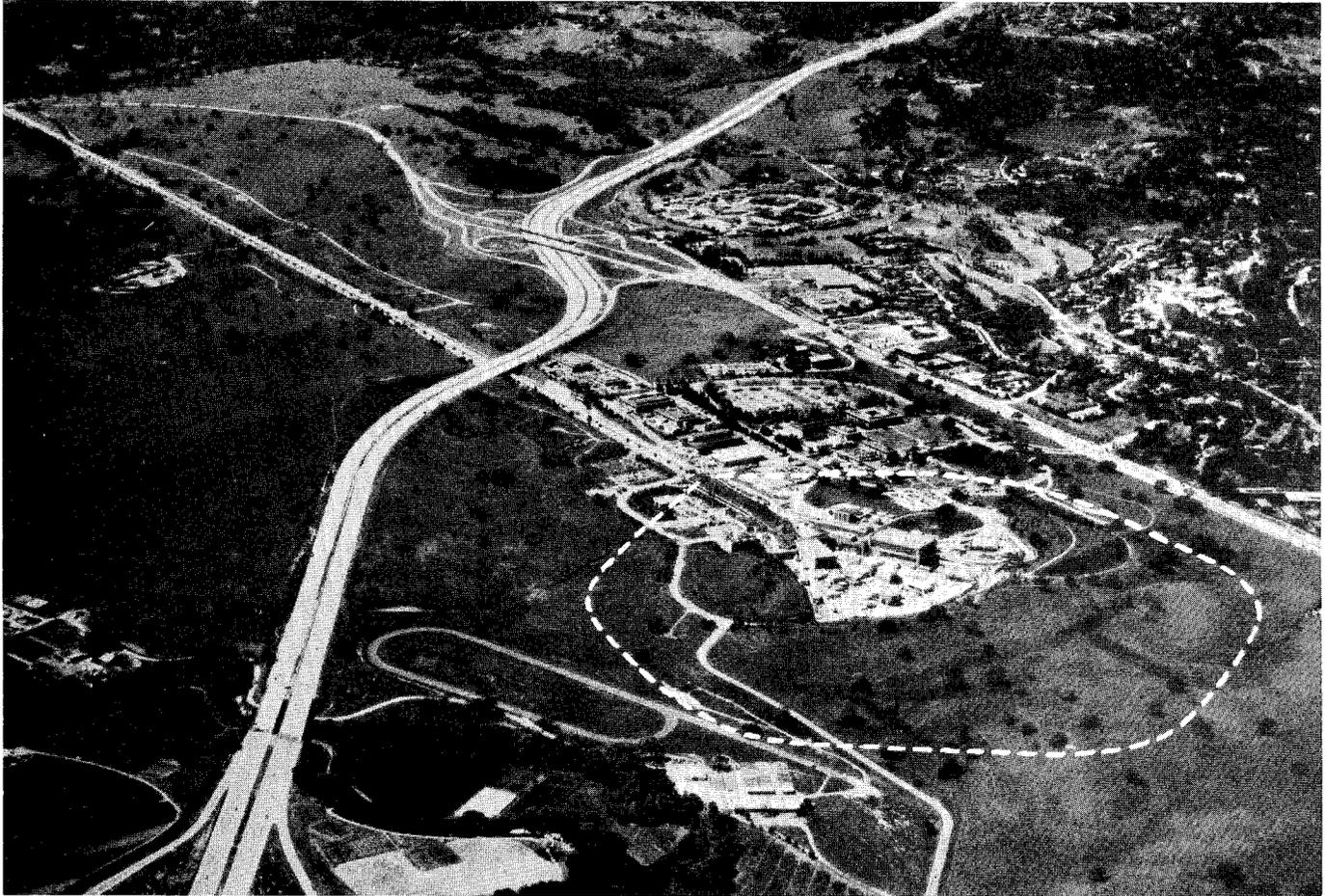


# SLAC BEAM LINE

*It is the grand object of all theory to make these irreducible elements as few in number as possible, without having to renounce the adequate representation of any empirical content whatever.* --Albert Einstein

Volume 6, Number 5B

May 20, 1975



*The dashed line shows where the proposed PEP storage-ring project--if eventually built--would be located on the SLAC site. The chances for favorable Congressional action on PEP for Fiscal Year 1976 seem a bit better than they did a few months ago. See page 2 for details.*

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## SUMMER SCIENCE PROGRAM - HELP NEEDED

We have 33 Summer Science Students coming to SLAC this year. About 2/3 of these students have already been placed with various Research and Technical Division groups, and we are presently busy trying to set up suitable jobs for the remaining students. If you think that you might be able to provide such a job, please contact either

Ron Koontz      X2527 (for Tech. Div.)  
Rich Blumberg   X2692 (for Res. Div.)

Our hope is to have all of these students placed by about June 1, so please let us hear from you soon.

--Ron Koontz

# McCloskey testifies in support of high-energy physics project

By JOHN STANTON  
Times Political Editor

Rep. Paul (Pete) McCloskey, R-Menlo Park, has appeared before a congressional subcommittee to support a new \$74-million high-energy physics project for the Stanford Linear Accelerator (SLAC).

McCloskey's testimony before the House Public Works Appropriations Subcommittee on Thursday was a surprise but good news Friday to Wolfgang Panofsky, director of SLAC.

Last year Congress authorized funds for a preliminary design and engineering plans for a \$74-million Positron-Electron Project (PEP) to be built jointly by the University of California's Lawrence [Berkeley] Laboratory and Stanford University.

However, the funds were not appropriated or included in the Ford Administration's budget request for the Energy Research and Development Administration (ERDA) for fiscal year 1976.

Panofsky said PEP will be an underground ring inside the present SLAC boundary which Stanford has leased to the federal government. About half of the ring will be tunneled under the existing accelerator, and the rest will be cut and cover.

"There will be very little to see," Panofsky said.

The new plant would enable scientists to create electron-positron collisions of much greater reaction energy than is possible by means of conventional accelerators. McCloskey told the subcommittee that with the present accelerators, scientists discovered three new atomic particles.

"The present SLAC accelerator is uniquely well-suited to act as a source of electron and positron beams," McCloskey said. "The addition of PEP would provide a four-fold increase in the reaction energies of the most powerful existing machine.

"During recent years the U.S. has consistently devoted a relatively lower level of funding to accelerator improvements. To continue this pattern could seriously impair our leadership role in this field of science."

McCloskey said "PEP has received excellent support from the American high-energy physics community and is recommended by ERDA's High

Energy Physics Advisory Panel. It ranks as the highest priority construction project within ERDA's Physical Research Program."

He also said that "The economic consequences of the PEP project for the local area would be quite significant."

He estimated that 75% of the total funding would be spent in the Bay Area, and that the project would employ workers in all skills and trades, in addition to scientists, engineers and technicians.

--Palo Alto Times  
May 3, 1975

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## But...

The report of Congressman McCloskey's favorable Congressional testimony on PEP is certainly welcome news, but the story may make it appear that PEP is closer to being "in the bag" than is actually the case. You may recall from Dr. Panofsky's All Hands talk of last February 3 that PEP had not been included in the President's Budget submission to the Congress for Fiscal Year 1976 (starting this July 1). What has happened since that time is the following.

(1) The absence of PEP from the proposed Budget was discussed at the Hearings of the Joint Committee on Atomic Energy. On May 9 the JCAE recommended that PEP should be authorized for FY 1976; there seems a good chance that the House and Senate will pass this *authorization*.

(2) But Congress must also pass the necessary *appropriations* bill before PEP can go forward. This will involve subcommittee hearings in both houses (in this case by the Committee on Public Works!), after which the Congress will act.

(3) If an appropriations bill including PEP is approved, it would still remain for the Office of Management and Budget to proceed with *apportionment* of the funds to ERDA to begin the work.

In summary, there are still several hurdles for PEP to get over before full approval for FY 1976 can happen, but there is at least some hope that that it actually will. We appreciate Congressman McCloskey's efforts on behalf of the proposed project.

--BK

## COMPUTER CONTROL OF THE SLAC ACCELERATOR

When the two-mile accelerator was first conceived and built, in the early 1960's, digital computers were expensive and physically quite large. A typical "small" computer in those days cost perhaps \$100,000, and it came in a group of cabinets, with each cabinet being somewhat larger than a home refrigerator. To begin with, only a single computer was planned for accelerator-control purposes.

### Number One: The SDS925

The first computer selected was a Scientific Data Systems (SDS) Model 925. This computer was installed, and is still located, in what was then called the Data Assembly Building but is now known as the Main Control Center (MCC). Specifically, the SDS925 was used to adjust the amount of current that was fed to the dozens of magnets in the Beam Switchyard at the end of the accelerator. As the name implies, the Beam Switchyard is a complex array of bending and focusing magnets which is able to direct the main electron beam to any of several widely

separated experimental areas. During the first several years of accelerator operation, which began in 1966, the accelerator itself was manually controlled (that is, without benefit of computer) from the Central Control Room (CCR).

### Number Two: The PDP9

In 1969, a "small" computer was added to CCR to assist the accelerator operators in handling the more complex beam requirements that had gradually been evolving. This computer, a PDP9 made by Digital Equipment Corporation, was tied into most of the accelerator controls and beam-monitoring equipment during the course of the succeeding several years. Although the PDP9 was capable of doing about the same amount of computation as the original SDS925, advances in computer design and the reduced cost of semiconductors resulted in a \$50,000 price tag for the new computer (but it still occupied several large cabinets).

Perhaps the most useful of the many jobs



Photo: Joe Faust

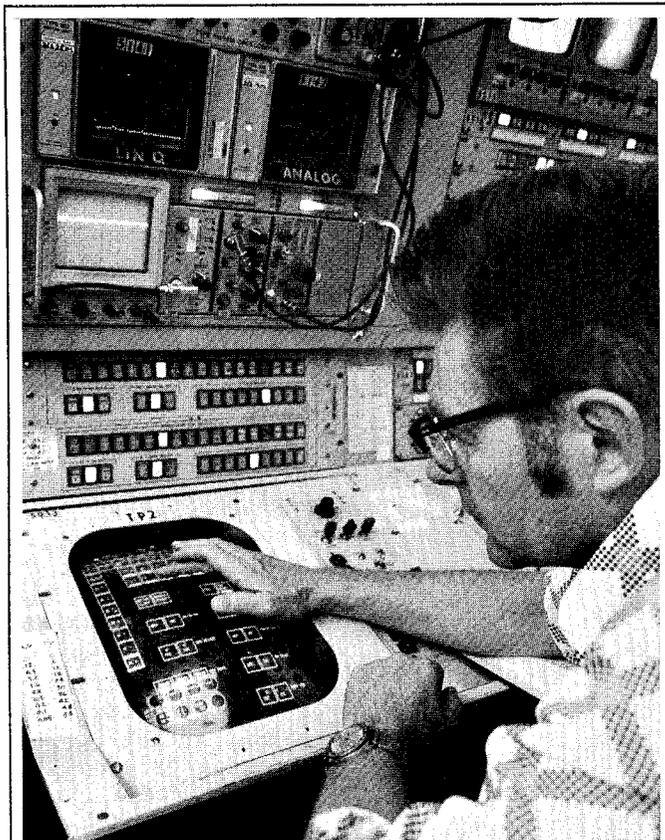
Technician "Mac" McCarthy is shown manning one of the three operating positions in this general view of the control console in the Main Control Center (MCC). Control of the accelerator and of the magnets and other components in the beam switchyard was initially divided between MCC (then called the Data Assembly Bldg.) and the Central Control Room. In recent years, however, a system of linked computers has made it possible to consolidate the control functions in MCC.

that were assigned to the PDP9 was that of controlling the klystron pulsing patterns. The computer kept track of which klystrons were assigned to which beams, and it switched on replacement klystrons whenever they were needed. Computer control also made it possible for the SLAC accelerator to deliver more than six interlaced beams of different energies, intensities and pulse repetition rates to accommodate the needs of more than six simultaneous experiments.

As the beam requirements became more stringent, it gradually became clear that having two separate control rooms, MCC and CCR, was creating a number of operating difficulties. In a typical situation, an experimenter in the End Station would get on the intercom system to request that his beam be changed, and very often the changes would require coordinated action by the operators in both MCC and CCR. This proved a cumbersome arrangement, particularly when the beam to be changed was already difficult to maintain.

#### Control Room Consolidation

As a result of these problems, it was decid-



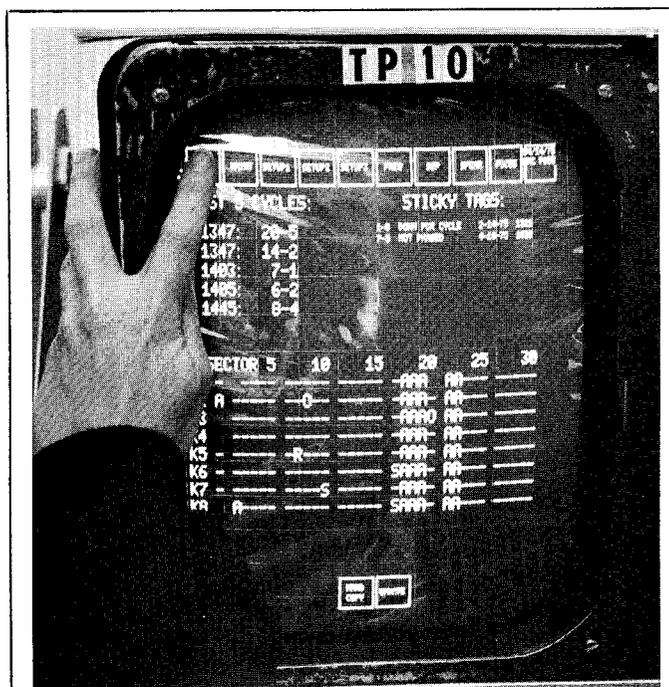
--Photo by Joe Faust

Danny Ibrošimovic is shown operating one of the "touch panel" controls in MCC. With this control system, the operator is able to select the appropriate "panel" for display on the face of a cathode-ray (TV) tube, and to send out control instructions by pressing the labeled "buttons" that are thus displayed.

ed, in 1970, to begin a program of consolidating controls so that eventually both the accelerator and the Beam Switchyard could be operated from MCC. A number of different plans for accomplishing this end were considered, ranging from duplicating some of the CCR controls in MCC to actually relocating most of the CCR control equipment to MCC. The plan that was decided upon was to effect the bulk of the consolidation by tying together the SDS925 and PDP9 computers by means of a high-speed data link--an electronic "pipe line" through which the two machines can "talk" to each other.

Many of the control functions of the consolidated system are carried out through the use of a special device called a "touch panel" that was developed at SLAC specifically for this purpose. This device consists of a television monitor over whose picture tube a grid of small wires is placed--10 wires stretched vertically and 13 wires stretched horizontally to form squares that are about one inch on a side. The vertical and horizontal wire planes are arranged so that they do not touch each other until finger pressure is applied at an intersection.

The picture tube in the TV monitor is connected to the SDS925 computer, which stores a number of special touch panel programs that are



--Photo by Joe Faust

A close up view of one of the panels being displayed on Touch Panel #10 in MCC. (The hand belongs to Larry Stein.) The "buttons" on the panel are formed by a grid of fine wires which divide the face of the TV tube into roughly one-inch squares. Control messages are given by pressing the normally separated wires together at the appropriate intersection point.

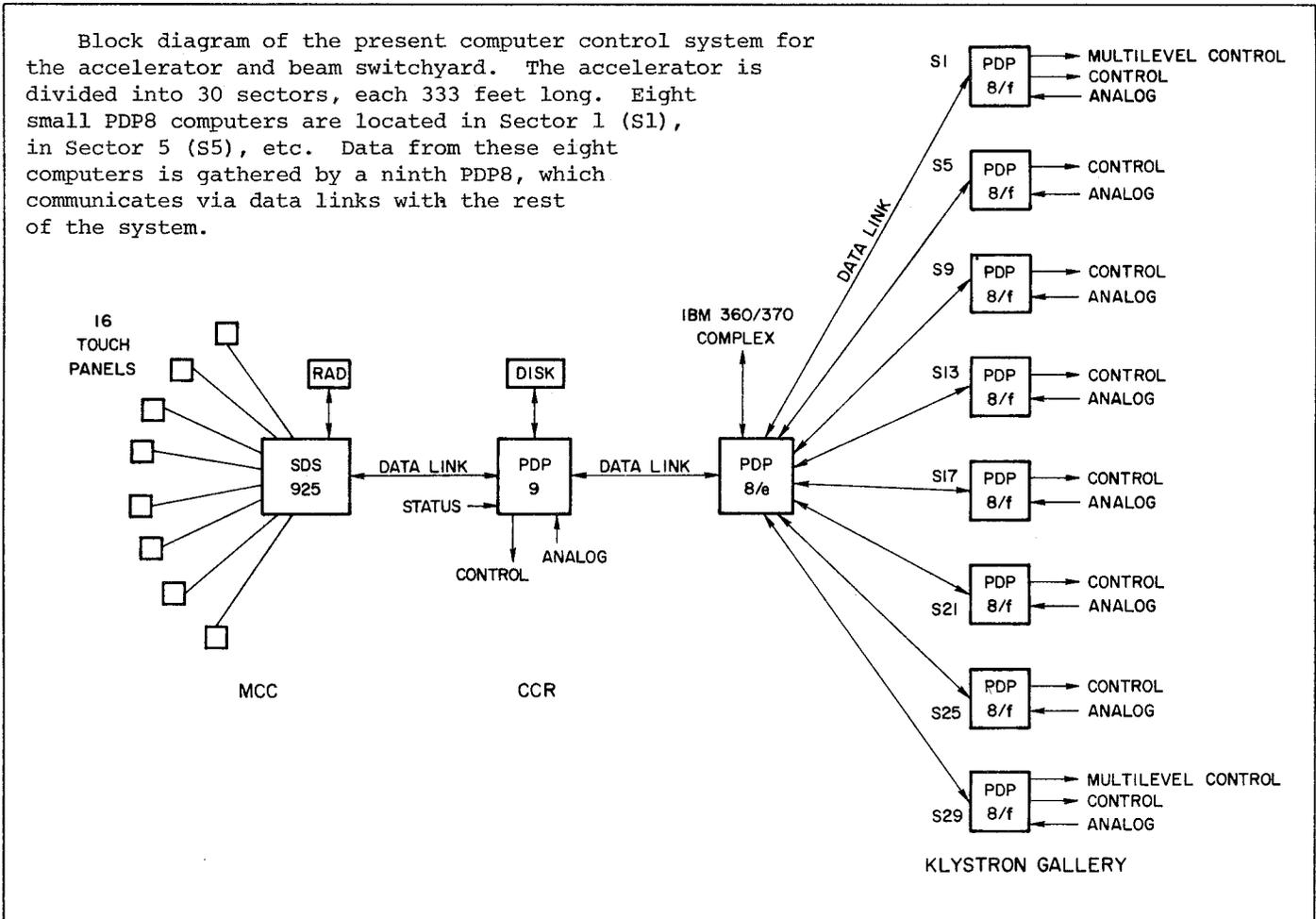
able to write out labels, numbers and little boxes called "buttons" on the face of the TV tube. When the operator wants to make a change in beam parameters, he selects the appropriate "panel" for display, then presses together the crossed wires over the appropriate "button." This action is read as a command by the SDS925, which then sends on a message to the PDP9 in CCR, which in turn relays the message to the affected components in the klystron gallery. Depending on which particular components are being adjusted, the message can be an electrical signal that operates an on/off control, an increase/decrease control, or a small motor. When the adjustment has been made, the affected component then sends a signal back through the same chain which appears as a written message on the TV tube. In most cases this complete cycle--from pushing the button to receiving the return message--occurs in only a fraction of a second.

More Computers: Eight Plus One PDP8's

As the SLAC experimental program evolved, there was an increasing demand for more inter-laced beams and also for more difficult individual beams. After a time there were three separate operator positions in MCC being manned

simultaneously to handle the required beam controls. This resulted in two kinds of problems in the computer control system. The first problem was simply the fact that three operators could produce so many commands that the PDP9 in CCR would occasionally get "clogged" and fail to respond appropriately. The second problem was connected with the inability of the SDS925-PDP9 system to handle certain kinds of "parallel" messages. As an example, if Operator #1 were "fine-tuning" the energy of Beam #1, Operator #2 could not at the same time be fine-tuning the energy of Beam #2.

These problems were eventually overcome by the addition of eight new small computers which were installed at various points along the klystron gallery. These computers were Digital Equipment Corporation's PDP8's, each of which is about the size of an electric typewriter, and each of which costs about \$4000. (The use of integrated circuits in the PDP8's was responsible for much of the reduction in both size and cost.) At the present time, most of the accelerator-control functions have been taken over by these new computers, which will also soon be collecting data from all sectors of the accelerator and sending that data back to MCC. The information chain consists of a ninth PDP8



in CCR which collects the data from the outlying PDP8's and passes it on to the PDP9, and thence to the SDS925 in MCC.

#### How Well Does It Work?

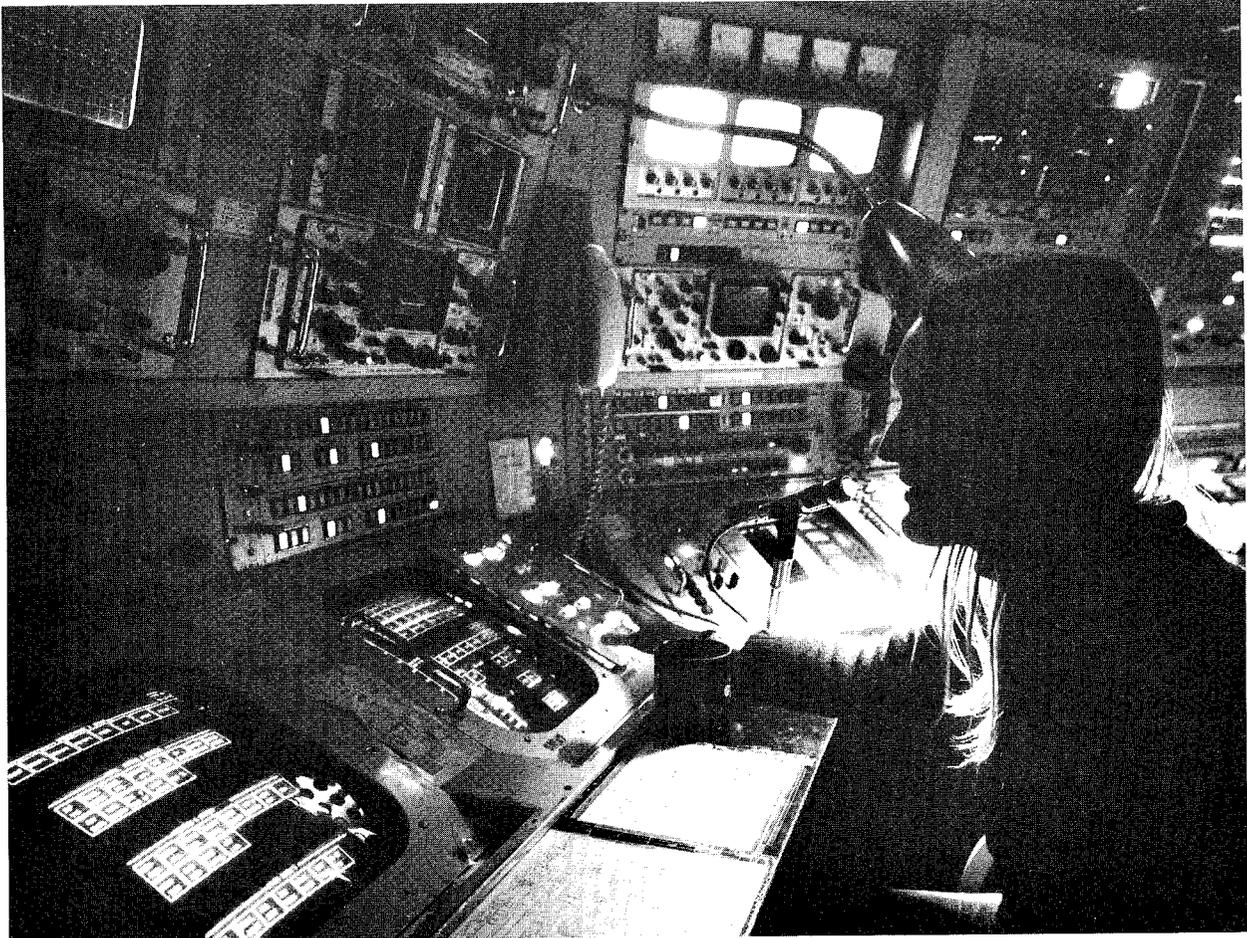
It is reasonable to ask how well this new system of many coupled computers is doing the job of accelerator control. The answers that come from people who have some experience with the system range all the way from "Not very well" to "I couldn't get along without it." There have been, and still are, a number of problems that remain to be worked out--both in the computers' electronics "hardware" and in the programming "software." Most of the present problems occur when there is a high message rate between computers (lots of operator activity). The present development work on certain new systems (a fast analog system, more automatic control systems, and software "traffic studies") should eventually provide useful answers to

these problems.

The evolution of computer control at SLAC has been one of the most interesting jobs that the Instrumentation & Control Group has had to work on. Not the least of these challenges has been the need for effective back-up systems, so that when the computers fail (as they sometimes do), we can fall back on reliable manual control techniques. In addition, we've had the satisfaction of solving some intriguing problems in the area of computer networks and fast displays that were at the forefront of minicomputer applications.

Since a picture is still worth a thousand words, we'd like to conclude by inviting any interested SLAC people to visit MCC sometime to see how accelerator control really works. One way or another, there's likely to be quite a bit of action!

--Warren Struven



--Photo by Joe Faust

Technician Nancy Kowerski is shown at one of the operating positions in MCC. Touch Panels #5 and #6 are directly in front of her on the slanted portion of the console. The control functions in MCC are usually handled by three operators, who very often have a busy time of it when there are six or more different beams being sent from the accelerator to as many experimental groups working in the End Station area.

# WOMEN AT SLAC:

## A REPORT, A RESPONSE AND SOME NEWS

*Editor's Note:* Last fall SLAC's Director, Dr. Panofsky, appointed a "Task Force on Women at SLAC," which was asked to carry out a review of the job classifications of non-exempt women employees who work in clerical positions at SLAC. When this review was completed, the Task Force summarized its work in a report that included a number of both general and specific recommendations. The SLAC Personnel Department then evaluated this report, and it has now responded to most of the recommendations and other findings contained in the report.

In the following pages we present the two pertinent documents:

*Report of the Task Force on Women at SLAC* (which was somewhat edited by the Task Force in order to avoid references to specific individuals).

*Response to the "Report of the Task Force on Women at SLAC"--A Progress Report* (from SLAC Personnel).

Although these two documents speak for themselves, we do want to make one editorial comment. The response that SLAC Personnel made to the recommendations of the Task Force was based --as it should have been--on existing personnel policies and practices at SLAC and at Stanford University. But application of these policies does not solve all problems. In fact, the Task Force's report has raised some very basic questions for which the present personnel "book" does not have good answers. This is a subject that SLAC's Director is now investigating more fully within the University.

--BK

## Report Of The Task Force On Women At SLAC

### CONTENTS

Background Of The Study
Conclusions
Recommendations
A. General
-Job titles
-Getting information to people
-Getting ahead on the job
B. Specific

### BACKGROUND OF THE STUDY

Task Force Members: D. Ellison, M. LaBelle  
G. Stewart, G. Venables

Purpose: To review women in clerical classifications at SLAC in order to identify any obvious misclassifications.

Method: At least two, and usually three, members of the Task Force conducted individual

interviews with each woman in these classifications. The average length of the interview was about twenty minutes. We then interviewed the supervisors for those cases where either further information was needed or information needed verification; these interviews averaged about forty minutes each. There were five "no shows" among the clerical workers.

### CONCLUSIONS

1. No gross misclassifications or under-classifications were found. (It should be noted that our methods were not appropriate for correctly classifying people who are in the grey area between two classifications. As a result, we frequently advised people to read job classification descriptions and to discuss the matter with their supervisor if they then thought they were under-classified.)

2. Several instances were found where the Task Force does think a different classification is needed. These cases were of two sorts: (1) the classification presently used doesn't properly describe the job (such as where there is a fair amount of technical or statistical work

involved and the job has not been called Specialist); and (2) the person has shown true growth on the job with the result that the job now appears ready for upgrading to us.

3. In addition, there were several other instances where the Task Force lacked the expertise to assess the level of the job, but where doubts about the classification were voiced by the person in the job or by the supervisor. It is suggested that audits of these jobs be done by someone expert in these classifications, in order to assure the individual (and her supervisor) that she is properly classified. When this involves going "outside," the Task Force has not actually arranged for these audits, but recommends that the SLAC Personnel Director do so.

4. This was not a job-satisfaction survey. But when someone describes their work, they also tend to convey their attitudes toward their work. Some *impressions* we were left with are as follows:

(a) The idea that everyone has been in the same job for so long that "we are all getting old and bored" seemed to be mostly true for the "old" part. A surprising amount of enthusiasm was shown for the actual content of most of the jobs; a feeling that the work being done was important work for their group came across in large numbers of the interviews.

(b) Some women (especially some of the older women) were quite critical of the SLAC Personnel Department's lack of assistance in helping women "get ahead."

(c) Some women expressed concern about the lack of performance evaluations.

(d) Some (although when they first came to work at SLAC, they may have just been working for a paycheck) are now definitely "career-oriented." The satisfactions they get from their work are a major part of their lives. These women expressed a desire for some sort of counseling that would enable them to know what they need to do to progress further on the job, to take on more complicated work, and to be appropriately rewarded for such progress.

(e) Some have supervisors who will not delegate or share any but the most routine work. This makes it virtually impossible to reach the Secretary III and the Office Assistant IV levels.

(f) Related to the above point, those people we put in our group of need-upgrading-because-of-growth-on-the-job were unanimous in their praise of their supervisors and seemed to derive considerable satisfaction from their work. Unlike most of the unit classifications, where progress up the job ladders depends upon the individual's skill development, progress in the clerical job ladders is highly dependent upon adding higher level responsibilities and has

less to do with typing faster and such. For this reason progress on the job is unusually dependent upon the supervisor.

(g) There was much criticism of the present set of job titles and the content of the job classifications for the Office Assistant and Secretary jobs. The titles don't always accurately reflect what the person does. The descriptions of the Secretary series are very much oriented towards the one secretary/one boss situation which is not true of most SLAC secretary jobs where there is one administrative-clerical type person for a group of 10 to 60 people.

5. Supervisors also complained. When a request for reclassification is turned down by Personnel, supervisors are not given adequate information on why it was, in order for them to be able to explain it to the person.

They don't receive all the information necessary for them to do their job as supervisor.

## RECOMMENDATIONS

### A. General

#### Job Titles

1. Tell the University this is a problem area.

This is an area that clearly can be improved and, since it seems to be important to people, should be. Since this is a University function, other than our Personnel Department informing their's that we have difficulty fitting our "round" clerical people into their "square" job descriptions, it is difficult to think of any easy solutions.

2. A new type of job has evolved at SLAC; a new title is needed for it.

It has been suggested that another level is needed. It could be called Administrative Aide (although you could call it anything); the salary range would overlap both the Office Assistant IV/Secretary III and the exempt level Administrative Assistant ranges; it would be non-exempt which would make it easier to qualify for than the Administrative Assistant; it would hopefully have a flexible salary range in order to permit real recognition of growth on the job (a curve-type range instead of a step range); and most important, it would permit supervisors to give recognition (and raises) to those clerical workers who have over the years continued to gain in knowledge of their department, to add higher level tasks to their jobs, and to increase their contribution to the smooth running of the lab. This classification would be particularly useful for those jobs (such as in the groups with one clerical worker) where, no matter how well the person organizes her work, she will still have a large amount of clearly low level tasks to do because these tasks have to be done and there's no one else to do them

--but yet at the same time the individual is performing a significant amount of higher level administrative work. As attrition management continues on, there are more and more examples of this type of job among the clerical workers.

Getting Information To People

3. When a request for reclassification is turned down by Personnel or by the Salary Review Committee, the reasons why should be in writing, in the form of a memo to the Group Leader who could see that this information is given to the employee.

4. Personnel should see that all groups have copies of the red Stanford Guide Book and the University Classification Book that are openly available to all employees (not stashed away in the Group Leader's office). Widely separated work areas should have their own copies. Employees should know that these two books contain information about jobs at Stanford and information about Stanford policies, and that these books are available for them to use.

5. The recently compiled list of supervisors at SLAC will undoubtedly be helpful in this area. Some information from Personnel comes in the form of "To: Group Leaders" memoes; Group Leaders should be reminded by Personnel that much of this information needs to be passed on to supervisors (maybe a rubber stamp, *DISTRIBUTE THIS INFORMATION TO SUPERVISORS*, and a red ink pad could help alleviate these complaints).

Getting Ahead On The Job

6. Performance evaluations are needed; these should be separated from salary review letters, which are actually justifications for raises and

not true performance evaluations. A third party is needed to (1) see that they happen, (2) see that they are done properly, and (3) reconcile any differences between how the individual and the supervisor view job performance.

Although the people who are talking about "getting ahead" view performance evaluations as a tool to help them do so by letting them know what areas to work on, there are other functions served by real performance evaluations. One is formal recognition for jobs well done. Another is to prevent or at least to identify situations where the person thinks he is doing fine, but the supervisor is unhappy with the work being done.

7. Some of the clerical workers want to have some sort of job counseling available. "What do I need to do to qualify for the next higher classification?" was a common question. This would not necessarily have to be a new job created in the Personnel Department, but could possibly utilize some other approach. Someone needs to think further in this area.

8. Evaluate supervisors for their supervisory skill. Supervisors (such as the supervisors of our group of growth-on-the-job recommendations) deserve formal recognition for a job well done. Repressive supervisors should be evaluated accordingly.

B. Specific Recommendations For Individuals

- 1. Title doesn't fit job: 5 individuals
- 2. Title needs to be changed due to growth on the job: 6 individuals
- 3. Audits recommended: 6 individuals

	Total Employees	No. Of Women	% Of Women Top 3 Office Asst. Series	% Of Women Top 3 Secty. Series	% Total Women That Are Exempt
Research Division	260	47	33%	71%	26%
Technical Division	575	32	25%	58%	6%
Bus. Serv. Division	96	33	23%	71%	4%
Adm. Serv. Division	45	27	22%	28%	19%
<b>TOTAL SLAC</b>	<b>976</b>	<b>139</b>	<b>24%</b>	<b>64%</b>	<b>15%</b>

This table gives a general rundown on the job status of women at SLAC, by major SLAC Division, and also according to several different job classifications.

# Response To The "Report Of The Task Force On Women At SLAC" - A Progress Report

## CONTENTS

Job Titles  
 Adding Another Classification  
 Information And Communication  
 Counseling  
 Performance Evaluations  
 Supervisors  
 Specific Recommendations  
   -Title doesn't fit job  
   -Growth on job  
   -Audited positions  
 Summary

The Report of the Task Force on Women at SLAC makes many constructive observations on personnel practices at SLAC and makes specific recommendations about the classifications of seventeen individual clerical personnel. In this progress report, we will first comment on the general observations and recommendations, and then give the results of the investigations into the individual cases.

## JOB TITLES

Any good personnel classification scheme has to be a compromise between two extremes. At one extreme, because no job is absolutely identical with any other job, there could be a separate classification for every position. This would allow each specification to be an absolutely accurate fit to the job. However, there would be no means at all for adjudging "comparable jobs" for equity in compensation.

At the other extreme, there could be just a very few classifications covering many, many jobs in order to assure "equal pay for equal work." But then, as the Task Force points out, no specification would be a truly accurate representation of a particular job, and we would end up with many round pegs in square holes.

The campus Personnel Department does recognize this problem as ongoing, and it is constantly attempting to refine the system.

## ADDING ANOTHER CLASSIFICATION

Salary ranges for the non-exempt clerical classifications significantly overlap the salary ranges for exempt Administrative Assistants. The minimum salary for Administrative Assistant I is below mid-range for an Office Assistant III and a Secretary II. In fact, an

Office Assistant III or a Secretary II at the top of the range is paid in the Administrative Assistant II range. The merit zone for an Office Assistant IV and for a Secretary III lies within the range for Administrative Assistant II and overlaps the Administrative Assistant III range.

It can easily be the case when, say, an Office Assistant IV or Secretary III takes an exempt Administrative Assistant job (in which no more than 20% of the job can involve clerical work) that a real reduction in salary could be appropriate to the new position.

Stanford salaries for non-exempt clerical positions are carefully monitored in comparison with salaries for similar jobs outside the University, and right now the Stanford salaries rank quite high in the market.

## INFORMATION AND COMMUNICATION

In its Report, the Task Force highlights a general area which can and should be continually improved--the flow of information and the expanding of communications. In response, all sections of the SLAC Personnel Department (Public Information, Employee Relations, Compensation, Training, Employment) will henceforth work toward wider dissemination of announcements and other information by use of such notifications as *PLEASE POST* and *CIRCULATE TO ALL SUPERVISORY PERSONNEL*, etc.

There are two volumes of Stanford guidelines which cover personnel policies at SLAC. These are the *Job Classification and Pay Plan* (the "Black Book") and the *Personnel Section of the Stanford Administrative Guide* (the "Red Book"). There are about 60 copies of the Black Book and about the same number of copies of the Personnel Section of the Red Book at various locations around SLAC, including the Library. (Anyone who wants to locate the nearest copy can phone Personnel to learn where it is.) Both of these volumes are presently being substantially revised. When the revisions appear, widespread notification of that fact will be made.

When SLAC's Salary Review Committee takes negative action on a recommended reclassification, this action is reported in a written notice; however, as the Task Force points out, the reasons for the action are usually given to the Group Leader verbally. Henceforth, the Personnel Office will try to put the reasons in writing in order to promote better communication.

## COUNSELING

At several places in the Task Force's Report mention is made of the desire that was expressed to "get ahead," to be counseled about possible avenues that might lead to higher classification. There are two places at SLAC to receive such counseling. One is the Employee Relations Office (x2358), and the other is the Training Office (x2351). In addition, discussions can--and should--be held with one's supervisor about such advancement possibilities.

There is unfortunately a partial barrier that works against upward mobility at SLAC. The employee turnover rate at SLAC is about one-half the rate on the Stanford campus, and the Stanford rate is in turn lower than that of the industrial and commercial organizations in the surrounding area. People who come to work at SLAC tend to stay on for the long term. There is not much "up and out" going on in our laboratory. And of course the work that remains to be done here is at all levels.

In addition, SLAC is not now an expanding organization. In fact, during the past few years our total staff has shrunk by more than 200 persons.

When higher level clerical positions do open at SLAC, the majority are indeed filled by promotion from within the organization. That is official Stanford policy. But, unhappily, the opportunity to put that policy into practice does not arrive very often.

## PERFORMANCE EVALUATIONS

The Personnel Department agrees fully with the Task Force about the value of comprehensive performance evaluations, and also about the importance of separating these evaluations from the salary review process. In the past, most performance evaluations were given verbally (if they were given at all), with written evaluations used only to try to substantiate a recommended salary action.

We are presently in the process of changing this earlier practice. For exempt staff members it has already been changed: written evaluations were prepared and communicated in February and salary reviews took place in March (for September implementation). A further separation in time between the two actions is planned. We expect to make a similar change for non-exempt staff during the coming year.

## SUPERVISORS

It is indeed appropriate--and in fact essential--that supervisors be evaluated for their performance of the many different facets of their supervisory responsibilities. This includes the ability to delegate, progress toward meeting affirmative action goals, contributions to upward mobility, establishing performance

goals for people, and so on. It is the responsibility of Group Leaders and of SLAC management to see that such criteria are in fact being used in the evaluation of supervisors.

## SPECIFIC RECOMMENDATIONS

The Task Force commented and made recommendations on the classification of 17 individual clerical positions. So far the Personnel Department has completed its investigations on 15 of the 17 individual cases cited. In the other 2 cases, one study is still going on, and one is planned but not yet started. The 17 cases were grouped by the Task Force into three categories; we'll use these same three categories in describing how the 15 completed cases were resolved:

### 1. Title doesn't fit job: 5 individuals

Four of the reviewed cases concerned secretaries whom the Task Force thought should be reclassified to the Secretary-Specialist level on the basis of the kind of material that they type. The classification specifications do say that "A Secretary who consistently uses specialized terminology (medical, legal, technical, or foreign language) for the majority of typing work may be classified as a Secretary-Specialist."

In these four cases, the Task Force based its recommendations on the word "technical." What is meant in the specification by "technical" is substantial typing of mathematical or scientific equations and formulas, requiring special symbols (replaceable keys or transfers), special symbol alignments and spacings, etc., as in the calculus. The Personnel Department found that in one of these four cases the recommendation was correct, and the reclassification is now taking place. In the other three cases, such "technical" typing was not found to be part of the work performed. It appears that the Task Force tended to relate "statistical" typing of numbers in tabular form to "technical" typing.

### 2. Title needs to be changed due to growth on the job: 6 individuals

Six of the reviewed cases were recommended by the Task Force for upgrading on the basis that the individuals had experienced enough "growth on the job" to warrant a higher classification. This is a difficult area. People who "grow on the job" tend first to learn to be capable of, and *occasionally* to do, higher level work. But the preponderance of their work usually remains at the lower level, and it is work that still needs to be done. There is a serious problem of equity involved here. Given two people who are essentially doing the same work, an inequity would result if one of them (who happened to have been around longer and who had grown on the job) were to be given a higher classification simply on the basis of increased *capability*. The reason is that classifications are based on the work actually done,

not on work for which someone may have the capability. The clerical salary ranges do overlap each other, and they do include merit zones so that superior performers can be compensated for their work. The Personnel Department feels that in all six cases--even though each of the six individuals had undoubtedly become increasingly capable--there had not been sufficient changes in job content to warrant reclassification.

3. Audits recommended: 6 individuals

On 5 of the 6 cases in this category, Personnel has had a review of job content carried out by compensation and classification specialists from the Stanford Personnel Department. (The sixth review will begin very shortly.) In 2 of the 5 reviewed cases, the Task Force's recommendations were found to be sound, and these 2 persons have subsequently been reclassified.

In the remaining 3 cases, the reviews indicated that reclassification was not warranted.

### SUMMARY

The Report of the Task Force on Women at SLAC has had several beneficial results. First, the Report summarized the important concerns of one class of SLAC employees, and this is valuable information to have. Second, it led to the review and subsequent reclassification of several clerical people who had in fact been underclassified. Third, the work of the Task Force has helped to clear the air in a number of areas of mutual misunderstanding, and also to bring into sharper focus some areas of general confusion. The SLAC Personnel Department appreciates these important contributions.

--Doug Dupen & Barbara Coppock



DIANE CHAMBERLIN LEAVING SLAC

Women who have worked in non-traditional roles in the days before affirmative action became a realistic hope have probably always been non-traditional people. Certainly Diane Chamberlin is outstanding not only in her job roles but also in her approach to life and in her solutions to the difficult problems faced by those who are not content to accept things as they are.

During Diane's student days she pursued the goal of becoming an art historian, and she worked full time at SLAC, starting in 1966, to finance her plans. At that time she worked both as a scanner, analyzing data on film, and as a specialist helping to solve film problems that were encountered by Experimental Group E.

Finding herself becoming more interested in photography, cameras and film than in the data captured therein, Diane worked next with the Film Processing Lab, and later she took advantage of Group D's need for a person to work on

the problems being encountered in the development of the streamer chamber cameras. Her job involved repairing cameras and developing film, and it enabled her to learn as she worked--often out of necessity! When things were broken she was expected to repair them, and she recalls many of the challenges with pleasure in her accomplishments.

Diane has also worked in the Crafts Shops at SLAC, for eight months serving as a bookkeeper. During this time she hinted that she would enjoy participating in some of the crafts work itself, and although that opportunity never arose, she did enjoy her stay in that department.

During this past year Diane has been working in the Electronics Instrumentation Group, where her duties have included updating blueprints, producing drawings as needed, and providing overall documentation services. Despite her natural inclination toward mechanical work, she has also enjoyed learning about and working with electronics.

When asked how she had managed to escape the usual channeling of women into clerical work, Diane gave credit to her mother, who encouraged both Diane and her sisters to develop their interests without interference. She recalls having taken apart a television set that was broken, spreading the parts out carefully in the order in which they were removed from the set, and successfully repairing and reassembling the set.

Diane is leaving SLAC this month to devote her talent as fixing things to an entirely different project. Her son is ill, and there is a suspicion that his problems are caused by a combination of allergies. Diane is beginning a full-time effort to find out what is wrong and how it can be helped. We look forward to hearing in the near future that Diane's determination has again proved itself, and that she and her son have mastered this difficult challenge.

--Martha Zipf



LAMONT TERRY LEAVING SLAC

Anyone who came to SLAC after working in industry is likely to be struck by the number of students working here. There are students from Stanford, Foothill, Nairobi, Santa Clara and Ravenswood High, and during the summer months there are students from all over the country. Although Lamont Terry is not typical of the students at SLAC, we think that you may find his story interesting. He was born in Yokohama, Japan, where his father, a sergeant first-class in the U.S. Army, was stationed at the time. When LaMont was one-year old, his father was reassigned to Stuttgart, Germany, where the family remained until 1958. The Terrys then moved to California, settling in the Bayview/Hunter's Point District of San Francisco. LaMont was educated in the San Francisco schools, graduating from Woodrow Wilson High in 1970. He then moved to Eugene, Oregon, in order to attend the University of Oregon.

As LaMont recalls, "Before that time I had never been away from home for an extended period, so my exposure to 'life out in the world' began there in Eugene. Although my introduction was a rude one, its value to me was immeasurable. My situation at the University was unique. Out of 72 persons in my dormitory, I was the only black inhabitant. Of those 71, about half admitted that they had never seen a black person before other than on television. Between college work and dorm life, my learning process was on a 24-hour schedule. Initially, the atmosphere was very tense. I tried to cope with the situation by being honest, by being myself. If the others hadn't accepted this, then we would just have had to co-exist, each into his

own thing. But everything eventually worked out, and two of my closest friendships were formed there.

"At the beginning of my sophomore year I transferred to Stanford. I was home again, and that made me happy, but I also had to work in order to stay in school. The jobs I had included bank teller (later management trainee) at the Bank of America, counselor for the Boys' Club of America, alcohol and optical testing at the Stanford Hospital, and finally working here in Document Control at SLAC. None of the other jobs gave me the flexibility that this one does. My supervisors in Document Control, Joe Fish and Pete Munzell, have allowed me to schedule my work hours around my courses at Stanford."

In the latter part of his junior year at Stanford, LaMont began a pre-dental program of study in addition to his communications major. In connection with this switch in career direction, LaMont had the following comments: "It's not as heavy as it sounds. At that point I had already completed the minimum requirements for my degree, so I still had a summer and an entire school year to pursue another field of interest. My decision to enter dentistry had a social as well as an economic motivation, and hopefully they will eventually complement each other."

LaMont urges members of minority groups to consider careers in medicine. The field is wide open for such occupations as Laboratory Assistant, X-Ray Technician, Therapist, Nurse, Dentist, Physician, and others. And there are many minority people who desperately need conscientious health care. In the case of physicians, the training can take as long as eight years, but some of the non-professional or para-professional jobs require as little as one year of training, and there are some on-the-job training programs. Most of the colleges and Universities in this area offer courses in health care, and most of the clinics and hospitals have on-the-job training programs. (Anyone who is interested in these possibilities can contact LaMont about them.)

"After I received my B.A. in Communications in June, 1974," LaMont continues, "I took a full-time job in San Francisco for the summer. In the fall, I was able to resume my part-time work at SLAC. Cooperation of this sort is one of the reasons that my time here at SLAC has been so pleasant. My co-workers, Frank Karas and Pete Munzell, are fine individuals and easy to work with."

LaMont's application to the Harvard School of Dental Medicine has been accepted, so he plans to go to Boston in June, and hopes to find a summer job there. After he completes his studies at Harvard, he intends to return to San Francisco to establish a dental practice. We wish him all the best.

--Herb Weidner

## Bruce MacGregor: Student, Writer, Worker

*Note: We recently asked SLAC employee Bruce MacGregor if he would write something for the Beam Line that told us a little about his interesting experiences and educational background. The result is the following article.*

It sounds a little crazy, but I graduated from Stanford with a B.S. in physics, finished a Master's in physics at the University of Oregon, returned to Stanford to work on a Ph.D. in Education, and now work half-time at SLAC. However this combination of things adds up, I'd like to think that the area I've chosen to work on in education, science, and ecology curriculum draws on all past experiences, combining some insight into technology with the problem of how to make kids aware of value questions in their lives.

At any rate, SLAC has provided both a continuing exposure to technology and engineering skills, and a good, pragmatic balance to class, papers and abstractions that go on during the other half of each day. Mostly, I work on CAMAC instrumentation with Group 15 (the Electronics Instrumentation Group in SLAC's Experimental Facilities Department), keep crate controllers going for Dale Horelick, and occasionally do design/production of test instruments. The job is varied, and I enjoy the exposure to many different aspects of SLAC. The most important part of the experience for me is talking with people who are skilled in everything from logic design to machining, and getting in touch with their craft through them.

The other one-third of my life is spent in doing what I can only call "guerrilla" journalism. Freelance writing and photography have so far resulted in a couple of books on Bay Area transportation history,\* and more will probably keep coming out of the woodwork. These have been fun projects, involving contact with people who have lived in distinctly different times than ours, and who may have lessons that apply to the present. With increasing regularity, this research and writing has reinforced the ecological viewpoint, and it will probably lead to a thesis topic here at Stanford. It also led to a new course, slated for freshmen, that will start next year, "Leland Stanford's Railroad and the California Conscience," during which I hope that a group will examine the interactions between big corporations and the native feelings about race,

\**South Pacific Coast*, Howell-North Books, Berkeley, CA (1968); and *Narrow Gauge Portraits: South Pacific Coast*, Glenwood Publishers, Felton, CA (c. Oct. 1975).



land, rights and justice. It will be an experimental seminar for me in every way, but the hope is that it will serve as an interdisciplinary focus for several areas such as ecology, history, writing, and even technology.

Finding a job for the future that somehow incorporates all these things is probably next to impossible, but teaching may come close. In the past, at times when a certain amount of rigidity accompanied all disciplines, the sort of serendipity education that I seem to have launched into may not have matched very many identifiable niches in the outside world. Now I look at ecology and the problems it raises, and I sense that the merging of technology with basic values questions is vital, and that education must move to broadly sensitize all of its students--especially specialists--in the ways and means of seeing more than one dimension to a problem, and a solution. Whether this is called "interdisciplinary" or "cross-cultural" or "Renaissance Man," the spirit of the idea seems to match the critical need our society faces for perspective on its tremendous technological power, for argument and broad wisdom about its very aim.

--Bruce MacGregor

## SLAC HOSTS STANFORD BIKE RACE

More than 50 enthusiastic cyclists invaded SLAC on Sunday, May 4, to compete in the Stanford Intramural Bicycle Race, an event that has been held annually for the past three years. There were nine teams entered in the race, representing various dorms, eating clubs and fraternities on the Stanford campus, as well as a team from SLAC.

The race consisted of 12 laps around the loop road at SLAC, a total distance of 9.6 miles. The team from Los Arcos on campus won the event, with a total of 25 points. SLAC's team made a respectable showing with a 4th-place finish. As far as individual performances are concerned, the winner was David Faust, son of SLAC's Joe Faust, who brought home the SLAC banner in the winning time of 25 minutes and 47 seconds. Dave thus retained his record of finishing first in all of the SLAC bike-race events he has entered, although his winning margin of only 4 seconds over second-place finisher Scott Matthews of Columbae made it his toughest race to date. Others from SLAC included Dave Coward (SFG) who finished 15th in a time of 27:01, Martin Berndt (EFD) who finished 30th in 30:47, and Predag Cvitanovic (Theory) who had to drop out on the 4th lap because of a damaged bike.

Participants in the race appreciated the fine cooperation that was given by the SLAC security guards and by members of the Fire Dept. while the race was in progress. Many of the riders expressed the opinion that the loop road at SLAC was the best race course in the area for a distance race of this kind and were grateful for the opportunity to hold the race at SLAC.

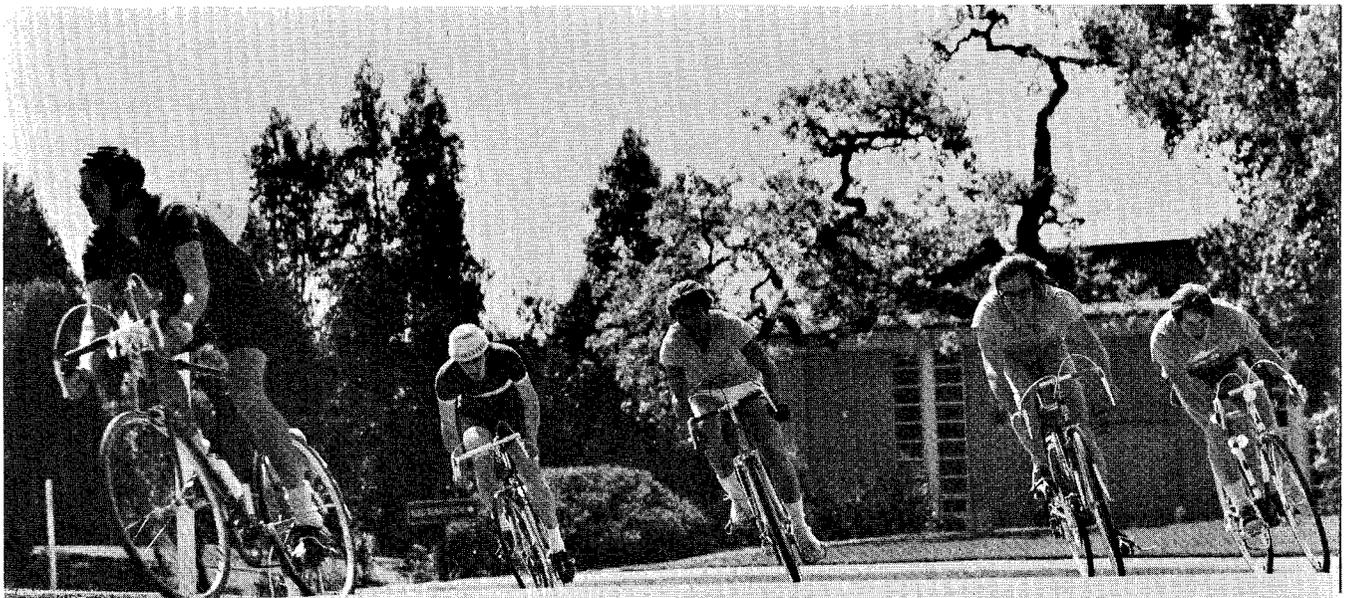
--Ken Moore



--Photo by Joe Faust  
SLAC team members (left to right) Dave Coward, David Faust and Martin Berndt are shown plotting a little strategy.

### HOW THE TEAMS FINISHED

1. Los Arcos	25 points
2. Hog Ridin' Fools	20
3. El Cuadro	15
4. SLAC	12
5. Soto	10
6. Burbank	8
7. Biz II	6
8. JRA	4
9. Theta Delt	2



--Photo by Joe Faust  
Dave Coward shows his heels to a part of the pack around the west-end turn of the loop road.

**SUMMER HOUSING NEEDED**

SLAC will have a large number of summer visitors this year, with the first of the contingent starting to arrive very soon. If anyone at SLAC would be interested in subletting a home for some part or all of the summer months, please contact SLAC's Housing Assistant:

Gwen Bowen X2859

**SUMMER CHARTER FLIGHTS AVAILABLE**

The ASSU Travel Service announces that the following charter flights will be available:

June 12: San Francisco to New York #1 \$89  
 June 13: San Francisco to New York #2 \$89  
 June 13: San Francisco to Chicago \$79  
 { Aug. 19: San Francisco to Paris }  
 { Sep. 15: Paris to San Francisco } \$450

The listed fares are available to all Stanford faculty, staff and students or their dependents or spouses. Flights within the U.S. are on United Air Lines. The charter flights are almost filled up, so quick sign-up is advisable. The sign-up place is

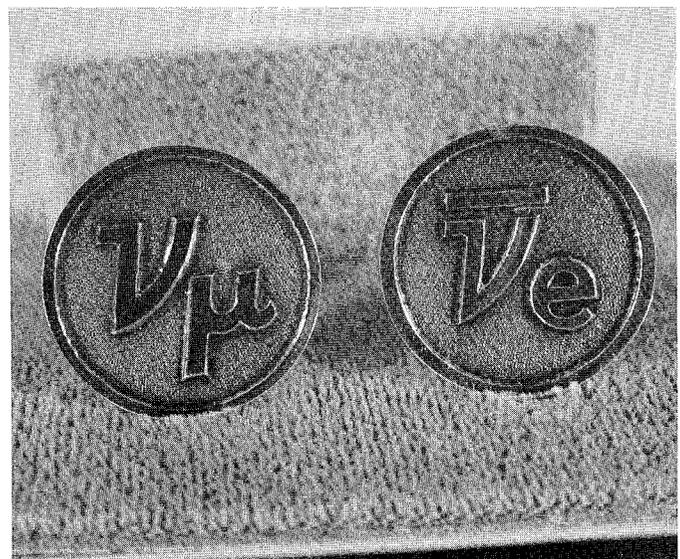
ASSU Travel Service  
 Second Floor  
 Tresidder Union  
 Stanford Campus  
 (11:30 AM to 4:30 PM)  
 497-4437 or (8)7-4317

**SCHWARTZ ELECTED TO NATIONAL ACADEMY OF SCIENCES**

Melvin Schwartz, Professor of Physics at Stanford and Leader of Experimental Group G at SLAC, was recently elected to membership in the U.S. National Academy of Sciences. Total Academy membership is limited to about 1,000 persons, a fact that emphasizes the high professional honor that election signifies.

Schwartz is perhaps best known in physics for his leadership in the experiment at Brookhaven National Laboratory, in 1962, which demonstrated the existence of two different kinds neutrinos: one paired with the electron ( $\nu_e$ ); and the other paired with the electron's "heavy brother," the muon ( $\nu_\mu$ ).

To commemorate Mel's election to the NAS, the members of his group at SLAC recently presented him with the pair of cuff links that are shown in the photograph ( $\bar{\nu}_e$  means "electron antineutrino").



During recent years Group G at SLAC has carried out a series of experiments on the decay behaviour of the neutral K meson. Experiments of this kind provide a stringent test of the validity of certain fundamental symmetry principles in nature (CPT: C = charge conjugation invariance; P = parity conservation; T = time-reversal invariance).

Now that we've given the devil his (well-deserved) due, the only remaining question is this: But what have you done for us lately, Mel, baby?

--Bill Kirk

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