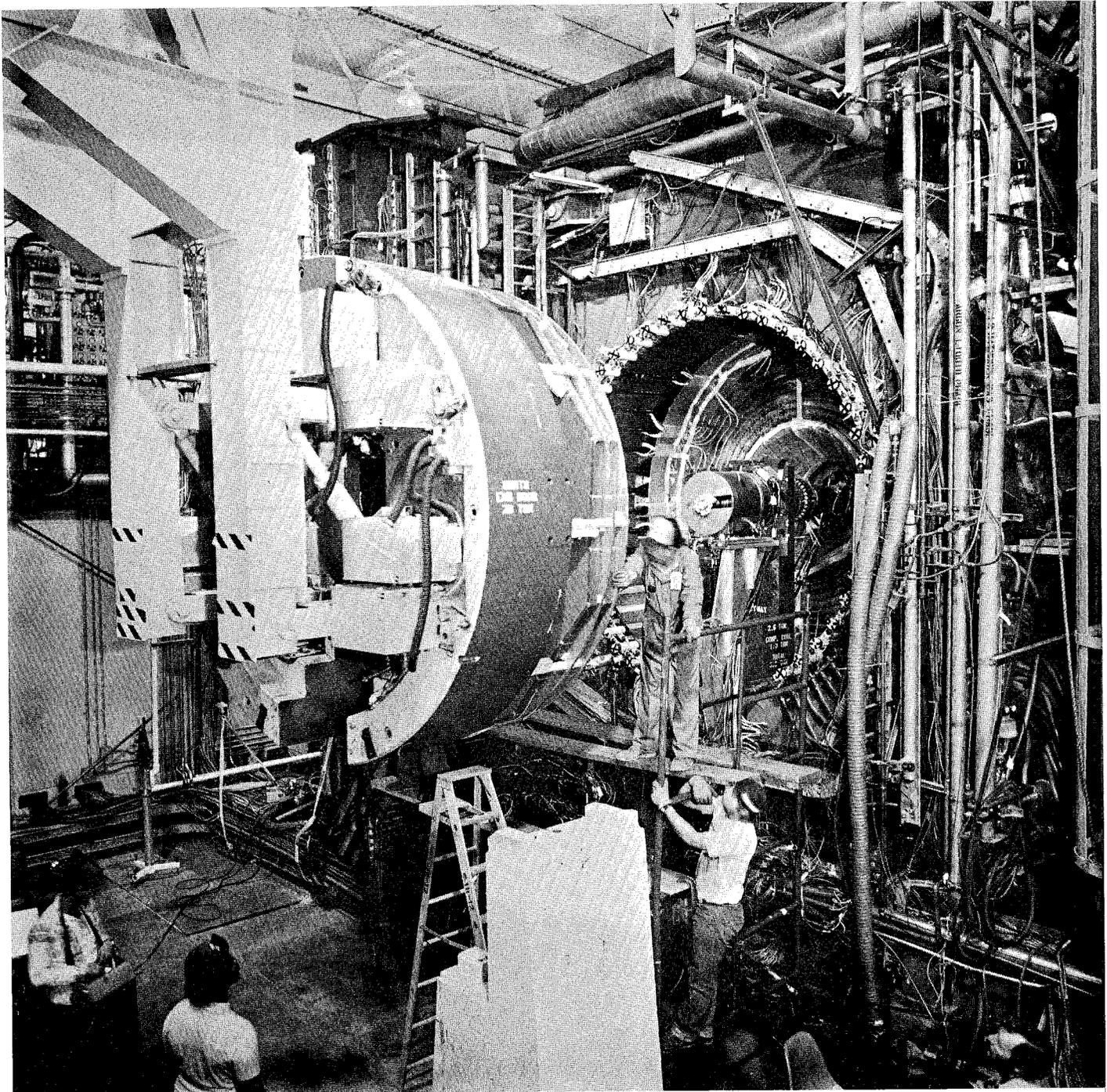


SLAC BEAM LINE

*First men say that it is not true,
then that it is against religion,
and in the third stage that it has long been known.
— Louis Agassiz, on theories.*

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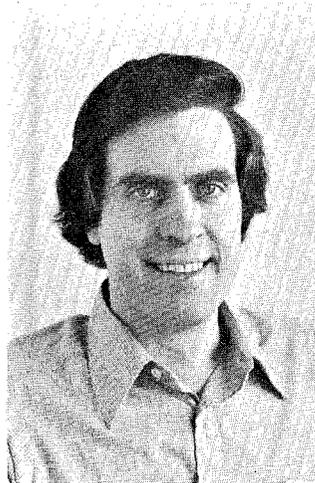


THE MARK II ON A ROLL

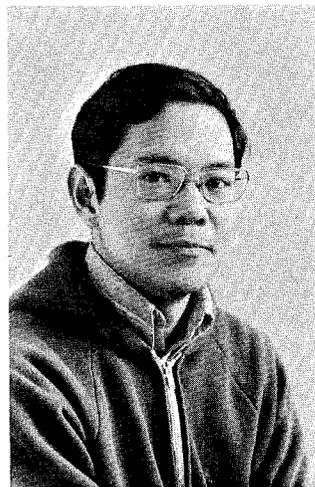
SLAC FACULTY APPOINTMENTS



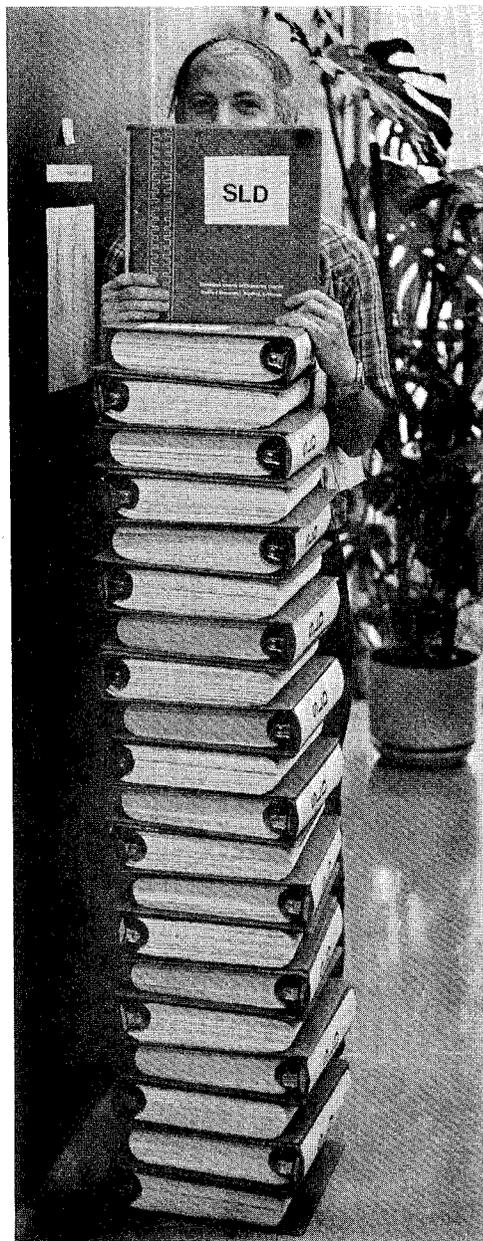
Jonathan Dorfan has been appointed Associate Professor with tenure on the *SLAC* faculty. Dr. Dorfan has been with the Mark II collaboration since 1976, serving as a staff physicist with Experimental Groups C and E. He has had major responsibility for the daily operation of the experiment and is leading the experimental upgrade of the Mark II detector for its transfer to the *SLC*.



John Jaros, of Experimental Group E, has been promoted to Associate Professor at *SLAC* with tenure. Dr. Jaros has been on the *SLAC* faculty since 1979 and has been very active in the design, construction, and use of very precise drift chambers for detecting secondary vertices in particle reactions and measuring particle lifetimes.



Walter Toki has been appointed Assistant Professor on the *SLAC* faculty. Dr. Toki has been a Research Associate for the last five years with Experimental Group D. Dr. Toki has been taking an increasingly important leadership role in the Mark III collaboration experiments at *SPEAR*.



SLD APPROVED

The *SLD* detector was recently approved by the laboratory with the recommendation of its Experimental Program Advisory Committee, the (EPAC).

The committee had requested the collaboration to prepare a design report and submit 20 copies before its meeting. Dave Fryberger, EPAC Secretary, asked the group to leave the copies on his desk, obviously expecting the usual ten or twenty page experimental proposal. The *SLD*, which some think stands for *SLAC's* Largest Detector, didn't fit that mold. Marty Breidenbach, co-spokesman for the detector with Columbia's Charlie Baltay, clearly stands behind the product.

The detector, which was described in the January 1984 Beam Line, will follow the Mark II at the Linear Collider. (Photo by Harvey Lynch.)

COLLIDER CONSTRUCTION

When the SLC tunneling machine arrived here early this year, it was greeted by engineers from SLAC and the SLC construction management firm, Tudor Engineering.

Jim Walling, left, is the SLC Chief Engineer for Conventional Facilities. Bob Bell, right, was Walling's predecessor in the job before becoming project engineer for the SLD detector. Tom Scotese and Clyde Earnest, center, represent Tudor Engineering.

This machine, and another which arrived later, are now underground and quickly advancing around the two Collider arcs toward the end of the linac. The tunnels are scheduled to be completed before the linac turns back on in October.

There are now three main construction areas: the north tunnel entrance near PEP IR-12, the south tunnel entrance near PEP IR-4, and the SLC Experimental Hall near PEP IR-2. This construction involves continual traffic of fast-moving heavy equipment, twenty four hours a day and casual visits cannot be allowed. The north side of the injector end of the linac is also restricted while the second damping ring vault is under construction.



COVER

THE MARK II ROLLS OUT FOR UPGRADES

The photograph on the front cover shows the Mark II being prepared to roll off the beam line at PEP. The endcap hanging at the left of the photo has been retracted to expose the central section. The ring of small white cylinders are at the end of the trigger counters. These surround the large central drift chamber and lie just inside the coil that produces the magnetic field.

The experiment will remain off-line for about six months to begin upgrades that will prepare this detector for experiments in the Linear Collider at the end of 1986. The main changes will be the replacement of the coil, which was damaged two years ago, and the insertion of a new drift chamber. One of the two endcap detector systems will also be replaced now with a new version.

The Mark II will be rolled back in during the winter shutdown at PEP so the new components can be checked out with beam. (Photo by Joe Faust.)

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Editorial Staff: Bill Ash, Jan Adamson, Dorothy Edminster, Bob Gex, Janet Sauter, Herb Weidner.
 Photography: Joe Faust.
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Stanford University operates SLAC under contract with the US Department of Energy.

ERRATUM

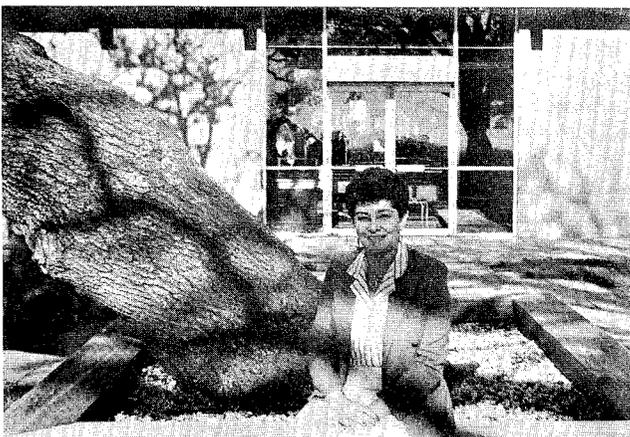
There were some inadvertent errors made in the attribution of scientific work in the article entitled *Quarks, Antiquarks, and Glue*, which appeared as special issue Number 6 of the *Beam Line*. I left out the name of Jerome Friedman, who was co-leader with Henry Kendall of the MIT group involved in electron scattering experiments at SLAC. I also failed to mention that the experiment which discovered particles containing charmed quarks was a collaboration of groups from SLAC with a group from the Lawrence Berkeley Laboratory led by Gerson Goldhaber and George Trilling, and that the experiments which tested for parity violation in electron scattering included collaborators from Yale, CERN, Aachen, and Hamburg as well as the SLAC group.

I sincerely apologize to these people and to the many other experimenters at SLAC whose work was mentioned without specific attribution.

—Helen R. Quinn

THE SLAC GARDEN

The SLAC garden, which is shared with Addison-Wesley, is flourishing in its location across the road from Crafts Shops and Stores. A cooperative garden club manages the garden, makes the minimal rules necessary and assigns plots. A single 10-foot by 20-foot plot costs \$4.00 for the first year and \$2.00 for renewal each following year. Some double plots are available. The dues pay for water, fertilizer, tools, etc. A few plots are still available; call Adele Panofsky (x2397) if interested.



ANGELA FERREIRA, CAFETERIA MANAGER

Angela Ferreira, the manager of the SLAC cafeteria, is responsible for the day-to-day operation of the Cafeteria and related food services. Angela works hard to provide SLAC lunchers with a variety of nutritious and reasonably priced

THE END OF THEORETICAL PHYSICS

The following is excerpted from an article by Richard ParLOUR in the 12 April 1984 issue of New Scientist magazine.

Theoretical particle physics is dying from a kind of senility. We know how each new advance in theoretical physics relies upon more and more sophisticated mathematics; and we know how mathematics is a linear sequence of concepts each of which must be thoroughly understood before comprehension is possible of the next; and we know how mathematics is unique among the sciences in not discarding old ideas as it augments itself with new ...

It follows that each new generation of theoretical physicists has a longer and longer list of mathematical concepts to absorb before they can reach their subject's frontier, and therefore, because the brain's learning rate is limited, that each new generation must spend longer and longer in the lecture hall before they are ready to begin research.

But history shows that — for whatever mysterious reason — crucial advances in theoretical physics are never made by people older than their middle twenties: thus the period in a theoretician's life when he or she is in principle capable of a major breakthrough — the interval between completion of their studies of mathematics and the drying up of their radical creativity — is year by year becoming shorter. Already it is brief: soon it will be briefer: eventually it must be squeezed away to non-existence. Within the foreseeable future, no theoretical physicist will have mastered the mathematics of the subject until he or she is already too old to be able to extend it significantly. Purely because of the limitations of the human brain, progress in theoretical physics will soon become as impossible as in experimental.

There you have it; the whole SLAC Theory Department done in by hard fact and cold logic. On the other hand it's quite a good show to have been the first to learn as much about a subject as humans are capable of knowing — sort of an intellectual four-minute mile.

Now they can accept new challenges, such as beating the experimentalists in the annual softball game on 17 June.

meals by making full use of the 'Master Menu Cycle,' a development of her employer, Interstate United Management Services Corporation (IUMSC). The company, which has been running the Cafeteria for three years, also operates the vending machines and the Café (which recently added other beverages and pastries). Angela's courteous and friendly ways belie the busy and sometimes hectic Cafeteria schedule.

BOB ADAMSON MOVES ON

Bob Adamson, desert rat, abalone fisherman, mountaineer, all-round athlete, collector of automotive memorabilia, and ebullient organizer of social events, is leaving *SLAC* again. This isn't the first time he has left to look for greener pastures, and it may not be the last.

Bob came to *SLAC* in 1965 to work as a designer for the Bubble Chamber group. Now, after almost two decades and millions of pictures, the grand old 40-inch bubble chamber has been shut down. Not only was Bob the chief designer for its magnet and the measuring devices, he managed to get into the fabrication and assembly as well. He even painted it himself.



His largest project was the design of the prototype magnets for the *PEP* ring. For one experiment in the research yard, Bob assembled a huge pile of shielding, approximating one of the minor pyramids of the Nile. It looked like any other shielding stack until Bob topped it off with the engine block from his old Chevy truck to give it that Adamson touch.

In the Sierras, Bob was the best trail cook, always carried the heaviest pack, and was always the first on top. On one occasion when the party reached the campsite, he forgot what ballast he was carrying and with a whooped "At last, we made it!" dropped his pack, to be greeted by the unmistakable crunch of a gallon jug of Chablis meeting rock ...

After the judge declared Bob single again, he became the most eligible bachelor on the Peninsula. His predilection for ragged T-shirts tie-dyed in Pinot Noir and his normal Neanderthal gait drove *SLAC'S* distaff to distraction. He found a soul-mate in Jan Burlingame (now an esteemed associate editor of the *SLAC Beam Line*) and it was only a matter of time before they were married. The ceremony was held in Eleanor Park in Palo Alto. It was the *SLAC* social event of the year and was attended by hundreds of their friends.

Bob is such an up-beat character that one could go on for pages recounting humorous Adamson anecdotes, but he has had his share of troubles. In March, Bob's van was wrecked in a serious accident. Bob emerged bruised and battered, but otherwise uninjured. His son, Rob, suffered a broken thigh. Jan is still in the hospital recovering from multiple injuries.

We have lost an innovative designer and one of our most colorful characters. We all wish Bob the best of luck in his new career.

—HAW *et al.*

MARILYN MONEY — IN MEMORIAM

Marilyn Money passed away recently after a long battle with cancer. She will be best remembered by her many friends at *SLAC* as that very pleasant lady behind the desk at Crafts Shops, with a smile and good word for everyone.

Marilyn attended High School and College in Los Angeles and began a promising career as a dancer. She became assistant choreographer for the *MGM Studios* in Culver City and worked with the big names in Hollywood musicals for more than ten years before she was crippled by polio in 1952.



Marilyn and her husband John moved to Los Altos, raised a family, and in 1966 Marilyn joined *SLAC*.

Her first job in her more than twelve-year association with *SLAC* was as a Secretary for the Klystron Department in the Test Laboratory. In September 1970 she transferred to the Accelerator Physics I&C Group in the Electronics Building where she worked for five years. In December 1975 she transferred again. This time to the Plant Engineering Department *PMU* Group in the Crafts Building. Injuries suffered in a fall forced her to take medical leave in January 1979.

Marilyn's good humor and pleasant personality were infectious to all who met her. This cheerfulness was especially impressive when she got up from her desk to get supplies, run the copy machine, or deliver messages — she couldn't walk without a cane or crutches.

We shall all miss her.

—Bill Lusebrink

REQUIEM FOR AN ACCELEPEDE

The soul of the Stanford Linear Accelepede disappeared into the breaker mists immediately after it crossed the finish line of the Bay-to-Breakers race on Sunday, May 20. Many of its bodily parts were noticed wandering about the Golden Gate Park's polo field but the whole was gone, probably never to be seen again. A Professor of Endangered Species, who did not want his name used because then he too might become one, said, "I am not surprised. It is very remarkable when an accelepede survives that long. Two races in one lifetime — very unusual." As the accelepede caught up with and passed the ribsepede (the MacArthur Park restaurant entry which resembled a side of ribs) a media reporter was heard to intone, "Folks, it looks like it's dying." It was.

The accelepede was ornamented this year with a mixed bunch of charmed and strange particles. The charms were Teresa Beeman, Pat Burchat, Mary Crume, Nancy Gex and Rob Witthaus. The strange things were Pam Clayton, Tom Kamakani and Dan Manley-Arrieta. They were as strange as the charms were charming. Ready for injection at the other end were a bunch of electrons and positrons (Lamont Barton, Pam Bates, Pam Caselli, Marian Gex, Harold Ito, Ken Martell, Al Odian, Heather Rock, Anne Schlagenhaft and Nancy Witthaus). The accelepedestrians were Judy Beaver, Jackie Caselli, Les Cottrell, Willie DeHaas, Paul Fontenot, Bob Gex, Ken Harmount, Charlie Martin, Bill Pierce, Steve Rock, Alan Spragens, Ken Witthaus and John Yelton. All this held together by repair technicians, Harold Hanerfeld and Heidi Schellman.

The Accelepede is dead — may flights of quarks and leptons speed it to its rest.



Some quarks are stranger than others.



Organizer Ken Witthaus and a stray electron explain the Accelepede to a crew from KPIX.



Strange and charmed quarks lead ...



... while electrons and positrons follow.