



Beginning of New Generation of High-Energy Electron-Scattering Experiments

EXPERIMENT E142 CAPTURES NEUTRON SPIN

by Emlyn Hughes

DURING A DEMONSTRATION to prove its robustness, a replica of the thin-window glass target cell to be used in experiment E142 shattered into pieces when banged against a metal table. The audience at the 8 AM Technical Division meeting burst into laughter. However, the bad luck for experiment E142 ended there. During the experiment's seven-week run last November and December, almost everything worked smashingly (no pun intended), and not one target cell blew up in the electron beam despite long exposures to high radiation. Experiment E142 marked the beginning of a new generation of high-energy electron-scattering experiments in End Station A.

After completing pioneering work in 1982 on experiments to study the spin of the proton, SLAC ended its program of running high-energy polarized beams to End Station A and focused on the construction of the SLC. However, in 1987, CERN ran an experiment scattering polarized muons (particles like electrons but heavier) and found that the standard theory on the proton spin was wrong. The CERN experiment generated a huge interest in the field, with a few hundred theoretical papers trying to explain the results. Especially relevant to the discussion was what could be learned from the neutron and its spin. Thus began a three-way race between muon experi-



Joe Faust

The collaborators of E142, together again at End Station A. The beam line is torn apart in preparation for the next round of experiments.

ments at CERN and electron experiments at SLAC and DESY.

Experiment E142 at SLAC is the first measurement studying the neutron spin by scattering high-energy polarized electrons off a polarized ^3He gas target. ^3He is an atom consisting of two protons and one neutron. Neutrons by themselves are extremely hard to contain. But when they are inside an atom like ^3He , they can be studied since ^3He is easy to handle and put in a bottle. When the ^3He atom is polarized, the neutron spin lines up in one direction. The spins of the two protons, on the other hand, line up in opposite directions to one another. The effects of the two proton spins cancel one another out, leaving only the polarized neutron. Therefore, a polarized ^3He target is a good model of a polarized neutron target.

Beginning last November, experiment E142 ran using the full SLAC Linac. The experiment required special pampering from the operators, since the electron beams for fixed-target experiments require higher currents. Since a high-energy, polarized fixed-target beam had not been run in over a decade, it was quite a feat that the entire start up was accomplished in one week of beam tuning. The final beam stability was far better than previous polarized beams of past End Station A experiments. The improvement can be attributed to the major upgrades done for running the SLC over the past years.

Among the milestones in the experiment were: data collected with the highest energy ever delivered to End Station A (25.7 GeV), the most stable polarized beam to

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DRELL WINS ARMS CONTROL AWARD

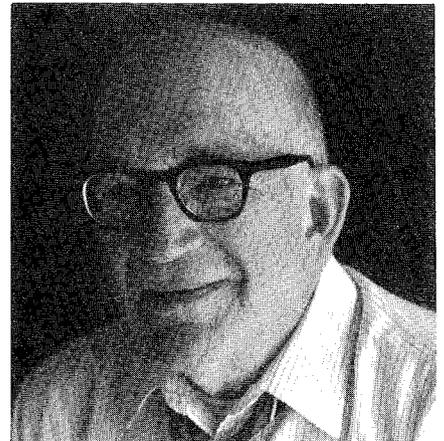
DEPUTY DIRECTOR Sidney Drell of SLAC received an important award on the evening of February 15, in a ceremony in Boston. The award is the Hilliard Roderick Prize in Science, Arms Control, and International Security, presented by the American Association for the Advancement of Science (AAAS). The award "acknowledges outstanding contributions that advance our understanding of issues related to arms control and international security and that have important scientific or technical dimension."

As a matter of local interest, "Hilly" Roderick did his Ph.D. work at Stanford in Nuclear Physics under the direction of Professor Walter Meyerhof. Most of

his work was done at the High-Energy Physics Laboratory. He is remembered as a hard-working, friendly collaborator, always followed by a small dog.

After graduating from Stanford he decided to put his training to use in a career in public service. He worked for many years for the United Nations Environmental, Scientific, and Cultural Organization, and during the last year of his life organized a major conference on arms control. Stemming from this interest his widow and family established the prize which is being bestowed on Sid Drell. Pief Panofsky was the first recipient of the prize in 1991.

This award provides much-deserved recognition to our friend



and colleague at SLAC, Sid Drell, for his long dedication to the causes cited in the language of the prize. On behalf of the entire SLAC staff, heart-felt congratulations!

—Bill Kirk

Experiment E142

(Cont'd. from p. 1)

date (no cesiation during the entire run), the largest polarized ^3He target ever built (one foot-long gas target at nine atmospheres with 0.1-mm glass windows), and a record data rate in End Station A (200-kbytes/sec).

In total, the experiment collected about 400 hours of data to tape. The beam polarization was stable and near 40%, and the target polari-

zation varied slowly between 25% and 40% polarization. The analysis of the experiment is in progress, and results will be available for the 1993 summer conferences. CERN's results with muon beams will also be presented this year. The DESY polarized electron scattering program still has some time to go before producing results.

The experiment's run marked the end of a large two-year construction project involving a col-

laboration of eleven institutes from the US and France (American, Clermont-Ferrand, LBL, Livermore, Michigan, Princeton, Saclay, Stanford, SLAC, Syracuse, Wisconsin). A new beam line, polarized target and spectrometer were needed to launch the project. The experiment could not have succeeded without the strong support of the SLAC operations groups. The E142 collaboration extends a hearty thank you, to the operations groups.

Welcome Guests and New Employees

Robert Bejsovec, Power Conversion; **Gerald Brayson**, Klystron; **Maria Esther Burgos**, Theory; **Mario Cardoso**, Mechanical Fabrication; **Santa Chatterji**, ES&H Operational Health Physics; **Tong Chen**, Accelerator Theory; **Daniel Dessau**, SSRL Research; **Leif Eriksson**, Vacuum; **David Faust**, Group E; **Stuart Friedman**, SSRL Beam Line; **Rose Forbes**, Group E; **Kelli Grover**, Environmental Waste & Management; **Yogi Hasegawa**, Group B; **Bernhard Himmel**, SSRL; **George Kallabis**, Mechanical Fabrication; **Gerald Kepler**, Mechanical Fabrication; **Alexander Lisin**, Group C (PEP II); **Leif Lonnblad**, Theory; **Kyle Millage**, ES&H Operational Health Physics; **Michael Neubauer**, Klystron; **Helen Nuckolls**, ES&H Environmental Protection & Waste Management; **Dennis Palmer**, Accelerator Theory; **Alyssa Prinz**, Group E; **Yves Roblin**, Group A; **Gregory Rogers**, SLD; **Pablo Saez**, Accelerator Theory; **Mark Scheeff**, Mechanical Engineering; **Brad Taylor**, ES&H Environmental Protection & Waste Management; **Tianbing Wang**, Computing Services; **Wing Kai Wong**, Group I.

KASE RECIPIENT OF LANDAUER AWARD

LAST MARCH, just a month after returning to SLAC, Ken Kase learned that he had been selected to receive a nationally recognized award for his work in radiation physics. The 1992 Robert S. Landauer, Sr. Memorial Lecture Award, named for the pioneering educator of radiological physics, was formally presented to Ken for "...distinguished contribution to the field of Radiological Physics and Radiation Health Protection." The award presentation was held in May 1992 by the Midwest chapters of the Health Physics Society and the American Association of Physicists in Medicine.

In his lecture for the event, "Radiation Dosimetry: History, Challenges, and New Directions," Ken stressed that new concerns in radiation dosimetry need to be addressed and that "We need to continue to be innovative in calculating and measuring radiation dosage."

As head of the ES&H Division's Radiation Physics Department, Ken is responsible for ensuring that new experiments and experimental equipment comply with all SLAC and DOE radiation safety policies. Thus, Ken is constantly examining unusual challenges in the radiation physics field.

Ken began his career as a Health Physicist at the Lawrence Livermore National Laboratory and then joined SLAC as a Health Physicist from 1969 to 1973. During that time he received his Ph.D. in Biophysics from Stanford. Most recently, Ken was a professor of Radiation Oncology and the Director of Physics, Department of Radiation Oncology, at the University of Massachusetts Medical Center.

When Ken decided to change the emphasis of his career from clinical medical physics back to research-oriented radiation physics, he knew that he wanted to return to SLAC.

Ken's distinguished 30-year career includes the following highlights:

- Recipient of several awards, including the Elda Anderson Award in 1978 from the Health Physics Society.
- Research in medical physics, biophysics, and health physics.
- Certification by the American Board of Health Physics and the American Board of Radiology.
- Training programs at Harvard, two schools of the University of Massachusetts, and San Jose State University.
- Associate editorship of both the *Health Physics* and *Medical Physics Journals*.
- Author of numerous scientific papers. Ken also has edited a three-volume set on radiation dosimetry, and has co-authored a book on the same subject. He also wrote a chapter on dosimetry of radon in the lung for a book entitled *Environmental Radon: Occurrence, Control, and Health Hazards*.
- Board Membership of the National Council on Radiation Protection and Measurement, for which he also chairs one committee and serves on two others.
- Fellowships with the American Association of Physicists in Medicine, the American College of Radiology, and the Health Physics Society.

—Melinda Saltzberg and Andy Fields

GOODBYE, BILL KIRK; HELLO, BILL ASH

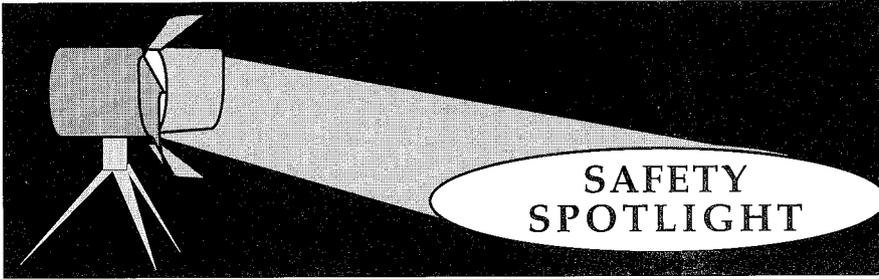
BILL KIRK PLANS TO RETIRE from SLAC at the end of February after thirty years of service to the laboratory. Bill has worked with Joe Ballam, Pief, and me, and has been of inestimable value in keeping various directors (especially me) on course. I have particularly appreciated Bill's service as Assistant to the Director in both his management role and his role as advisor and confidant. I will very much miss his help and advice that have been very important to the laboratory for many years. Bill will continue to come in a few days a month to work on the *Beam Line* and to handle other special projects which I will hand him from time to time.

The world goes on, and I am pleased to report that Bill Ash has agreed to become an Assistant to the Director beginning on March 1. He will work with me on a broad range of technical and administrative matters. His new assignment will start on a half-time basis

with the expectation that he will also continue his work as an experimental physicist with the SLD group. How things will evolve in the future will be worked out as we go along.

As many of you know, Bill Ash has been at SLAC for some twenty years working with, in sequence, the old spectrometer facilities group (the fixed-target program at End Station A), then joining Dave Ritson's Experimental Group F for experiments at PEP, then joining with Marty Breidenbach and the members of the SLD Steering Committee. Bill knows the laboratory, its denizens, and its problems very well, and because of his experience will be very effective. Please give him your cooperation and assistance as he takes over a new set of duties.

—Burton Richter



BREAKTHROUGH FOR BREAKERS

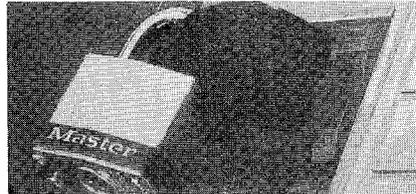
IF YOU ENCOUNTER a breaker which was not designed to be locked, you may be able to install a simple, yet very effective, plastic doodad which will allow you to lock the breaker in the off position.

This item, called a *Lockout Device for Breakers*, has recently been added to Stores' inventory. It



Single Pole Circuit Breaker Lockout

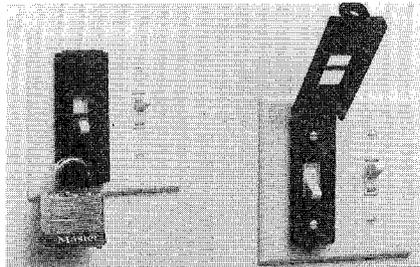
fits the small-sized breaker (with a hole running through the center of the breaker handle), and it comes in two different models. Model 1 (Stores part number 42-300-100-01) is the *Lockout, Single Pole Breaker* for \$13.75 a three-pack. Model 2 (part number 42-300-100-02) is the *Lockout, Multi Pole Breaker* for \$31.95 a six-pack. There is another type of lockout device which fits standard wall breakers; Model 3 (part number 42-300-100-03) is the *Lockout Device, Wall Switch* for \$34 a six-pack.



Multi Pole Breaker Lockout

These lockout devices do not fit Heinemann breakers. In our next issue of *Breakthrough for Breakers*, we'll cover what devices are available for Heinemann breakers and some other types of breakers.

If you have any questions about how to use the lockout device for breakers or if you have any con-



Wall Switch Lockout

cerns regarding lock and tag procedures, please contact Ishwar Garg, ES&H Electrical Safety Engineer, at ext. 2039.

—Tanya Davis

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

March 4-5

4th Annual Workshop on QA in Basic Research
Holiday Inn
J. Hahn, S. Cajal

March 9

SUBB Mobile Blood Drive 9 AM-4PM
Auditorium Lobby

March 15-19

SLD Week

March 18

20/30 Year Service Awards Evening
Faculty Club

March 19

BES Collaboration Meeting
Colorado

March 22-26

General Meeting of the APS
Seattle, WA

April 1

SLUO Executive Committee Meeting

April 9-10

SPC Meeting

April 12-16

SLD Week

April 12-16

Joint AAPT/APS Meeting
Washington, DC

April 16

BES Collaboration Meeting

April 24

IEEE Microwave Course
Auditorium



HELP FOR COMPUTER USERS

by Carol Chatfield

SEVERAL LOCAL RESOURCES are available to help Mac or IBM clone PC users. To get set up, or to ask network, hardware, and software questions, consult with your SLAC Apple Support Coordinator (ASC) or PC support person. Contact the SCS Service Desk at ext. 2406 or send e-mail to SERVDESK@SLACVM to find out who your ASC or PC support person is. For hardware questions, call the Service Desk at ext. 4357 (HELP), and for software queries, call ext. 2406.

The SLAC Library has additional sources of information including:

- Tutorials for a variety of Mac software
- Many books about the Mac
- The guide *Using the Mac at SLAC* (ask for it at the Help Desk)

The SLAC Mac User Group meets monthly (usually on Thursdays at noon) in the SCS Conference room. And you can call the Berkeley Macintosh Users' Group (BMUG) Helpline from 9 AM to 5 PM weekdays at (510) 540-1742. Stanford University offers Mac and PC classes and workshops. The complete schedule of courses was in the *Campus Report* September 9 issue.

ONLINE AT THE SLAC LIBRARY: Getting research information through HEP and INSPEC

HAVE YOU EVER WONDERED what work has already been done on the project you are about to embark on? The SLAC Library has a variety of sources to help find relevant citations in your field of interest. Two databases in particular are very helpful, and both are accessible from your terminal or workstation.

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 HEP to find the high-energy physics information that your colleagues from around the world are working on.

The second source is INSPEC, for those topics which are farther afield. This is the on-line index to these printed indexes: Physics Abstracts, Electrical and Electronic Abstracts, and Computer and Control Abstracts. Francesco Villa's recent query is a good example of how to use INSPEC to quickly review a

new topic. Francesco is a physicist in Experimental Group I. He wanted to know more about magnetic suspension. A search on INSPEC yielded 211 citations. The SLAC Library was then able to provide articles from several of the most relevant references.

Both HEP and INSPEC are accessible online. To use HEP, simply log on to SLACVM from your workstation, and type SPIRES. Then type the command SELECT HEP. To see the many ways in which you can search the database, type SHOW INDEXES. For more help, type HELP HEP.

Here is how to access INSPEC, which is available through the Stanford University Libraries' FOLIO online information system. From your workstation or mainframe account, TELNET to this address: [elf1.stanford.edu](telnet://elf1.stanford.edu). Type FOLIO at the "Account?" prompt, and your Stanford ID card number at the "ID Number" prompt. Then choose INSPEC from the list of resources shown.

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

WHAT IS VOICE MAIL AND WHY DO YOU NEED IT?

by Dona Jones

VOICE MAIL SUBSCRIBERS AT SLAC now number approximately 700. If you're not presently using Voice Mail and want to know more about it, maybe the following questions and answers will help clarify what this service can do for you.

What Is Voice Mail?

Voice Mail is an electronic voice-messaging system that provides an easy, fast and dependable way to communicate with people both inside and outside your organization performing the same function, and more, as your telephone answering machine without an external device. If you are not available to take calls, Voice Mail plays your personal greeting, takes messages automatically and stores them for pickup at your convenience, no matter where you are. If you are sick or plan to be away from SLAC, you can change your personal greeting every day, giving callers accurate information about when you will return. If you want to have your callers speak to a live person rather than leave a message, Voice Mail offers the option to press "0" and your callers will be forwarded to a secretary's telephone, in most cases, or you can specify the number of someone else in your office to call in your absence.

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Better, cheaper, and faster

INTEGRATING CAD/CAM WITH OUR FUTURE

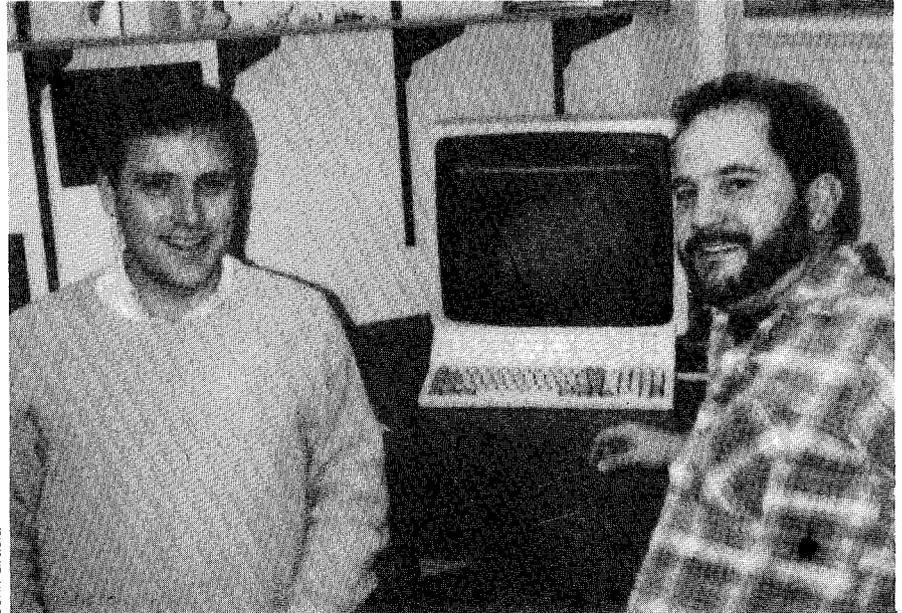
by Carl Rago

THE MECHANICAL SYSTEMS part of the Technical Division, with indirect support from the Mechanical and Industrial Engineering departments at Stanford, is proposing changes in our traditional approaches to mechanical design and production. Utilizing a variety of high-tech tools, we are developing a tailored and integrated approach to the production of instruments and mechanical equipment. This new mechanism provides a consistent vehicle to carry projects from their initial concept through design, manufacturing, and quality assurance, and finally to document control. While new mechanical tools have come on-site for the last 15 years, it is only during the last three to five years that we made a serious attempt to tie all phases of production together into an idealized system. This new management initiative, essentially a reorganization of workflow, is a powerful concept that improves all aspects of working relationships and provides a variety of secondary benefits to all involved parties.

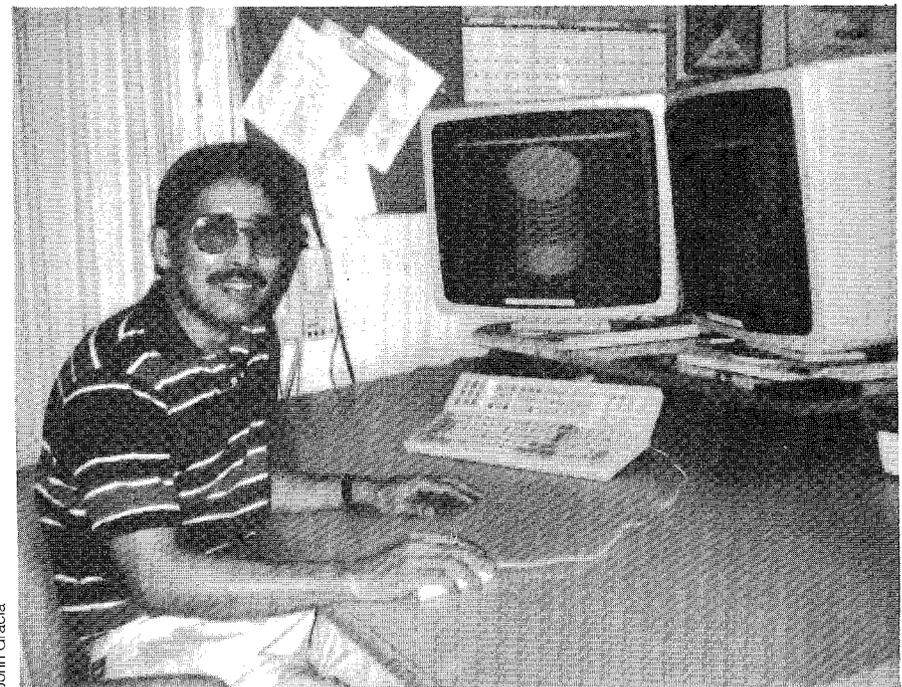
The status of the American machine tool industry generally declined during the past few decades, but SLAC's demand for high-quality, extremely accurate, and sophisticated designs and equipment steadily increased. As the formidable machine tools used for production of the linac aged, the Mechanical Fabrication Department (MFD) turned to high-tech solutions to meet changing demands and dwindling personnel resources.

In the mid-seventies, computer numerically controlled (CNC)

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In the first phase of the CAD/CAM integrated approach to instrument design and manufacture at SLAC, Scott DeBarger, mechanical engineer, and Joe Stieber, mechanical designer, develop the initial computer model. The CAD/CAM electronic connection and format allows the concept to be sent back and forth to a production person for evaluation. Such communication may happen many times before the final design is arrived at.



Next, the CAD model is given to a programmer—here Noli Jose—who generates the CAM program which controls the machine tool. The programmer does quick tests and offers practical design alterations before formal drawings and full details have been committed.

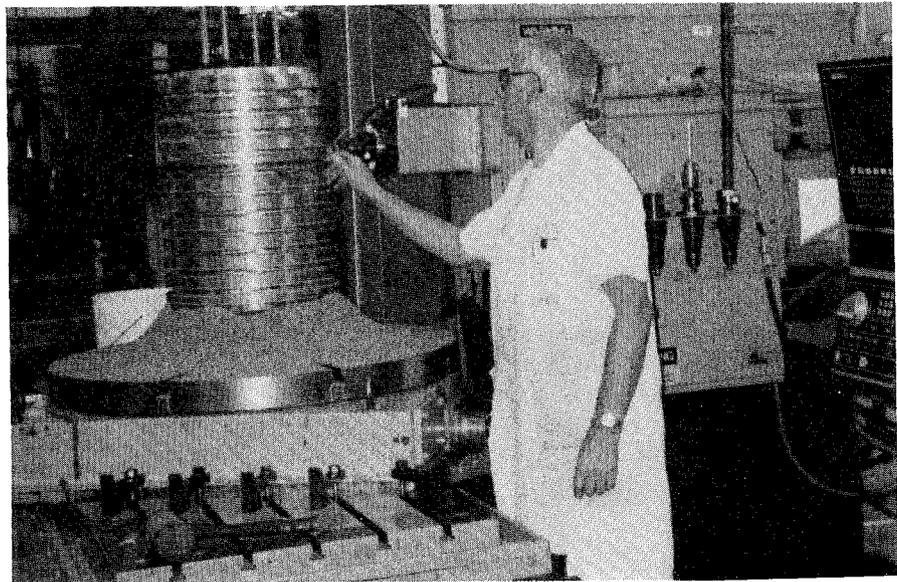
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machine tools came to SLAC. To support these new machine-tools, a line-code-driven software system called Automatic Programmed Tools (APT) was installed on the SCS mainframe. Machine-tool operations were coded—usually by specially trained machinists—to match a programmer's interpretation of a blueprint. APT was a productive and versatile system, and SLAC slowly expanded its use of CNC machines under the tutelage of APT.

Production improvements fostered by APT were balanced against a system complexity that severely limited the input of machinists, virtually isolating them from the design process. Only select staff had access to the system, and design changes focused on necessary corrections rather than specific improvements. Engineers and designers similarly remained isolated from the production process. Communication and constructive interplay rarely occurred, thus abetting the traditional us-and-them-organization.

In the eighties, a re-examination of the manufacturing process, and innovations, and improvements in computers and software led to techniques which includes designers, engineers, and machinists in the production process. Better, cheaper, and faster became bywords of a new way to work, and through interplay between design and production personnel, the integrated system is a reality.

The platform for an integrated system at SLAC is provided by the Intergraph Corporation. Initially limited to a Computer Aided Design/Computer Aided Manufacturing (CAD/CAM) system, Intergraph first found its way to SLAC in design groups and was soon being evaluated by MFD. The first operational Intergraph sta-



John Gracia

During the CAD/CAM integrated design process, a continual flow of information occurs between the designers, the programmers, and the operators, to ensure the best possible end result. The final phase takes the design to the machinist—in this case Leroy Andrade—who operates the machine tool to generate the end product, a machine part that goes into the linac.

tions were crude and difficult to operate by today's standards, and many years away from our expectations. As a result, the fully operational (and familiar) APT continued as the preferred system for a number of years.

In the last three years, design and manufacturing personnel worked hard to improve and validate the Intergraph system as a production tool. We have demonstrated engineering models that passed through design into production with fully functional and practical features. Much hardware and software has been added and changed, but the greatest change has been our increased focus on the overall interrelationship of the design/production processes.

We now have a workable Intergraph CAD/CAM system. Our short-term goals are to continue to demonstrate and expand the use of the system, and to install the metrics that will direct continual improvements as SLAC's technology and demands change. Our ulti-

mate goal is a system which makes the best use of computers and new technology—not only for the single-part phase of the design/production process, but also for the entire process.

The benefits of a successfully coordinated operation are evident. Documentation, maintenance, traceability, cycle time, and cost are all potentially improved through the application of an integrated system. Increased involvement through the CAD/CAM system also brings greater satisfaction (and less general frustration) to every staff member through improved understanding and increased respect for a coworker's role in a project. SLAC must match these tools with foresight and consistent direction to turn technological innovation into continual improvement and a practical framework for the future.

To find out more about Intergraph CAD/CAM and its applications here, contact John Gracia, ext. 4281, or Carl Rago, ext. 3636.

SSRL STUDIES RADIOACTIVE WASTE PROBLEM

A NEW FACILITY at the Stanford Synchrotron Radiation Laboratory uses its x-ray beams to study the storage of radioactive wastes. In an effort to determine how to protect the earth from this contamination, Stanford geologists Gordon Brown and George Parks have organized the Center for Environmental and Energy Related Science and Technology.

"There have been all sorts of hare-brained schemes to get rid of waste," says Brown. "Put it in the oceans, shoot it off into space in rockets." But these also can backfire, spewing contamination into the environment.

So long-term storage appears to be the only solution. It has entered the public spotlight recently as nuclear power plants try to handle billions of gallons of waste which will remain radioactive for at least 10,000 years.

Nuclear power plants now store their hazardous waste temporarily on-site in huge vats. A plant in Hanford, Washington holds 177 million gallons—enough to fill about a thousand Olympic-sized swimming pools—in metal tanks. The liquids have been mixed and transferred so many times that plant managers no longer even know what kinds of materials are in each tank.

"They have a very complex mixture of stuff and they don't know what it is," says Brown. "There are tanks up there that are burping hydrogen. Big burps of hydrogen. This could be very explosive."

A long-term storage remedy is clearly needed. The current plan is to bury all the waste in huge tanks deep inside Yucca Mountain in Nevada, hoping the tanks will not be disturbed for the next ten millennia.

But Brown worries more about the radioactive waste migrating away from the site on its own, and less about people inadvertently digging up the tanks.

"They want to put the waste in a place with the least seismic activity, the least chance of a volcanic eruption, the least rainfall, the least chance of flooding," he says. "But this is not foolproof."

The waste itself can eat through the tanks, causing them to leak pollution. Groundwater flowing by could

carry the waste away and contaminate wells and rivers.

Brown thinks burying the waste is a good solution, but additional barriers are needed. "We assume that water will come in contact with the waste at some point," he says. So he wants to ensure that the water won't pick up the waste as it flows by.

Water absorbs different metals and compounds in different circumstances, just as salt dissolves in hot water more quickly than cold. So different metals might dissolve more quickly in water that is more acidic. Flowing water may or may not pick up radioactive waste depending on these factors. Burying waste in conditions where it will never dissolve in water could effectively contain the waste.

The Center uses intense x-rays, known as synchrotron radiation, to study what dissolves in what. The x-rays bounce off samples made of some radioactive material, water and perhaps clay or concrete. Re-searchers can tell, on a molecular level, whether the radioactive waste sticks to the clay or dissolves in the water.

Synchrotron radiation is necessary because it is the only x-ray source that does not require the sample to be in a vacuum, which would be impossible for Brown's samples, which include water.

The Center has so far found that some hazardous wastes bind tightly to iron oxides when placed in highly acidic solutions.

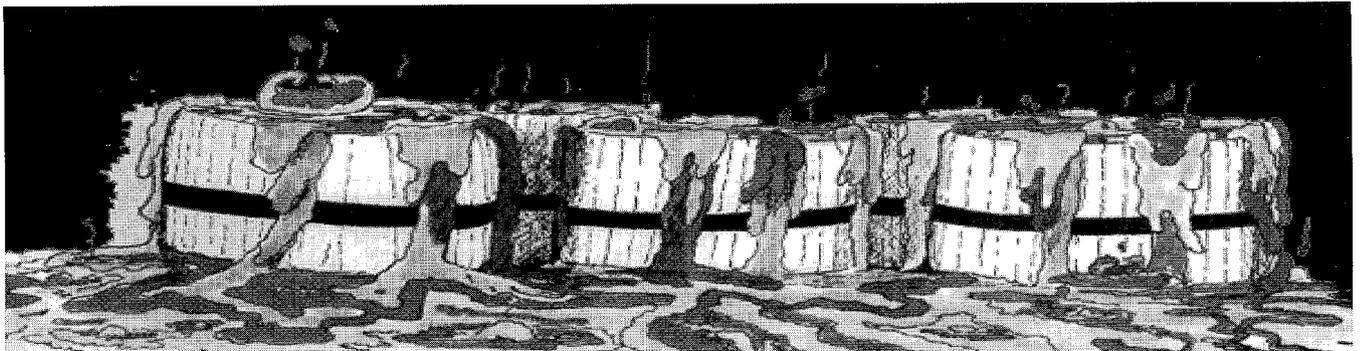
"So using iron oxides," says Brown, "might be an effective barrier."

The Center hopes to find similar barrier possibilities for the many types of nuclear waste—uranium and cesium, to name just two.

"We are trying to understand the effect of all these different variables on the metal absorption—what sticks and what doesn't stick, and how strongly they stick," says Brown.

Once all these variables have been determined, Brown hopes to build detailed computer models to determine how far the waste might travel in ground water, and whether it can be contained.

—Karen Fox



AFFIRMATIVE ACTION: AN EXPLANATION

SUEVON GEE, SLAC's Affirmative Action Officer, recently presented a brief background of Equal Employment Opportunity (EEO) at a noontime talk sponsored by the Women's Interchange at SLAC (WIS). The EEO Program, formed as a result of the Civil Rights Act of 1964, deals with non-discrimination in the workplace. This pertains to all aspects of employment, such as selection, promotion, termination, and benefits. The Affirmation Action (AA) Program, the result of a Presidential order, focuses on past discrimination and its effect on protected groups.

SLAC's Affirmative Action Office reports to the Laboratory Director and has a peer relationship with the Personnel Department and the Associate Directors. The Director presides over any conflicts among these groups.

The challenge faced by SueVon in implementing both EEO and AA is to correct the effects of past discrimination while practicing non-discrimination. As an example, she described how EEO/AA works during the employment selection process. During the interview and selection process, EEO (nondiscrimination) is in effect. AA may enter into an employment selection when two candidates are determined to be qualified. Under

EEO no one group has preference over another for selection, promotion, termination, or layoff.

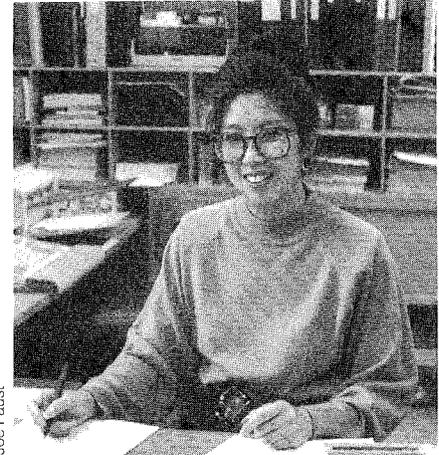
In answer to a question regarding the AA Office's involvement in selection of physicists, SueVon indicated that physicists on a tenure track are selected by the Stanford University faculty and the AA Office is not involved. If a physicist is on the staff track, however, SueVon may be involved in the selection process via the normal requisition process.

SueVon said that given the long standing of EEO/AA, she is disappointed with the progress that this country has made. There has been more progress in EEO than in AA. This may be due to the fact that some people do not agree that AA is the best approach to equality. For instance, in the last ten years much of the funding for community organizations and job training programs has been cut back or eliminated.

SLAC's Affirmative Action, Summer Science Program, Youth Opportunity Program, Work Study Program, and Apprenticeships are examples of programs that historically have been aimed at minorities and women. SLAC also participates in various programs such as the National Consortium for Engineering which encourages minorities to get a graduate degree in engineering.

Because these programs are not on the critical path for high-energy physics research, their support and survival is dependent primarily on the availability of resources and the overall SLAC management commitment to EEO/AA.

SueVon reported that ten years ago 17% of the SLAC population was female. Today 21% is female. The Affirmative Action Office has historically focused on diversity in occupational areas rather than on increasing numbers. SueVon stat-



Joe Faust

SueVon Gee, SLAC Affirmative Action Officer.

ed that diversity, as well as progress in numbers, is challenging because the following factors affect success and rapid progress:

- Opportunity for change—the turnover rate is traditionally low at SLAC (currently at 6.8%).

- Support is dependent on management and its willingness to make EEO/AA a high priority.

- Availability—what is the education system and labor market turning out with regard to minorities and women? It is noted that in the last ten years all students (particularly minorities and women) are moving away from the sciences and going into business, law, and social science studies. This trend affects the available pool of minorities and women from which SLAC can select employees.

SueVon finds it more effective to deal with individuals rather than groups because there is a higher probability of finding a specific solution. If you would like to find out more about Affirmative Action or you have specific questions, feel free to schedule an appointment with SueVon Gee at ext. 2967.

—Janet Dixon and Cherrill Spencer



Murray Hargain Passed Away

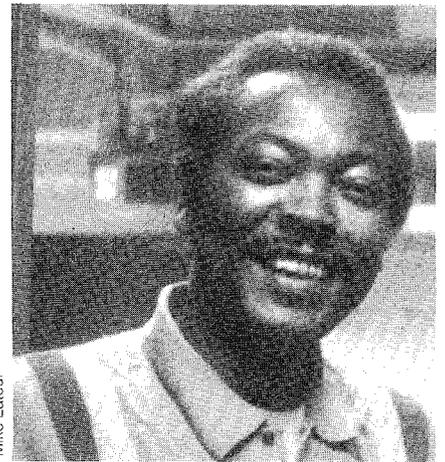
MURRAY HARGAIN of the Laboratory Electronics Group passed away last October 31. A long-time employee of SLAC, he was coaxed away from the Chicago synchrotron thirty years ago by Burton Richter to help with early research and development on colliding beams here.

Murray started as a technician in the electronic field, specifically with the electronics systems for the photo-production experiments which the Richter group did with the big spectrometers in End Station A. From there, Murray moved on to work on the R&D leading up to the SPEAR storage ring. He finally moved from Group C to the Laboratory Electronics Group

when the electronics component of Group C was reduced. Through his efforts at SLAC, Murray received the distinction of lead technician.

Murray realized many personal goals during his career at SLAC. He attended a special program at Stanford that led to a Masters Degree in electrical engineering, an accomplishment that he was proud of. As Richter said, "He rose through the ranks from technician to engineer."

Murray was a quiet and reserved man who, according to Tony Bell, had interests in jazz music and liked to reminisce about the culture of the '50s and '60s. His steady character will be missed.



Mike Lateur

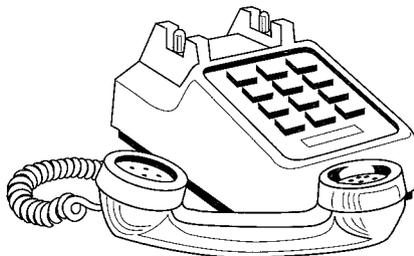
Murray is survived by his mother, Willa Garner; two sons, Murray, Jr. and Anthony; two stepdaughters, Yvette M. Gibbs and Yolanda M. Zesati; four grandchildren, and many friends who cherish his memory.

—Trevor Payne

Cont'd from p. 5

Why Should I Consider Voice Mail?

In a single action, twenty-four hours a day, you can pick up messages left by both internal and external callers. You can send messages, reply to messages and send a copy of a message to other subscribers at SLAC with continuous flow and confidentiality, because your mailbox is protected by your personal password. All of these features and more can be done from your desk, home or anywhere you have access to a touch-tone phone. Voice Mail answers your phone when it is in a no-answer or busy condition. With the no-answer the caller gets the Voice Mail greeting after four



rings; with a busy signal, Voice Mail will promptly inform the caller that you are on the phone and that the caller may leave a message of any length. Do you want to have one greeting for your outside callers and another for your internal callers? It's easy with Voice Mail. Is there a message you want sent to several people? It's easy with the broadcast message option; simply create a distribution list following the prompts, and broadcast your message to everyone at one time. Is there a message you want to send at a later date? No problem, because you create the message and establish the date and time to send the message and Voice Mail does the rest.

What is the cost? Telecommunications has made it easy. The charges for this service are paid from an overhead account and are not charged back to your department.

How Easy Is It To Use?

Very. No more memorizing of commands. The prompts from the system tell you exactly what to do.

You always know when you have a new message either by a message waiting light, if you have one on your phone, or by a stutter dial tone when you pick up the receiver. And remember, all features of Voice Mail can be activated from any touch-tone phone worldwide.

Who Do I Call For More Information?

Once Voice Mail for your phone is approved, activation takes approximately 10 days. No one comes to your office or disrupts your schedule, as all the necessary actions are done by Telecommunications in the SCS Building. Voice Mail is available (but not required) to anyone interested, providing they get approval from their group leader or department head. Also, to add or change existing Voice Mail service, or get answers to questions about Voice Mail call Mike Telang, SLAC's Telecommunications Analyst at ext. 2254 or your Administrative Telecommunications Office Motivator (ATOM).

—Dona Jones

SERA FACES IMMINENT CRISES

THE SLAC EMERGENCY Relief Association (SERA) faces a financial crisis, and we need your help.

The source of this crisis is two-fold: many long-time members are retiring, and there have been a larger than usual number of serious problems that needed our help during the last six months. Recently, it was necessary to turn down individuals whose emergency conditions would certainly have qualified them for assistance, had we been able to give it. The simple fact is, we had no money to give.

SERA is a non-profit, tax-deductible charity formed by SLAC employees in 1968 to aid those of the SLAC community whose financial condition has become desperate due to emergencies beyond their control. It is entirely run by volunteers, who serve an 18-month term, and ALL donations go directly to those in need—there are no overhead costs.

Presently, approximately 80 percent of the grants are repaid within one or two years. SERA has recovered from its zero balance, but is still seriously low in funds on hand. The decrease in donations due to retirement of our members is going to continue, as those who have long supported us

take early retirement, and it is reasonable to expect that in these hard times the need will continue to be great.

SERA is primarily dependent on the donations of its membership. We urge you to join us in this effort. A \$6 lump-sum donation, or a payroll deduction of 50 cents per month, makes you a full voting member of SERA. Of course, a larger lump-sum or monthly donation would be most welcome (the current average is \$2.50 per month). Some of you will prefer to make a lump-sum donation, while others prefer to authorize a modest payroll deduction—in both cases your donation is fully tax-deductible. If you who are already a member of SERA, you might consider an increase in your current donation (even a modest increase would help greatly).

SERA has always stood ready to help those of in need of a helping hand. Now SERA needs your support. Please send your lump-sum donation to SERA in care of Zorab Vassilian, Treasurer (ext. 2464), at MS 12, or clip the coupon below, fill in your donation, and drop it in the mail today!

—Shirley Boozer

CONTRIBUTION TO SLAC EMERGENCY RELIEF ASSOCIATION

I want to do my part to HELP!

My check is enclosed. I would like to donate \$ _____ to SERA.

I authorize a payroll deduction of \$ _____ per month for SERA, to continue until further notice.

(Signature)

(Please print name)

(Date)

(Employee number)

RETURN TO SLAC EMERGENCY RELIEF ASSOCIATION (SERA), MS 12.

For more information call or write: P. Mokski, Secretary, ext. 2965.

Stanford AIDS Awareness Week

THE AIDS AWARENESS coalition at Stanford is organizing a program of events for the week of March 1–7. The purpose of AIDS Awareness Week is to raise awareness about AIDS and HIV disease with respect to prevention, peer health education, treatment, activism, and volunteer opportunities. Many AIDS Awareness Week activities are open to the public.

The Stanford Quilt panel will be on display throughout the week in White Plaza from 12–1 PM at an information table.

The week will begin with a candlelight march and service in memory of those who have succumbed to AIDS and HIV disease. The candlelight march will start on Monday, March 1 at 6:45 PM in the Inner Quad on the Stanford Campus. A memorial service will follow starting at 7:30 in the Inner Quad.

The focus Tuesday is on medical issues surrounding AIDS. A poster session will be on display at the Medical School during the day. In the evening a lecture on Women and AIDS will be given in Tressider Oak West Room at 7–9 PM. The focus will be on epidemiology and prevention. Guest speakers include Dr. Ira Green, Associate Director of the AIDS Program at Santa Clara Valley Medical Center, and Dr. Carol Kemper, Associate Director of the AIDS Program at Santa Clara Valley Medical Center and Clinical Associate Professor of Medicine at Stanford and UCSF. Also featured will be two women with AIDS who will speak about how the disease has affected their lives.

For more information, contact the Health Promotion Program, 723-0821, or the Health Improvement Program, 725-4406.

—Jerrie Thurman

Joan Retires: Another Earth-Shaking Event



John Beach

WAS THAT AN EARTHQUAKE the evening of January 15, or the culmination of Joan Dammann's 27 years of service as the nurse in the Medical Department?

Whatever the cause, during a brief sunny respite from two weeks of torrential rains, approximately 150 employees, special guests from Palo Alto Medical Clinic (PAMC), and sixteen faithful retirees met at the main hall of IR8 for a luncheon send-off for Joan. Thanks are due to the many

people who were instrumental in arranging this function. It was great fun working with all of you.

Glenn Tenney and Doctor Margaret Deanesly presided over the ceremonies, calling upon J. Bert Rose, Assistant Administrator of the Palo Alto Medical Clinic, Burt Richter, Director of SLAC, and Pief Panofsky, Director Emeritus of SLAC, for their words of wisdom and good wishes.

Joan joined the staff of the PAMC in 1966. She and Doctor Robert Armbruster were instrumental in setting up the Medical Department here at SLAC, with PAMC providing most of the supplies.

In his farewell address J. Bert Rose stated that "Joan (or Joan of SLAC, as he has called her for 27 years), was a most important part of the clinic at SLAC. She kept it together and worked towards providing excellent medical care for the patients and employees." He continued, "Her success was exemplified by the number of people from all walks who appeared at her retirement party."

Joan, a Certified Occupational Health Nurse, is affiliated with the California El Camino Real Association of Occupational Health Nurses (AOHN), South Bay, and the Northern California, California State, and American (national) AOHN. She served on past boards of the Mountain Western AOHN as President and Secretary.

Joan also served on the SLAC Safety Committee and set up various health-oriented programs over the years for the employees. She provided First Aid coverage at annual on-site Family Days.

Joan was presented with a SLAC watch by Burt Richter. She was also given a coveted beam tree and some crystal goblets from the attendees.

Doctor Margaret's farewell to Joan, which she offered at the retirement party and reiterated on Joan's last official day here, was based on these popular songs: Thanks for the Memories, I'm so Glad We've Had This Time Together, and, Joan, You Are the Wind Beneath My Wings.

Best wishes, Joan!

—Marion Lisotto

SLAC PARKING REGULATIONS STRICTLY ENFORCED!

THIS CAR WAS NOT illegally parked. One day during the fierce storms of last month, Shirley Livingston left the library to go to her new car. Instead of driving away as she expected, she was horrified to find that a huge pine tree had toppled in the wind, almost completely covering the car.

Luckily for Shirley, very little damage was done to her car. A crane and several heavy pieces of equipment were used to remove the tree. Shirley was able to use her car again, and many SLAC employees were the recipients of free firewood.

