frustration and wasted time of playing phone tag, or a ring-no-answer situation. It can have us automatically paged, and

enable us to pick up and respond to messages from any touchtone phone anywhere, anytime.

To make the most of voice mail, we should be courteous and use common sense. For example, we need to respond to messages left for us, change our voice mail greeting when we expect to be out of the office for an extended period, and let the caller know when he or she can expect a response from us. If you tell the caller to press '0' to speak to a live person, be sure a person will really be there to answer and handle the call.

Your ATOM (Area Telecommunications Office Motivator) has a "Voice Mail Etiquette" sheet with more suggestions.

—Ilse Vinson

SCS liaison to Telecommunications

Online at the SLAC Library

Have you ever wondered what other work has already been done on the project you are about to embark on? The SLAC Library has many sources to help in finding relevant citations in your field of interest. Two databases in particular are very helpful, and both are accessible from your terminal or workstation here at SLAC.

The first source is HEP, the SLAC Library database of high-energy physics preprints and published articles. This database grows by 200 records a week, and is extremely timely. Use it to find the high-energy physics information.

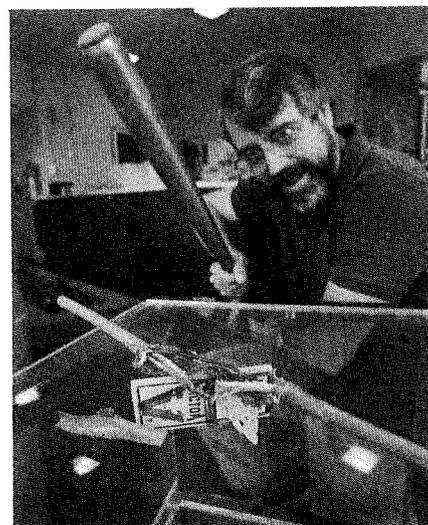
For topics farther afield, the second source is INSPEC, the online index of physics, electrical

engineering, and computing.

To use HEP, simply logon to SLACVM from your workstation, and type SPIRES. Then type SELECT HEP. To access INSPEC, available through the Stanford Libraries FOLIO system, type "TELNET to: elfl.stanford.edu" and type FOLIO at the prompt. Then type your Stanford ID number to access INSPEC.

For help with HEP, INSPEC, or to have a search conducted on any of hundreds of commercial databases call the SLAC Library at ext. 2411. We are always glad to help obtain copies of material you have found from these indexes.

—Carol Chatfield, SLAC Library



Rat Snack Attack Causes Short

Network problems can range from the mundane to the strange. One of the more interesting occurred recently on the SLD network, one of whose Ethernet cables stretches between Central Lab and the Computer Center. A short was detected on this cable, and it was possible to pinpoint it to the exact spot. When the sidewalk was lifted, voila! It and another cable had been chewed nearly through by, presumably, an impatient or hungry rodent. SLD's traffic was rerouted onto another cable, and both damaged cables have been spliced and will be replaced.

—Tim Streater, SCS Networking

Fawn Recollections

A GROUP OF SLAC employees teamed up recently to rescue a three-day-old orphaned fawn. Mary Galli (Facilities), Mike Loc (Experimental Group C), and Bob Moore (SLD), found the deer by Building 658, abandoned by its mother and unable to stand. According to Mary Galli he was frightened and in need of some tender loving care: "It couldn't walk; it was more afraid than anything." Mary added that he wasn't a vision out of Walt Disney either, the fawn having "about a pound of fleas on it."

Mary Donoghue (SSRL), after becoming aware of the recently abandoned baby, became part of the team by contacting Wildlife Rescue, Inc., a non-profit organization which cares for injured or orphaned animals and returns them to the wild. Rod Harrison (Facilities) then delivered the fawn to the wildlife shelter. From this point, the volunteers at the shelter took over care for the orphan, where they first hydrated the fawn with electrolyte concentrated liquids, and then fed it high-in-nutrients goat's milk.

The fawn is doing quite well according to Amy Izzo-Olander, a volunteer at the shelter. She said that the baby spent a night at a volunteer's house after he was fed and stabilized. Then he was taken to the San Benito County Society for the Protection of Cruelty to Animals; there they have an excellent program for rehabilitating injured fawns. The baby deer, when ready, will be released into a suitable wildlife atmosphere. Congratulations and thanks to all involved.

—Trevor Payne



Caring: an Ethical Workplace Orientation

NEL NODDINGS, recently appointed Lee L. Jacks Professor of Child Education and well-known ethicist, gave a fascinating talk on workplace ethics at a recent seminar organized by the Women's Interchange at SLAC (WIS). She described how the ethics of care could be applied in the workplace to foster a better working environment. She said that some professions, such as nursing and the ministry, already use methods based on caring to implement ethical standards in their workplace practice, but business and science are just beginning to.

According to Noddings, there are two major ways by which ethics can be put into practice. One utilizes the precepts of justice and punishment, the other, caring and responsibility. Noddings communicated that studies have shown the latter method to be more likely practiced by women.

By contrasting other traditional ethical models, Noddings illustrated the value of an ethical system based on the establishment, maintenance and enhancement of caring relations. Some traditional models assume an absolute morality, others use logical tests to determine what one should do in

any circumstance. For example, a utilitarian ethical system is based on one acting for the greater good, often at the expense of a few.

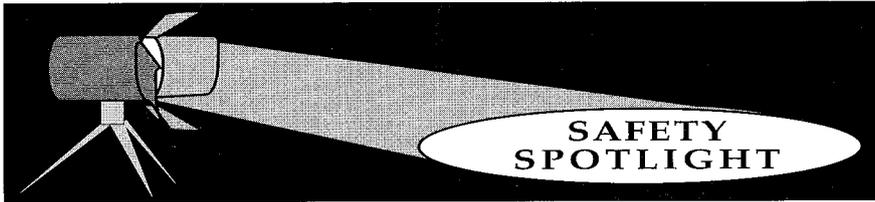
In order to integrate the caring ethic into our workplace we need to look at the structure and conditions we work in and modify them so that caring relations can flourish. A new management style being tried at Stanford called "total quality management" is, at least in part, compatible with the caring ethic. This method is based on making sure that workers at every level in a project know how their tasks depend on those that worked on it before them, and the impact of their work on those that have later tasks. This knowledge, which comes out of regular meetings of the workers, is not sufficient to enhance the quality of the project. That will happen, Noddings asserted, if the group dynamics include all meeting attendees being treated as equals and if each is concerned for the welfare of the others. An idea like this can't be expected to change things overnight, but it can surely help to light the way to a better work environment for everyone.

A videotape of Professor Noddings' talk is available for overnight checkout from the library.

—Cherrill Spencer

Welcome Guests and New Employees

Sharlene Bellar, Accounting/Payroll; **Tanya Davis**, Environment, Safety & Health Division Office; **Michael Gronau**, Theory; **Chris Hamer**, Theory; **David Horn**, Theory; **Roger Jones**, Theory & Special Projects; **I-Hsiu Lee**, Theory; **Ronald Lorenz**, Theory and Special Projects; **Arthur Mainwaring**, Facilities; **Dale Miller**, Klystron Manufacturing; **Benoit Mours**, Experimental Group A; **Janice Nelson**, Accelerator Department; **Shin'ichi Nojiri**, Theory; **Yuko Okamoto**, Theory; **Emmanuel Onyeador**, Theory; **Richard Plano**, SLD; **Ponciano Rodriguez**, Power Conversion; **Melinda Saltzberg**, Environment, Safety & Health Division Office; **Stephen Schaffner**, Experimental Group C; **Uwe Schneekloth**, Linear Detector; **Kazuyasu Shigemoto**, Theory; **Robert Shrock**, Theory; **Kazuhiko Suehiro**, Theory; **Huan Tang**, Accelerator Department; **Bjorn Wiik**, Director's Office; **Shimon Yankielowicz**, Theory.



Keeping Safety Information Current

THANKS TO THE IMPROVED ES&H information distribution system, line managers can assure that their employees have up-to-date safety documentation. By linking a 4th Dimension database to Binlist, the ES&H Division is now able to update its distribution records more efficiently. As employees join or leave SLAC, or as personnel assignments change, the ES&H document coordinator cross references the Binlist changes with the division's distribution records. The supervisor is then contacted to determine if a change in the distribution of safety information needs to be made.

Since this new tracking system is linked to Binlist, a few organizational changes still require supervisors to contact the ES&H Division directly for distribution changes.

For example, if a long-standing employee is assigned as a safety officer, this type of internal change may not be reflected in Binlist. Because these changes affect safety documentation requirements, supervisors should report them directly to Judy Nowag at ext. 2341. The ES&H database can then be modified so that the employee will receive all updated information related to the assignment.

As always, all Binlist directory orders need to be implemented on a priority basis so that other users of the Binlist, such as the ES&H Division, are working with current information.

Questions regarding the ES&H document distribution program should be directed to Judy Nowag, ES&H Documentation Coordinator at ext. 2341.

NEW TRAINING FOR HAZARDOUS WASTE HANDLERS

NEW TRAINING PROGRAMS have been developed by Environmental Protection and Waste Management (EP&WM) to address the Tiger Teams' findings on SLAC's training for personnel who are responsible for hazardous wastes. Introduction to Hazardous Waste and Materials Management is designed to supplement the Hazards Communication Standards (HCS) class. Another new class, titled Hazardous Waste and Materials Coordinators, involves

specialized training for personnel with more responsibility in the management of waste. Also, personnel will now be required to update their training once a year.

The introductory class will be offered the first Tuesday of every month from August until the end of the year at 1:00 PM in the upstairs training room of Building 024. Ardie Jacob, ext. 2479 and Ray Jensen, ext. 4296 are available to answer questions.

—Ray Jensen

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.

August 26

General Employee
Radiation Safety Training
3–4:15 PM
Bldg. 024, Room 126

September 2

General Employee
Radiation Safety Training
9–10:15 AM
Bldg. 024, Room 126

September 3

Radiation Worker
Safety Training
8:15–12 NOON
Bldg. 024, Room 126

September 16, 9–4

SUBB Mobile Blood Drive
Auditorium Lobby

September 23

Radiation Worker
Safety Training
3–4:15 PM
Bldg. 024, Room 231

September 23–24

DOE SLC/SLD Review

October 3

Family Day
The Green/Cafe
Picnic Area/
Auditorium/Breezeway

October 9

SLUO Annual Users
Meeting
Auditorium
D. Hitlin, A. Breakstone,
M. Helton

EVENT CALENDAR: AUGUST–OCTOBER 1992

Chairs, Tables

The laboratory now has tables and chairs available for lab functions. We have approximately 300 chairs and 40 tables that are stored in the warehouse and can be reserved through the Public Affairs office. Now you can host your event without having to rent this equipment from outside vendors. The only cost to you is Labor Pool or other staff services.

For more information about reserving chairs and/or tables call Public Affairs at ext. 2204.

—Nina Adelman Stolar