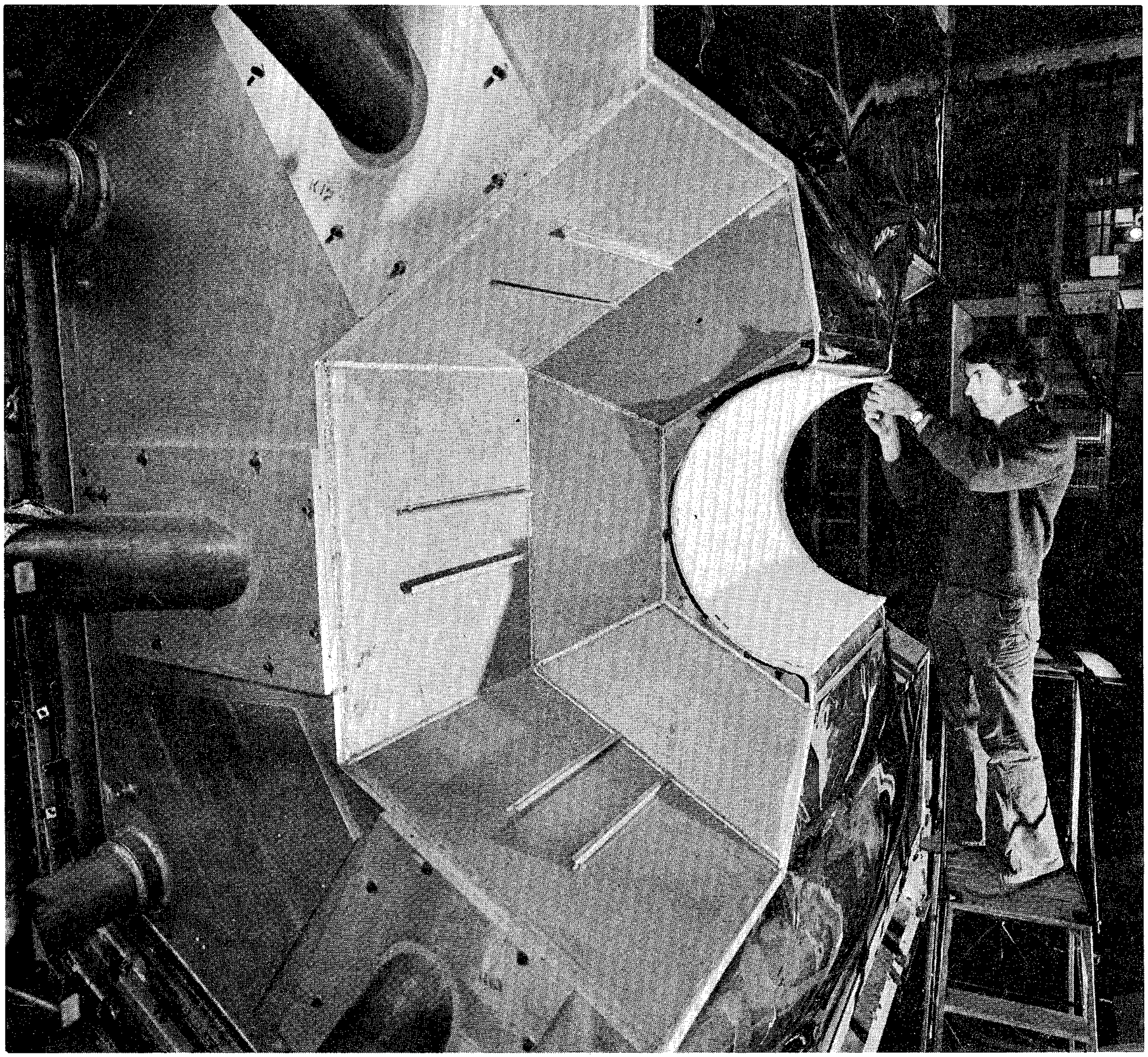
′There are therefore Agents in Nature able to make the Particles of Bodies stick together by very strong Attractions. And it is the Business of experimental Philosophy to find them out.′ -- Isaac Newton, Opticks (1704)

SLAC BEAM LINE

Volume 8, Number 9 *September 1977*



This month's cover is a photograph by Joe Faust of a part of the DELCO ("Direct ELectron COunter") detector that is now installed at SPEAR. Shown in the photo is engineer Roger Coombes of SLAC Experimental Group G, who was responsible for much of the design of DELCO. The experimental work with DELCO is a collaborative effort among physicists from UCLA, UC-Irvine, SLAC and Stanford University.

In This Issue

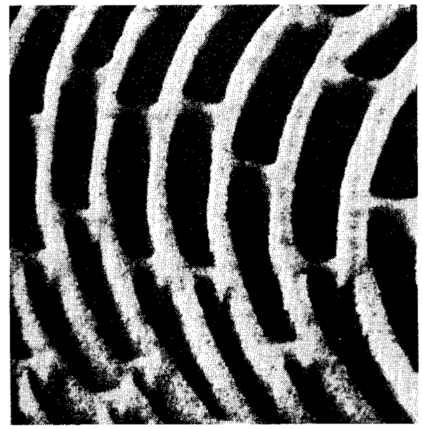
SSRL REPORTS

SYNCHROTRON RADIATION AND INTEGRATED CIRCUITS

The ultrasmall frontier may take on a new meaning at SLAC as plans develop at SSRL to use synchrotron radiation to replicate microstructures (such as integrated circuits) on a significantly smaller scale than can now be done. Presently these structures are made by replicating patterns in masks onto silicon wafers coated with a photosensitive layer (called a photoresist) using photolithographic contact printing techniques and conventional visible or ultraviolet light sources. The exposed photoresist is then developed and chemically etched. Dopants, oxides, conducting pads, etc., are added to make the complete integrated circuit. Structures consisting of individual circuit elements with dimensions of 5-10 microns are now routinely made this way. (1 micron = .0001 cm)

The technology for making smaller patterns in masks already exists (using electron beams). However, as the patterns in the mask become significantly smaller than 5 microns, the spreading or diffraction of visible light (wavelength about 0.5 microns) or ultraviolet light (wavelength about 0.2 microns) makes it impossible to replicate these small linewidths on the photoresist.

What is needed is an intense source of shorter wavelength light. The soft X-ray part of the synchrotron radiation spectrum available from the SPEAR storage ring seems ideal for this purpose. This part of the spectrum consists of photon energies of 200-1000 eV, with corresponding wavelengths of about .005-.001 micron. Tests made in 1976 by a group from IBM using synchrotron radiation from the DESY synchrotron have shown that structures with linewidths as small as 0.07 microns can be replicated in this way (see figure). Plans are underway at SSRL to include facilities for work of this kind on the new beam line III which is now being designed and is scheduled to begin operation on the SPEAR South Arc in September 1978.



|← 1 micron →|

This photo shows a replica of a Fresnel zone plate with lines as small as .07 micron. It was produced by an IBM group using the DESY electron synchrotron.

The ability to fabricate submicron circuit elements would significantly increase the packing density of integrated circuits, and such an increase would have many important applications. One obvious example would be to increase the power of microcomputers and hand-held calculators. Other, less obvious examples are the following:

1. Integrated optics. Entire lasers, waveguide assemblies, and switching devices could be on tiny chips that formed the heart of complex optical communication systems.

2. Superconducting Josephson junctions. Such junctions are presently used to measure small voltages, magnetic fields and infrared radiation. They can, however, also be used as switches with switching times on the order of picoseconds (a half-adder now exists with a cycle time of less than 50 psec). These devices will require structures between .002 and .2 microns.

3. Magnetic bubble memories. Information can be stored by changing the direction of the magnetization in a small region. Such devices presently have linewidths of about 6 microns. A reduction to 1 micron would increase the storage density by a factor of 36.

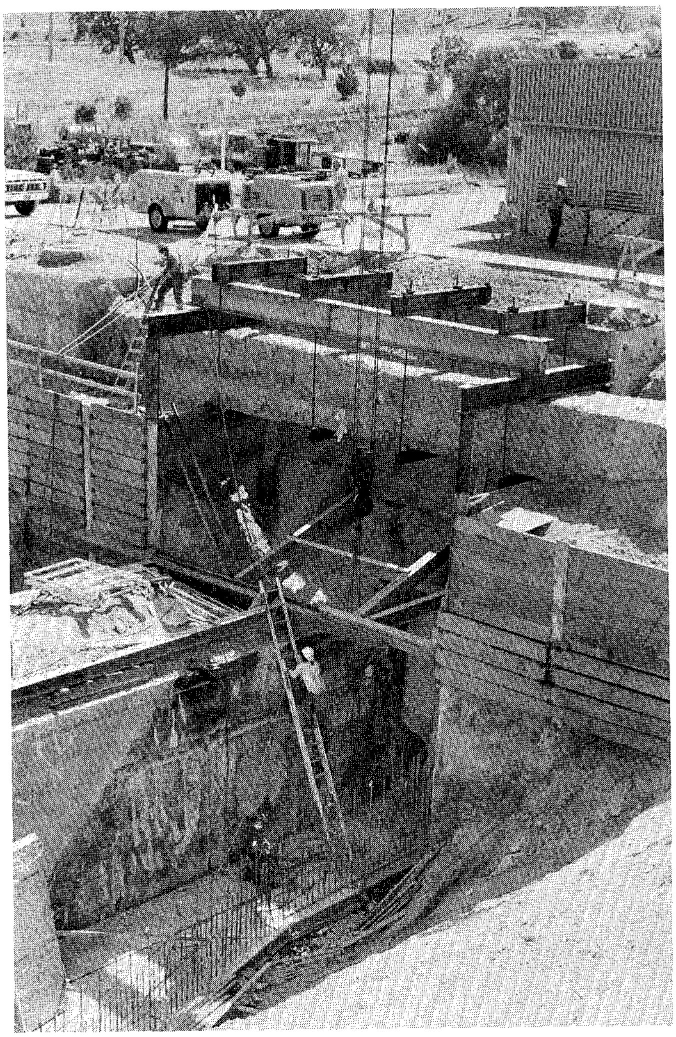
4. Surface acoustic wave devices. Acoustic waves in the MHz to GHz regions can be propogated on the surfaces of some crystals. Since the driving electrical waves are now dispersed in space rather than in time, they can be used, for example, as microwave signal processors. The upper frequency limit of such a device is set by the size of the transducers, which are thin metal stripes on the surface of the crystal. The thinner and closer together the stripes, the higher the frequency.

Many industrial groups are presently attempting to replicate submicron structures using other techniques. Electron-beam machines may do the job, but they are now limited in through-put compared to optical or synchrotron-radiation techniques. Conventional X-ray sources are also being tried, but they presently suffer from low intensity and larger divergence than X-rays produced by synchrotron radiation. Work is also in progress in associated areas to improve present technology to the more stringent demands of submicron element replication--in particular the alignment techniques for registering the mask and the photoresist-covered wafer. *(Continued)*

PEP NOTES

The PEP Site Is DANGEROUS

With the subtle work of supporting cables, pipes and conduits completed, the PEP junction project is moving along rapidly. The photograph shown here is already historical, as the large section of LINAC housing wall (faintly outlined under the ladder) has been replaced with a hole. Wood forms now complement the reinforcing bars, and by the time of publication concrete will have been poured to complete this section of PEP's north injection tunnel.



--*Joe Faust*

Test borings, assembly buildings, and ground-breaking ceremonies are all fine, but now it begins to look as though a machine is really being built. It has been many years since such visible construction work has gone on at SLAC, and the excitement isn't limited only to those directly involved with PEP.

And that's a problem.

The site is not barricaded--there is no way it can be--and the easy access gives a false sense of security. It is clear in the photo, however, how dangerous this construction work is; the slopes are long, steep and slippery.

There used to be a rather grim rule-of-thumb that applied to large construction projects: one man lost per million dollars spent. Bob Gould, SLAC's chief civil engineer for PEP, recalls that there were 13 or 14 fatal accidents during the construction of the $35-million Golden Gate Bridge (although better safety measures and inflating costs would tend to reduce the figure for more recent work).

Whatever the correct present-day statistics may be, the numerator isn't really just a number; it's you and me. So please stay away from the PEP construction site, *well* away, and we'll do our best to keep you informed about the work.

--Bill Ash

SSRL REPORTS (Cont.)

The stakes are high. Those who are first in producing integrated circuits with submicron linewidths could achieve a commanding lead in marketing the next generation of computers. An international race is now on, with much activity in Japan, Germany and France as well as the United States. Synchrotron radiation seems likely to play an important role in these developments.

--P. Pianetta & H. Winick

A good example of the arrogance of theorists, which has not changed in [the intervening] 40 years, is the following story: There was a seminar held by the theoretical group in Gottingen, and Otto Stern . . . gave a talk on the measurements he was about to finish of the magnetic moment of the proton. He explained his apparatus, but he did not tell us the result. He took a piece of paper and went to each of us, saying, "What is your prediction of the magnetic moment of the proton?" Every theoretical physicist from Max Born down to Victor Weisskopf said, "Well, of course the great thing about the Dirac equation is that it predicts a magnetic moment of one Bohr magneton for a particle of spin one-half." Then he asked us to write down the predictions; everyone wrote "one magneton." Then, two months later, he came again to give a talk about the finished experiment, which showed that the value was 2.8. He projected the paper with our predictions on the screen. It was a sobering experience.

--V. Weisskopf
Physics In The Twentieth Century

FRED PINDAR RETIRES

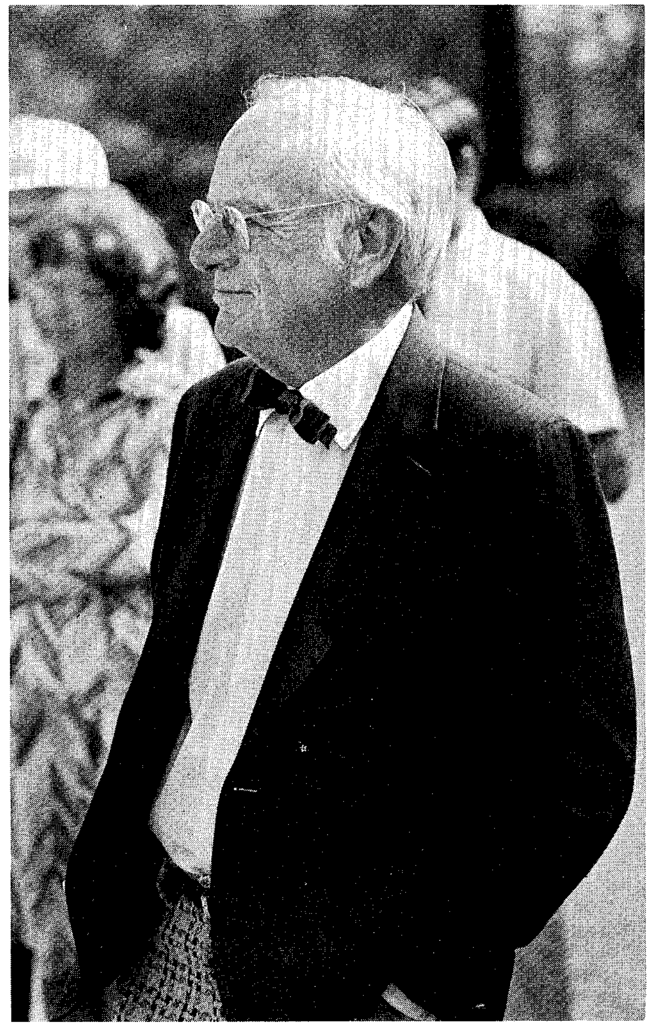
SLAC Associate Director Fred Pindar retired on August 31. During the latter weeks of August there were several events at which his friends and coworkers at SLAC had the opportunity to reminisce a bit, to express their admiration and affection, and to wish him well. One such occasion was a tree-planting ceremony, at which SLAC's Director made the following remarks:

Fred Pindar's service to Stanford University predates my own, so I can speak only of a fraction of his contribution. SLAC owes an enormous debt of gratitude to Frederick van Loon Pindar, and nothing we can say or do on the occasion of his retirement as Associate Director for Business Services at SLAC can do justice to his work. We have searched for appropriate phrases but have failed. We finally examined the works of the earlier Pindar, the Greek poet who lived from 522 to 443 B.C. Most of his poems are obscene, but there is one of his Pythian Odes that admirably describes one of Fred's virtues. No doubt all of you have already read this Ode in the original Greek, but in order to satisfy the casual passerby we have engraved an English translation on a plaque which graces the *Liquid Ambar* tree, one of Fred's favorites, that is being planted here today in Fred's honor. It reads:

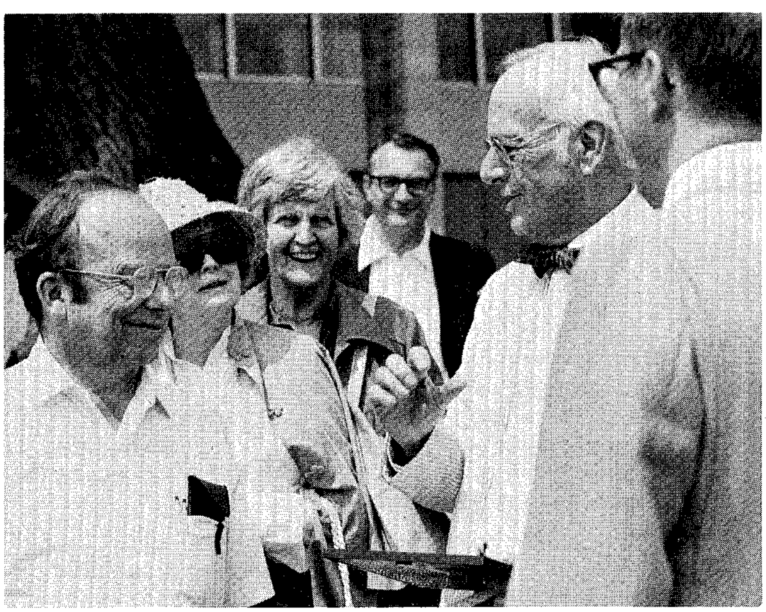
> *If you speak in season, bringing together concisely the thrust of many matters, less impeachment of men will follow.*

This expresses well how, through knowledge, experience and reason, Fred has guided us and maintained SLAC on a path free from difficulties in business affairs. We shall be forever grateful.

--Wolfgang Panofsky



--Photos by Joe Faust

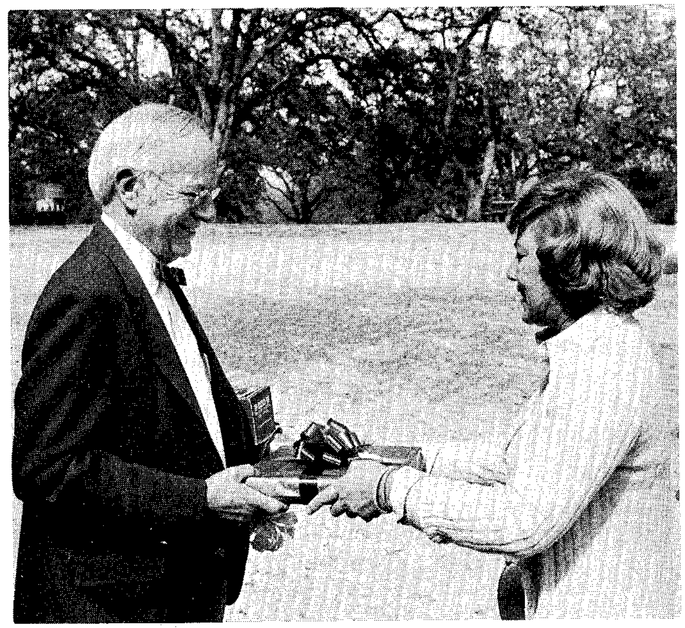


At the tree-planting ceremony were, left to right, Wolfgang Panofsky, Sally Pindar, Anna Laura Berg, Clair Beighley (ERDA), Fred Pindar, and Karl Strauch (Harvard).

AT THE RETIREMENT PARTY

Photos by Joe Faust

From the left, the visible faces are those of Gerry Renner, Sally Pindar, Roslind Pennacchi, Jean Lebacqz, Fred Pindar, Perry Wilson, and Franz Plunder.



Fred receives the gift presented by Mary Beth Jensen.

Some of the many well-wishers at Fred's retirement party. The non-SLAC face in the crowd is that of Marshall O'Neill (dark glasses), who succeeded Fred as Associate Director of the Hansen Laboratories at Stanford after the two-mile accelerator project had become established as an independent organization--initially "Project M," then SLAC.

1977 SLAC RACE BIG SUCCESS

Note: All the race photos are by Joe Faust except the one identified as Charlie McCabe's.

On September 1, the Sixth Annual SLAC Footrace around the Klystron Gallery was held. This event attracted an unusual number of talented runners, and together with the Joggers who were out for a fun run they formed a field of more than 45 competitors at the Starting Line. This year's larger crowd was partly due to increased interest on the part of non-SLAC people from the Stanford campus.

Because of the PEP construction work now in progress near Sector 30, we were forced to cancel the usual Bike Race and 100-Yard Dash for this year. But the size of the crowd that showed up for the 3.8-mile Footrace would have made it virtually impossible to carry out all three races within the allotted time span anyhow.

Most noteworthy was the fact that the record for the course was broken this year by the first *five* runners, with Hal Tompkins leading the way in the phenomenal time of 19 minutes and 27 seconds. The second-place tie between John Sheehan and Paul Thompson, at 20:26, has an interesting story behind it. Dr. Thompson is associated with the Stanford Heart Disease Prevention Program and is a well-known Marathon runner--winner of the 1977 Paul Masson Marathon in Cupertino, and 16th finisher in the 1976 Boston Marathon (which had nearly 3000 entrants). Owing to a misunderstanding, he arrived at the starting line when the other runners were already about 200 yards away. He noted afterward that he doubted he could have caught Tompkins but might have made it more interesting for him.

Misha Merrill, first woman from SLAC to finish, receives her trophy from Adele Panofsky.

Tom Knight was the first SLAC person to finish, in 8th place overall. The first woman to finish was Phyllis Olrich, a noted Stanford runner, who placed 12th. The first (and only) SLAC woman to run was Misha Merrill who earned a Trophy for her efforts.

In the 50-plus age group, old pro Charlie Hoard was joined this year by Herb Weidner and

Place	All Runners	*SLAC/SCIP	Time
1	Hal Tompkins		19:27[1]
2	John Sheehan		20:26[1]
3	Paul Thompson		20:26[1]
4	Don Flaten		20:42[1]
5	Donal Day		20:51[1]
6	Ed Jerome		21:28
7	Chuck Fox		21:51
8	Tom Knight	*	22:28
9	Joe Quesada	*	22:36
10	Alex Gallegos	*	22:45
11	Peter Wood		23:05
12	Phyllis Olrich		23:08[2]
13	Don Carpenter		23:10
14	Marilyn Taylor		23:18
15	Joe Kiskis	*	23:50
16	Nat Sterling		24:07
17	Wallace Judd		24:14
18	(Unknown)		24:18
19	Tom Guardino		24:34
20	Bill Dawkins		24:48
21	Ken Moore	*	24:58
22	Herb Weidner	*	25:13
23	Bob Sinclair		25:19
24	Ross Campbell		25:46
25	John Keyak		25:51
26	Harry Turner		26:53
27	Ed Taylor	*	27:09
28	Ron Davidson		28:32
29	Susan Laird		28:33
30	Jim Wahl	*	29:11
31	Dick Johnson	*	29:43
32	Roland Muniz	*	29:46
33	Mary Dageforde		29:47
34	Harold Hanerfeld	*	30:12
35	Charlie Hoard	*	30:22
36	Tom Meyer	*	31:17
37	Tom Donlon	*	31:23
38	Harvey Ceaser		34:06
39	Y. S. Chan	*	34:31
40	Gary Michael		34:38
41	Mike Gravina	*	34:38
42	Herb Tiedemann	*	37:26
43	Christine Wood		40:17
44	Keith Wescourt		42:52
45	Misha Merrill	*	42:52

[1] First 5 finishers break previous record of 20:53 set by Alan Honma in 1976.
[2] Establishes a course record for women.

Ed Taylor. We hope this group will continue to attract more runners.

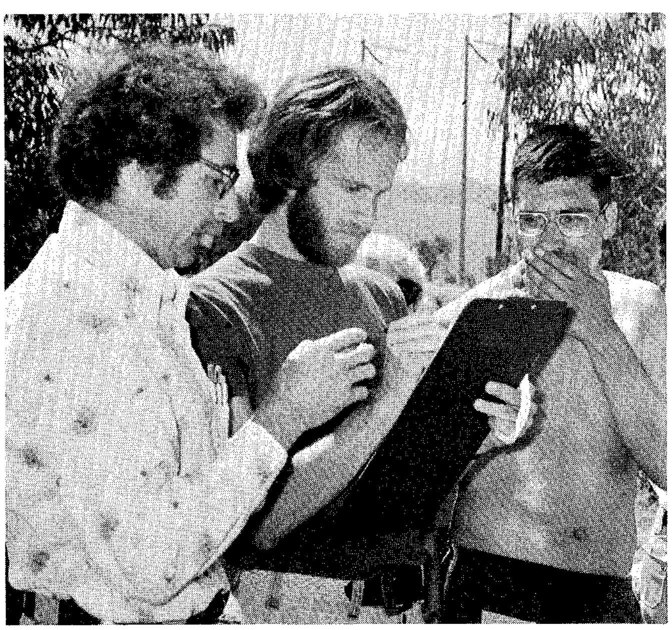
The results of the race have been listed here in several different ways: overall results, women only, and SLAC people only.

Thanks are due to Gwen Bowen, Adele Panofsky, Joan Gardner, Bill Divita, Gerard Putallaz, Frank Menezes, Frank Sabato, Bill Black, Bob Young, Reyes Valenzuela, Tony Barrero, and especially to Tom Knight for their assistance with the many tasks that must be carried out to make this event a success.

See you all on Thursday, August 31, 1978, for the next Annual Races event.

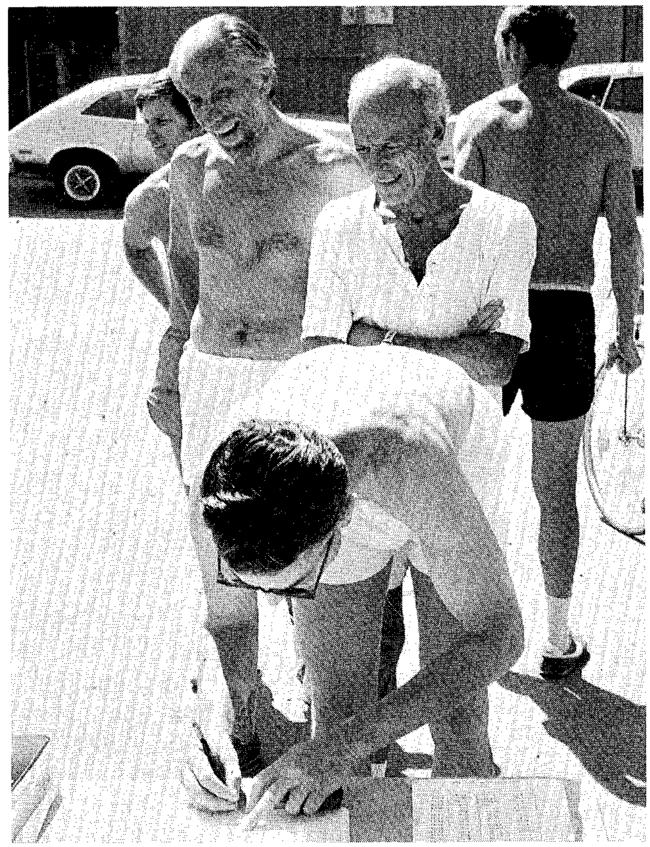
--Ken Moore

Charlie McCabe's photo shows the field just settling in for the long haul after the first 100 or so yards.



Timers Gerard Putallaz and Bill Divita with Alex Gallegos.

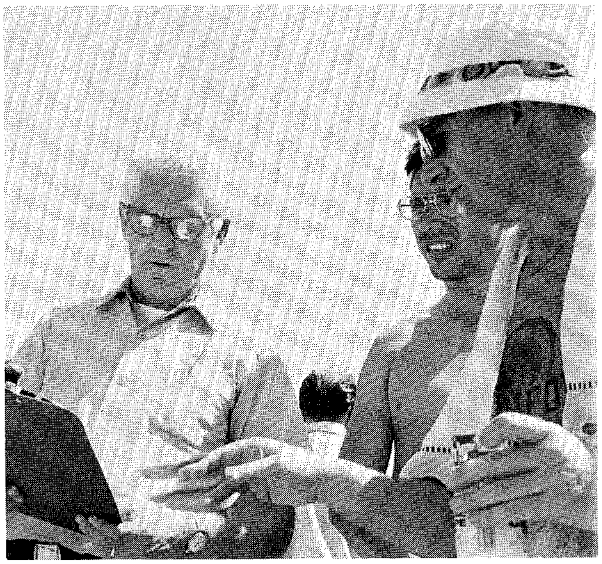
Place	Overall Place	All Women Runners	Time
1	12	Phyllis Olrich	23:08
2	14	Marilyn Taylor	23:18
3	29	Susan Laird	28:33
4	33	Mary Dageforde	29:47
5	43	Christine Wood	40:17
6	45	Misha Merrill (SLAC)	42:52



The half-century contingent signs up: Charlie Hoard (front), Ed Taylor and Herb Weidner.

Place	Overall Place	All SLAC Runners	Time
1	8	Tom Knight (PEP)	22:28
2	10	Alex Gallegos (EC)	22:45
3	15	Joe Kiskis (Theory)	23:50
4	21	Ken Moore (PMU)	24:58
5	22	Herb Weidner (EFD)	25:13
6	27	Ed Taylor (SFG)	27:09
7	30	Jim Wahl (Graph. Arts)	29:11
8	32	Roland Muniz (PEP)	29:46
9	34	Harold Hanerfeld (EB)	30:12
10	35	Charlie Hoard (ME)	30:22
11	36	Tom Meyer (EB)	31:17
12	37	Tom Donlon (PEP)	31:23
13	41	Mike Gravina (EB)	34:38
14	42	Herb Tiedemann (Payr.)	37:26
15	45	Misha Merrill (Illus.)	42:52

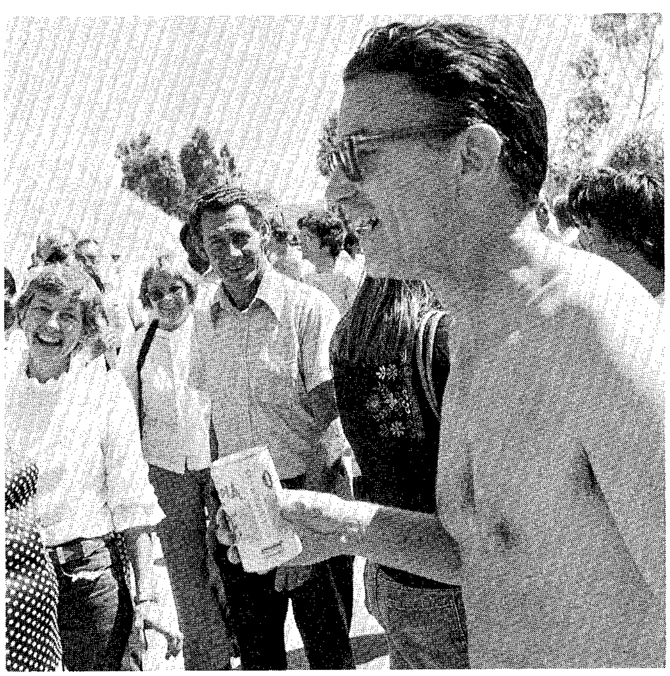
ANNUAL SLAC FOOTRACE



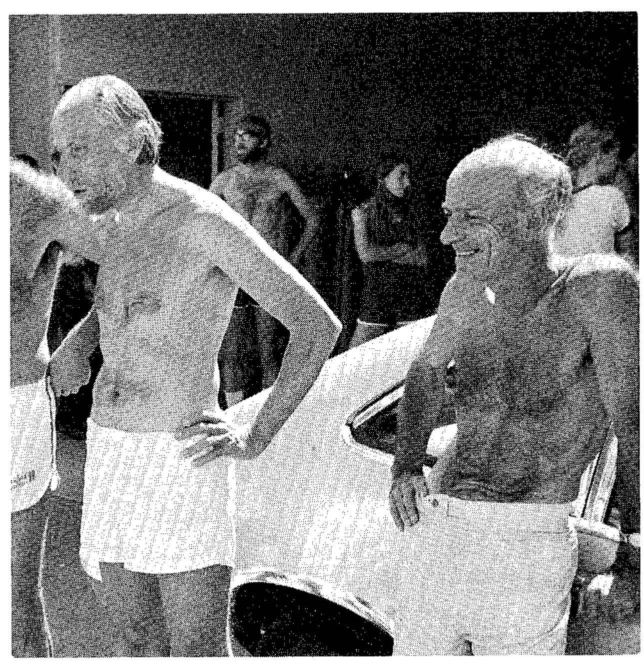
Frank Sabato (left), Alex Gallegos and Organizer Ken Moore check the results.

Adele Panofsky presents a trophy to Tom Knight, who was the first SLAC person to finish.

A continuing vote of thanks to Ken Moore for his efforts in organizing the SLAC Annual Race this year--and every year.



Charlie Hoard holds forth in his usual entertaining manner after the race. The can contains Spring Maid Mineral Water.



It must be all that running that makes these old geezers look as though they've just had a transplant from the neck down. How's your transplant coming along?

PEGGY II POLARIZED ELECTRON SOURCE BEING INSTALLED

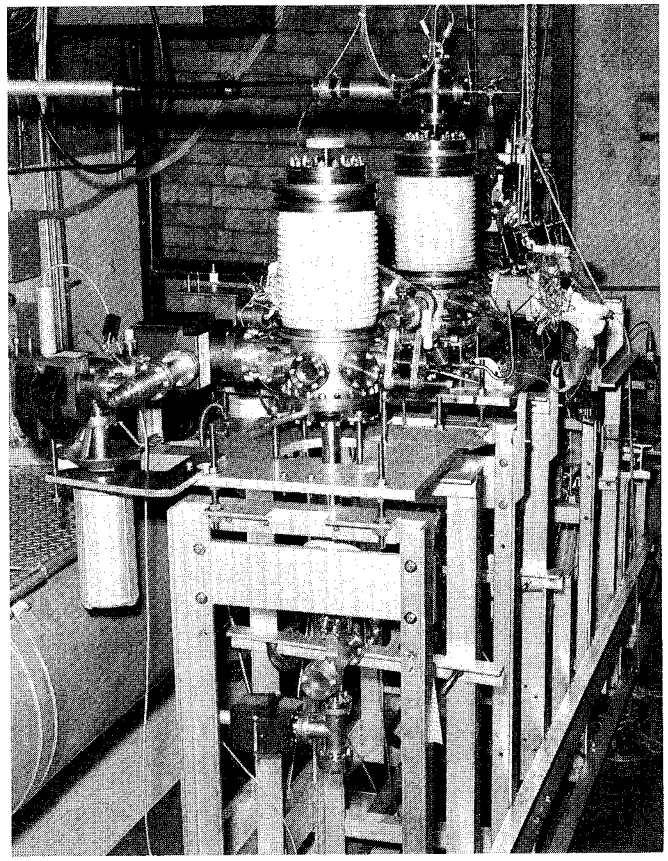
The accompanying photograph shows the partially completed installation of the new PEGGY II dual-gun polarized electron source out at the injection area of the SLAC accelerator. This device was developed at SLAC by Ed Garwin, Roger Miller, Charlie Prescott and Charlie Sinclair, and it is scheduled for first use in experiments this November (after some injection studies in October).

The original SLAC-Yale polarized source, PEGGY I, used photoionization of a beam of lithium atoms to obtain its polarized electrons. In contrast, PEGGY II produces its polarized electrons by illuminating a gallium arsenide (GaAs) crystal with circularly polarized light from a dye laser. The newer method results in an increase in beam intensity by a factor of several hundred. Also in contrast to the original source is the method of reversing the polarization. In PEGGY I this was done by reversing the magnetic field, a process that was slow and that also affected the beam steering at the injector. In PEGGY II, reversal is achieved simply by reversing the sense of the circularly polarized laser beam. This can be done very rapidly and at random times under electronic control. This latter feature is very important in eliminating small systematic effects in those experiments that hope to measure very small differences that arise from the beam polarization.

All is not pure bliss with PEGGY II, however. The new source has so far delivered only 50% polarization, as compared with the original source's 85%. In principle, polarizations approaching 100% can be obtained by stressing the GaAs crystal in order to deform its band structure, or by using different materials. Work on improving the polarization value is beginning this fall.

PEGGY II has two identical electron guns, as shown in the photo, in order to permit one gun to deliver beam to the accelerator while the other undergoes vacuum bakeout and preparation of the GaAs surface. In tests to date, a single gun has been used repeatedly to prepare GaAs cathodes of good quality, and has been operated continuously for 29 hours with a beam of over 10^{11} electrons per pulse and with 45% beam polarization. Beam currents greater than 25×10^{11} have been achieved, but some further work is necessary before this can become the standard operating condition. At any rate, this new source should be able to deliver more electrons than the SLAC machine can possibly accelerate.

The first experiment in which PEGGY II will be used is E-122, which is a search for very small parity-violating effects in the inelastic scattering of polarized electrons from an unpolarized target. Such effects are expected to



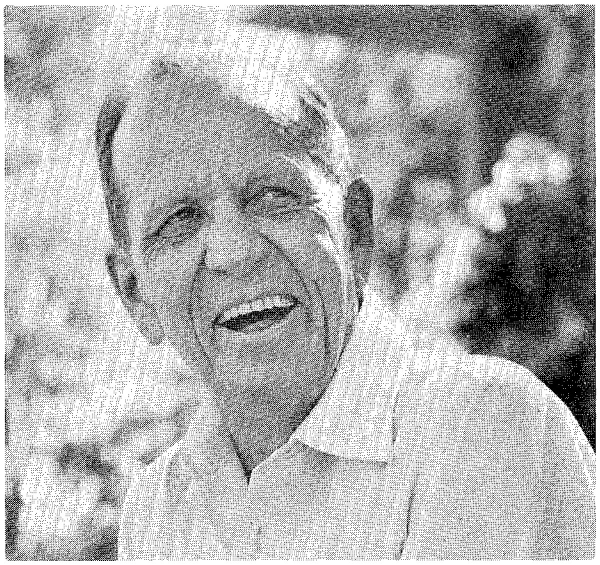
--Photo by Walter Zawojski

be present as a consequence of the weak neutral force, and their actual detection would be an important step forward in our understanding of the weak interactions.

--Charlie Sinclair

The atomic weight of hydrogen is not exactly 1 but by careful measurement is found to be 1.0077. In this slight discrepancy an immense store of possible energy is indicated, which someday, when we have learned how, may become accessible for good or ill to the human race. If the whole of any perceptible portion of matter disappeared, the energy resulting would be prodigious, being multiplied by a factor equal to the velocity of light. When hydrogen is packed into helium, the whole runs not the slightest risk of disappearing, but seven or eight parts in every 10,000 do disappear. The 1.0077 becomes 1.0. And though the disappearing fraction is small, the total of which it is a fraction is so gigantic that the result would be to put all our other sources of energy to shame. If ever the human race should get hold of a means of tapping the energy within the atom, the consquences will be beneficent or destructive according to the state of civilization at that time attained.

--*Scientific American*
May 1924



--Photo by Joe Faust

HOYT FULLER RETIRES

After 13 years at SLAC, Hoyt Fuller of the Instrumentation and Control Group has recently decided to retire and devote his time to his hobbies of hunting, fishing, hiking and astronomy.

Hoyt was born and raised in Gainesville, Georgia. In 1935 he left home to join the Coast Guard (whence comes his vast fund of sea stories). He remained in the service until 1957, attaining the rank of Warrant Officer. He was married in 1938, and he and his wife, Gladys, have one son, Haskell, who is a chemical engineer in the paper industry. Upon his retirement from the Coast Guard, Hoyt joined the staff of Raytheon Company in Waltham, Massachusetts, as a Field Engineer. Later he went to work for Sylvania in Mountain View as a Senior Technician engaged in R&D work.

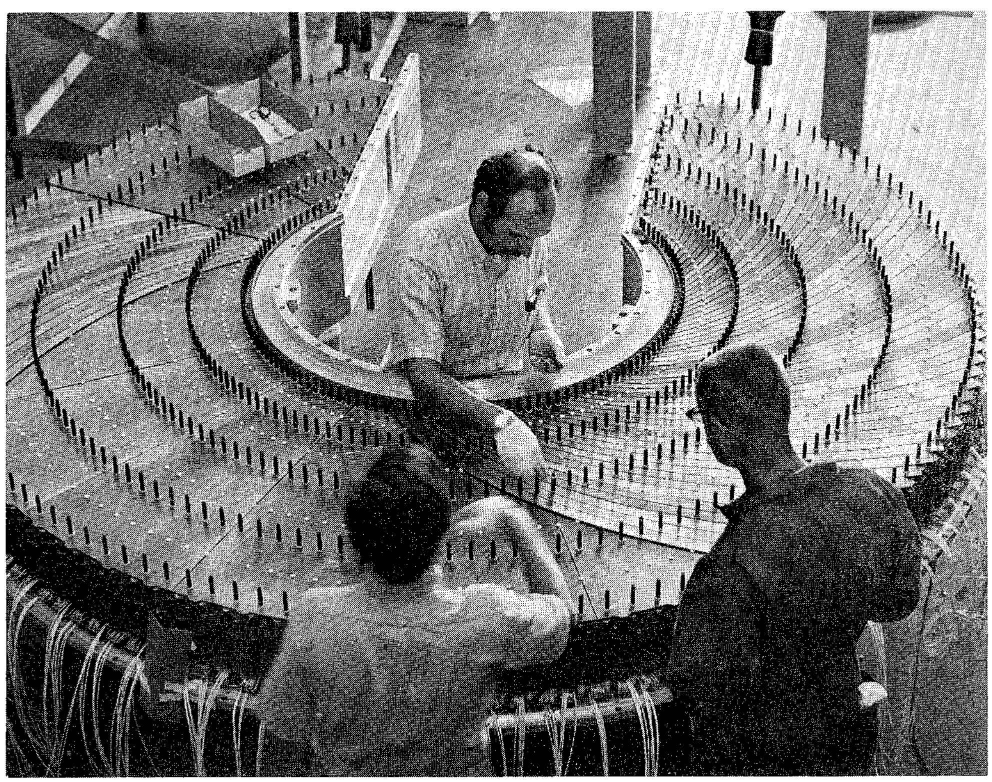
Hoyt came to SLAC in 1964 as a Maintenance Supervisor in the Gallery Maintenance Crew. A long-term loan brought him to the Instrumentation and Control Group at SLAC, and he became a permanent member of that Group in 1968.

His contributions to the operation of the SLAC accelerator have been many and varied, with emphasis upon the beam-injection system. These include installation of the instrumentation for the PEGGY polarized electron-beam source, the Alpha magnets, and the electron-gun modulators.

Hoyt has certainly earned his retirement, and all of us who have been associated with him through the years wish him the best of everything in the future. He has promised to keep in touch with us, so we can continue to look forward to future sea stories. Good luck, Hoyt.

--Merrill Card

WHAT IS IT? DEPARTMENT



In this photo by Joe Faust, Jeff Weiss (left) and Knut Skarpaas (right) are watching while Dave Hitlin does one of the following: (a) works on the assembly of one of the end-cap lead/liquid argon shower counters for the new Mark II magnetic detector; (b) prepares the relay contacts needed for magnetically guiding the balls into the 0 and 00 slots on the walk-in roulette wheel SLAC is building for Harold's Club in Reno; (c) tunes the spiral sounding bars on the great circular xylophone upon which J. S. Bach composed his *Fifth Brandenberg Concerto*; (d) practices dealing Blackjack with gloves on in order to show that he can still find a face card to hit Skarpaas' total of 13 with. (Clue: Notice how Hitlin's left hand holds the miniature deck with the mechanics grip recommended by Professional Dealers.)

--Photo by Charlie McCabe

JEAN LEBACQZ RETIRES

[Jean Lebacqz, Adjunct Professor and Head of the SLAC Klystron Department, retired last month after a 28-year association with Stanford University. In the following article, Associate Director Dick Neal describes some of the highpoints of a distinguished scientific career.]

Jean Victor Lebacqz was born in Tilff, Belgium, on July 30, 1911. After completing local primary and secondary schools, he graduated with *grande distinction* from the University of Brussells in 1933 as *Ingénieur Civil Méchanicien et Electricien*. Shortly thereafter, he began graduate work at Stanford University on a Belgian-American Foundation Fellowship and was granted a Ph.D. in Electrical Engineering (specializing in High Voltage Engineering) in June, 1935. The title of his dissertation was "Sixty Cycles Point to Point Breakdown in Air." During that time he met his future wife, Evelyn, who was then doing graduate study at Stanford in English Literature.

Jean then fulfilled his obligatory military service requirements by spending the next year with the Belgium Field Artillery. This was followed by a three-year period spent working as an engineer for the firm of Sofina in Brussells. During this time, Jean's work consisted principally of supervision of operations and planning for the future growth of public utilities in Argentina (for CADE in Buenos Aires). Jean and Evelyn were married in Brussels in 1937.

In 1939, the Lebacqzs returned to the United States, where Jean became an Instructor in Electrical Engineering at the University of California in Berkeley. However, after the start of World War II, the family moved to the east, and Jean spent the years from 1943 to 1946 as staff member and Section Leader at the M.I.T. Radiation Laboratory working on modulators for sophisticated radar systems. Jean became the co-editor of a book entitled *Pulse Generators*, published in 1948 as one of the volumes in the famous Radiation Laboratory Series (McGraw-Hill Book Co.).

From 1946 to 1951, Lebacqz was a member of the Electrical Engineering faculty at Johns Hopkins University in Baltimore. He returned to Stanford in 1951 as a Research Associate in the Microwave Laboratory of the W. W. Hansen Laboratories of Physics, and for the following eight years he spearheaded an intensive R&D program on high-power klystrons and traveling-wave tubes.

Jean's promotion to Senior Research Associate occurred in 1957, the same year in which the SLAC project was formally proposed. It was clear from the outset that the two-mile accelerator project (then called "Project M") would depend very heavily for its success on the quality of the klystron radiofrequency power sources that were to be developed, and in 1959 Lebacqz turned his full attention to this challenging task. As finally authorized in 1961, with construction to start the following year, the specifications for the SLAC accelerator called for a total complement of about 240 klystron power amplifiers, each capable of producing an output power of 20 million watts during a pulse period of 2½ microseconds, with up to 360 such pulses each second. And such performance would have to be sustained precisely and reliably through an average operating lifetime of perhaps 2000 hours per tube if the costs of replacement klystrons were not to become uncomfortably large.

Under Jean's leadership, the Klystron Group not only achieved all of the exacting technical specifications for the SLAC klystrons, but they also succeeded in achieving average tube lifetimes of approximately *20,000* hours--ten times as long as the initial "optimistic" projections. In fact, some of the original klystrons installed on the accelerator prior to its first operation in 1966 have continued to function perfectly to this day, and they give every indication that they do not intend to become "emeritus" until sometime after their principal designer.

The approach of retirement age has done nothing to hinder the steady flow of Jean's creative development activities. The klystrons on the SLAC linac are now being replaced as they fail with tubes that can deliver about twice the original peak power of 20 megawatts. Entirely new klystrons have been developed for the lower frequency RF systems of the SPEAR and PEP storage rings (353 MHz vs. the linac's 2856 MHz). The new PEP design has already achieved its design goal of 500 kilowatts of *continuous* output power, and is nearing the unprecented efficiency goal of 70%. These are just a few examples of Jean's recent technical achievements.

I am happy to note that Jean will continue to be associated with SLAC on a consulting basis. Both the man and his work have left an indelible mark upon our Laboratory.

--Dick Neal

SLAC WOMEN'S ASSOCIATION

CLERICAL CLASSIFICATIONS

The SLAC Women's Association had three lively meetings during the month of July. Early in the month, a quickly verified rumor had circulated that the Personnel Departments of Stanford University and of SLAC were considering a redefinition of the position of Administrative Assistant I from its present exempt to non-exempt status. Because of the differences in retirement and other benefits between exempt and non-exempt positions, a number of SLAC secretaries and clerical workers attended several meetings to learn about and express their concern over the possible change in one of the few promotional opportunities that is available to them.

These concerns were communicated to Dr. Panofsky, and as a result he has recently established an Ad Hoc Task Force to Study Clerical Classifications. The Task Force consists of eight SLAC employees, and the primary question that Dr. Panofsky has asked the Task Force to address is the following: "Do the (Stanford) University clerical classifications adequately accomodate particular clerical positions at SLAC?" Further, he has asked the Task Force to recommend additional classifications if they discover that clerical workers at SLAC are actually doing work that is not compatible with their present job classification.

The Task Force held its first meeting on August 29, at which time they discussed the scope and content of the charge given by Dr. Panofsky. SLAC's Assistant Affirmative Action Officer, SueVon Gee, will chair the Task Force, which upon completion of its work will advise Dr. Panofsky of its observations and recommendations. He, in turn, will review these and will make some recommendations to the University before the end of the year. The SLAC Women's Association will follow the progress of the Task Force with great interest.

BENEFIT PACKAGES

Many people have expressed a concern about the different benefit packages that are available to exempt and non-exempt employees. In addition to salary differences, the two main differences are the rate of vacation accrual and retirement benefits. At the July 28 meeting of the Association, Bernie Lighthouse of SLAC's Personnel Office reviewed these differences with us and explained the retirement packages in some detail. Association President Ruth Consul suggested that a summary sheet for all employees would be useful. The Women's Association is certainly willing to help in the preparation of such information.

Throughout July, Bernie Lighthouse was a source of important information to the Association. We very much appreciate the time and effort he has devoted both in explaining the proposed classification changes and in reviewing the benefit packages for us. We are also looking forward to a future presentation on the pay plan.

POTLUCK LUNCH

The Association held a delicious potluck lunch on the 8th of August, both as a respite from the turmoil of the July meetings and to allow our members from different parts of SLAC to get to know each other. Plans are already afoot to have a similar meeting in the Sector 6 barbecue area.

FUTURE MEETINGS

On Monday, September 19, we will have as our guests several members of the Society of Women Engineers, who will share with us their experiences in the engineering world.

On Monday, October 3, SueVon Gee will describe to us how the Affirmative Action Office operates at SLAC. She will also describe the 1978 SLAC Affirmative Action Plan which was recently prepared and submitted to ERDA for its approval.

--Martha Zipf & Cherrill Spencer

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