The Beam Line

Stanford Linear Accelerator Center

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Taming SLAC's Beam

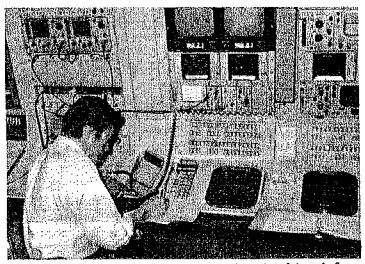
"The machine still wiggles around like a live thing -- we're constantly looking for ways to further discipline the animal so we can do increasingly sophisticated physics here" -- a comment made recently by a member of the Accelerator Operations group.

Clearer Information Transmittal

One prime example of the taming effort is the gradual shift of activity from the Central Control Room to the Main Control Center.

Experimenters at SLAC need a mechanical arm for their ideas to be implemented on the machine. In the past, CCR served this purpose. Not long ago the communication would run like this: experimenter called DAB (now MCC) to ask them to ask CCR to make a change on the machine, after which CCR would make the changes and give information back to DAB to give to the experimenters. Hmmmm. Sunday paper's gossip column never looked so clear. It became evident that a more direct means of communication was necessary to help reduce the inevitable short circuits in human understanding when there are too many cooks.

A better idea would be to have a much simpler link between experimenters and the machine. Fewer ulcers were anticipated as well as a better, "purer" beam through more efficient use of the machine.



Dave Tsang at MCC position No. 1 taking information about SPEAR.

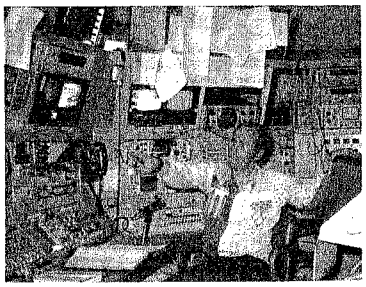
Golden Word is "Computers"

MCC is now in the debugging stage with their "touch panel," a system which provides the link that enables the experimenters to be closer to beam activity.

The touch panel is a television screen with a plastic "face" with rows of penny-sized circles which are pressed by operators to both give and retrieve information directly from the machine. The touch panel connects to the SDS-925 computer in MCC. This is linked by cable to the PDP-9 computer in CCR, which controls the accelerator. While the PDP-9 is still the president in charge of any changes made on the machine, commands are now given in a 1-2 step from experimenters to operators at the touch panel instead of the previous several (often garbled) steps from experimenters to machine. Of the three present sets of panels, one set connects to SPEAR, a second mostly to A and C beams, and third mostly to the B beam, all operating through the computer switching stations constructed to allow cleaner information flow.

CCR Not As Lively Now

In comparison to a couple of years ago when CCR was the "hub of the universe" at SLAC, the halls are quiet now and the console room is often manned by only one or two operators. The work load has increased for those men at the console because of the shift in personnel over to MCC, so MCC's new shoes can pinch a little at the heel in CCR.



Gene Barker at the CCR console.

The following are a few reflections from four different men working in and around CCR:

—"After the touch panel is in, there won't be any more machine operation in CCR -- no more operators up here after it's running smoothly. CCR's not the same now. There used to be two secretaries here -- now we won't have any. Guess we'll get along. It's fast approaching a tomb. I don't mind it too much. Several of us could choose whether we want to move over to MCC, and those who want some quiet will stay around here. Consolidation is absolutely dependent on the complete 100% operation of both the 925 and PDP-9. If anything goes wrong an operator will have to come back here to CCR and change it (to manual operation). All the offices used to be full here. Only about 7 are left now compared to 12 or 13 two years ago. The 3 chief operators are on shifts, so we don't see much of them either."

—"Our work load has gone up since 1969. We only had 2 or 3 beams then and now sometimes we have 8. We're doing the engineer's job of 5 years ago."

Vern Price at the MCC security console fixing pictures.

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Sculpture and Opera at SLAC

Wood and metal sculptures and opera works by Verdi and Puccini were given at the SLAC Auditorium in a combined noon program of music and art on Tuesday April 10.

Mircea Goreniuc, sculptor, displayed his works of abstract wood carvings as well as fanciful and grotesque masks in the lobby. Using tree roots for many of his carvings, Mr. Goreniuc's masks inspire thoughts of wood spirits, or imaginary faces and voices in trees in a deep forest, or the many faces of man.

Two distinct profiles can be seen in this wood carving by Mircea Goreniuc. More faces are carved on the other side of this work.

Sue Goreniuc, lyric coloratura, sang "Caro Nome" and Tom Caperello sang "La Donna E Mobile," both selections from the opera by Verdi. Together, they next sang the First Act love duet from La Boheme by Puccini. Their accompanist was Mrs. Barbara Jazwinski.

For a few moments the Auditorium became an opera stage instead of a seminar area, and uplifting music was performed with verve and grace by SLAC's guests.

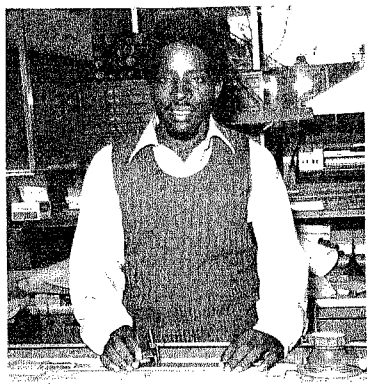
From left to right, Sue and Mircea Goreniuc, Barbara Jazwinski, and Tom Caperello.

Dave Thomas Graduates from STP

Dave Thomas graduated on March 31 from the Skills Training Program at SLAC. Dave's first job at SLAC was in the Mail Room, after which he worked in Technical Illustrations, Mechanical Engineering Department, and the Drafting Department.

Dave presently works in Technical Illustrations. His future plans include continuing his education in mechanical drafting, illustrating, or engineering through courses at San Jose State or San Francisco State. Eventually he might like to work as a flight control operator. He has always liked to illustrate airplanes and feels he could further his knowledge in that area plus have the opportunity for travel.

Dave describes his experiences in STP as "really a complete training program for the area I am in." In his various assignments on the project he had a chance to learn the fundamentals of technical illustrating (with Tiana Hunter, TID), techniques of illustrating machines on site, perspective, and isometrics (with George Lee, ME), and how to draw electronic equipment from blueprints (Joe Fish, DR).



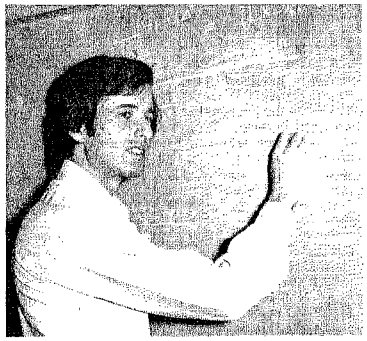
Dave Thomas

Dave says about his training program:

"It helped me get a skill whereas in the 'outside world' approach, I might never have had these opportunities. The simultaneous work and study experiences mean a lot to a potential employer. I've been able to learn illustrating techniques used in outside industry while I've been on the job here, so it's not such a shock as coming straight out of school. This program really is needed and has helped minorities substantially here at SLAC."

Fred Gilman Promoted to Professor

Dr. Fred Gilman of SLAC's Theoretical Physics Group was promoted to the academic rank of Professor at SLAC by the Stanford Board of Trustees at their March 13 meeting. The appointment will be effective September 1, 1973. At 32, he is one of the youngest people to achieve full Professor status at the University and the youngest to attain that rank of those promoted from within SLAC. Of the SLAC faculty, only SLAC Director W. Panofsky attained Professor status at Stanford at a younger age (nine months younger!).



Fred Gilman

He graduated from Michigan State University in 1962 and received a Ph.D. in Physics from Princeton in 1965, where he worked with Professor M. L. Goldberger on baryon electromagnetic mass

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Heart Disease Survey at SLAC ... starts this week

Starting today, SLAC employees are participating in a survey designed to evaluate their risk of developing heart disease.

The screening project is part of the Stanford Heart Disease Prevention Program, a five-year, Medical School-based effort funded by the National Heart and Lung Institute. All Stanford faculty and staff 26 years of age and older are eligible for the survey said physiologist William Haskell, coordinator of the project. Participation is on a voluntary basis.

"The purpose of the program is to determine the frequency of certain characteristics associated with a high risk of developing premature heart and vascular disease," Haskell said. "For SLAC employees this is an opportunity to learn more about their own 'heart health' status and contribute to research on how to prevent heart attacks."

The survey, which has been approved by the University administration, began the first week of April and will continue through March of 1974. It is being conducted at several sites on the Stanford campus near various employee groups and at the program's offices at 730 Welch Road. Most eligible employees already have received a letter asking them to participate.

During this week a randomly chosen sample of approximately 75 SLAC employees will be requested to participate in the survey. These individuals have been contacted by phone or will be contacted sometime during this week. Dr. Haskell hopes also this week to evaluate those employees who will be unavailable in July when an opportunity to participate will be made available to the majority of SLAC employees. If an employee plans to be on vacation, on leave, to terminate employment, or otherwise feels that he will not be available during July, he should contact the Stanford Heart Disease Prevention Program at 321-1200 Ext. 6256 or the SLAC medical facility during the mornings of the week of April 23, Ext. 2281.

For most employees, their evaluation will consist of a 15-minute health evaluation, including a brief medical questionnaire, measurements of height, weight; and blood pressure, plus cholesterol and triglyceride (fat) analysis of a blood sample.

Approximately 25 percent of the participants will be asked to return for a second, more extensive evaluation. This group will include a random sample, as well as individuals who were found to have high blood fats in their first visit. The second evaluation will include a more detailed questionnaire, more extensive blood tests, a urine sample for protein analysis, resting and exercise electrocardiograms, and a brief cardiovascular examination by a physician. Results of both the initial and second evaluation will be made available to the participants or their physicians on request.

"It is important that we have a high response rate," Haskell said. "The higher the percentage participating, the more representative the information will be of the entire Stanford population. If only a small sample responds, it could mean that only people with known medical problems are participating."

The Stanford Heart Disease Prevention Program represents the joint efforts of two federally-supported research centers established at the Medical Center 18 months ago - the Lipid Research Clinic and the Specialized Center of Research in Arteriosclerosis. Dr. John W. Farquhar, associate professor of medicine, is director of both.

Deferred Raise PLAN

SLAC has completed design of the plan for implementing that part of Dr. Panofsky's January 29 All Hands Bulletin which dealt with saving jobs through slightly decreasing the percentage amount of employee basic earnings increases during Fiscal Year 1974. The mechanism for effecting this plan involves a somewhat smaller take home pay reduction than originally planned.

Rather than shave dollars from amounts of salary increase relative to the averages throughout the University, it has been decided instead to assign normal average raises but to defer their dates of application.

Thus salary review dates remain unchanged this year and next. However, any raises which become scheduled to go into effect between July, 1973, and June, 1974, will instead actually be applied later. To spread this burden a little in accordance with "ability to pay," the schedule of deferred salary increases is as follows:

All staff in the "non-exempt" category, such as staff assistants, clerical people, manual workers, etc., will have their salary increases deferred by one month from the date they would normally take effect.

All staff in the "exempt" category such as staff associates, staff members, etc., will have their salary increases deferred by two months from the date they would normally take effect.

SLAC Job Openings

Mathematician: The Spectrometer Facilities Group has an opening for a mathematician. The position involves programming, both in Fortran and assembly language, at a medium sized computer for scientific and largely real-time application. The duties include development and modification of programs for reading, interpreting, or controlling experimental equipment; development and documentation of routines for testing and diagnosing experimental equipment; modification of installation wire listing program. Qualifications: Applicant should have B. S. Degree or equivalent experience in physics, mathematics or related fields and must have experience in Fortran and/or assembly language programmings and must be able to adapt programming logic to practical experimental conditions. Salary - open.

Physical Science and Engineering Technician II: Accelerator Operations Group has a rotating shift opening for an Operation Technician. The work primarily involves the operation of complex research apparatus, will also perform a variety of operations which may include fabrication, assembly, modification, installation or check-our of research equipment. Applicant should be able to work from general instructions and diagrams. This position requires the exercise of considerable discretion and application of principles and skill usually acquired through completion of two years of technical college courses and extensive experience in related fields of work. The position is under limited supervision and also involves occasional high stress environment. Salary: range $730-$932.

In addition to the above positions available at SLAC, a complete listing of open positions on the Stanford campus and the Stanford Hospital are posted outside of the Employee Relations Office, Room 238, A&E Building, and in the Employee's Canteen in the Research Yard.

Contact the Employee Relations Office (phone extension 2355) if you are interested in any of these positions.

Taming SLAC's Beam

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— "We used to have picnics, Christmas parties -- it was really a tightly-knit group then. It's been a tough change for us to make."

— "Life is just more hectic down at MCC because they're working with 7 or 8 experiments. CCR will still be crucial when something goes wrong on the machine. We'll watch it for awhile here and then shift back to MCC and the touch panel. Analysis of the problem will be in CCR -- the main condensation of equipment is here. People can't see what the problems are in the machine, so if 2 people have different ideas about what's wrong, it can get a little frustrating.

"It's a sigh of relief when the machine turns on-- the one thing this machine is destined to do is run. That's our only product. Our job is to make it run.

"I usually come in early so I can get a feel for the machine and see if I'm going to have trouble or not. On graveyard shift I count the cars in the parking lot -- if there are a lot, I know I'm in for a blast! Sometimes the machine is jittery, and the problem is to diagnose where in the 10,000 feet that faulty unit is!

"Just a week of swing shift is great -- I get a lot done. If things are really busy and you don't have time to eat, you don't eat, that's all! Those are some of the little things that go on here."

More and more, space for computers on site is being made for the threading through of clear information with the least possible obstruction from man or machine. As SLAC becomes more able to draw in the loose strings of the beam to permit advances in physics, computers become increasingly functional. The hope is that the MCC/CCR computer link will provide the necessary smooth path toward such progress.

Fred Gilman promoted ...

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differences. Then he did post-doctoral work at Caltech under Murray Gell-Mann during 1965-1967. Although first employed at SLAC during the summer of 1963 while a graduate student at Princeton, he came to SLAC as a full-time Research Associate in 1967 and was appointed Associate Professor on September 1, 1969.

Dr. Gilman's research interests are quite varied, but he has been consistently concerned with theoretical ideas which can form the basis of extensive experimental investigation. These interests include the theory of strong interactions, the phenomenon of "scaling" in inelastic electron scattering (in which the scattering can be represented by mathematical functions which seem to depend only on the ratio of the energy transferred in the scattering process to the momentum transfer) and its relation to strong interaction phenomena, and hadron spectroscopy.

Most recently, he has been interested in using the quark model of the strongly-interacting particles to predict the rates at which very short-lived particles decay into other particles by the emission of the much longer-lived pi meson. For example, the A_2 meson decays into a pi meson and a rho meson. The rho almost immediately decays into two pi mesons. The idea is to theoretically compute the rates for these decays and compare the results with experiment. In order to do this, it is necessary to understand both the mathematical description of the pi meson and that of the initial and final state particles.

Experiment provides the total decay rate for a particle and also its "branching ratios," the fractions of the time the given particle decays into various final states. The fractional decay rates can be computed from this and provides the data for comparison with the theoretical predictions.

We would like to congratulate Dr. Gilman and wish him well in his future endeavors.

New Affirmative Action Officer To Be Assigned

The responsibility for carrying out Affirmative Action activities at SLAC over the years has been assigned successively to various Personnel Department employees. The last assignment of Doug Dupen as Acting Affirmative Action Officer was temporary while Dr. Panofsky reviewed the program.

It has now been decided that the responsibility should be assigned to the Director's office. Thus Dr. Panofsky will shortly assign some other SLAC employee the responsibility for overseeing SLAC's Affirmative Action Program.

Two further decisions have been made: the assignment will be for a one-year term; extension is possible or alternatively a successor may be appointed. The assignment will require the assignee's efforts for up to 20 hours a week on the average.

Selection is now being considered. Persons interested in assuming this responsibility on an approximately half-time basis for a year may submit their names either to Dr. Panofsky or to SLAC's Minority and Women's Committee (MWC). MWC will review the names and will make recommendations to Dr. Panofsky who will make the final selection for SLAC's Affirmative Action Officer.

As a member of the Director's staff, the new Affirmative Action Officer will be responsible for tasks such as the following:

1. Work on developing policy statements of Affirmative Action goals and objectives.
2. Monitor the effectiveness of the SLAC Affirmative Action Program and indicate need for remedial action. In particular, monitor hiring, promotion and training actions to assure compliance with the University's Affirmative Action Program.
3. Participate in the preparation and distribution of Affirmative Action reports, plans and other information.
4. Provide liaison among the Personnel Department, the Director's Office, and minority and women organizations and individuals. Represent SLAC at interlaboratory and AEC Affirmative Action meetings.

Administrative support for the Affirmative Action Officer will be provided by the Personnel Department which will also continue to provide coordination with the University and the AEC.

Anyone interested may obtain a copy of the "Affirmative Action Plan of Stanford University" by calling Personnel at 2363.

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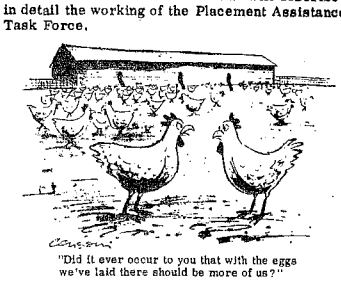
Layoff TASK FORCE REPORT No. 3

The box score of successes in placement of SLAC people who were notified last month of layoff effective June 30 is growing. To date, 31 of the 72 who received the notices have new jobs. Thirteen have been rehired at SLAC, three have found jobs elsewhere at Stanford, and another 15 have taken jobs outside Stanford. This leaves 41 of the original 72 yet to find jobs during the next 10 weeks.

The next issue of the Beam Line will describe in detail the working of the Placement Assistance Task Force.



"Did it ever occur to you that with the eggs we've laid there should be more of us?"