



SLAC NEWS

VOL. 1, NO. 3

STANFORD LINEAR ACCELERATOR CENTER

MAY 1, 1970



Steve Combs, Mechanical Drafting, and his supervisor, Charles Hoard.

Skills Training Program Graduates Five

"I'm interested in applying for a job."

"In what area?"

"Well, electronics."

"We do have an opening for an experienced technician. What sort of experience do you have?"

"I don't have much job experience, but I've been taking these courses at the junior college, and..."

"I'm sorry. Experience is absolutely required for this position. We need someone who can start producing immediately. You can leave an application and we'll get in touch with you if a trainee job comes up, but you know we've been cutting back lately, and..."

"Yeah, I know."

Frustration, alienation, anger. The vicious circle of the occupationally disadvantaged. You can't get a job without experience and you can't get experience without a job. How to break this cycle of defeat is a major problem for America today. SLAC has developed the Skills Training Program (S.T.P.) to do something about the problem.

Instituted back in October, 1968, and currently involving 24 trainees, S.T.P. has as its goal the training of disadvantaged persons in marketable skills. For quantitative proof of the success of the program, five S.T.P. participants have recently "graduated" into full-time positions here at SLAC. These are Steve Combs, hired on April 1 as Staff Assistant Draftsman in Mechanical Engineering; Walter Cross, hired April 1 as a Staff Assistant Electronic Technician in Accelerator Electronics; Clyde Stanton, hired November 30 as a Computer Dispatcher for the Stanford University Computation Group at SLAC; and Henry Thomas, hired February 24 as a Staff Assistant Operations Technician in RAD. Combs, Cross, and Thomas were hired into S.T.P. from the ir status of regular employees at SLAC, while McCoy and Stanton were hired directly into the program as new employees.

Persons meeting in minimum

requirements are selected for training in areas such as electronics, drafting, mechanics, and machine operation. Preference is given to SLAC employees who are under-employed and to disadvantaged persons living in the local community. The fundamental skill requisite of a trainee is simply that he be qualifiable. In all cases, financial need and lack of opportunity to advance in the job market are prerequisites for selection.

SLAC realizes that off-site education will be required for advancement, in conjunction with work at SLAC. So, in general, S.T.P. participants are encouraged to take courses at a junior college or a similar institution. Time spent in class is counted as time worked at SLAC, up to a maximum of ten hours a week. The program for each trainee is expected to take about two years, after which the individual should be able to function as a junior technician, or the equivalent.

The key word here is training. Every trainee works closely with an assigned supervisor. Depending upon the area, formal classes and/or informal "how to do it" sessions between trainee and supervisor increase technical competence. An example should illustrate the process:

The next group of electronic technician trainees will start as a group in the Electronic Fabrication Shop (Pat Kilpatrick) and will be trained in basic electronic fabrication for six months. Upon completing this six months training, the group will be split into ones and twos and assigned to other groups, such as Accelerator Electronics or Accelerator Physics. Upon completing the second six months of training, a trainee may be assigned to another one of these groups, or possible to Electronic Instrumentation, or Test Equipment Calibration, or Magnetic Measurements. These assignments will also be for six months. In addition, each trainee may be involved in a two year certificate program in Electronics at the College of

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Summer Employment

It's Social Aspects

By Larry Esquibel

Summer Employment Coordinator

As sure as the coming of summer, is the coming of SLAC's Summer Employment Program (SEP). Summer rolls around on its own, but the SEP does not quite make it that way. Putting a Summer Employment Program together can take a good part of a year. From early January to late September, the subject of the Summer Program is mentioned in the Personnel Office, almost as often as the weather, but in this case, we do try to do something about it.

This year marks the fourth time that the Summer Program combines the needs of the communities around SLAC with the needs of the Center itself. It is a combination that did not immediately exist when the Summer Program was initiated. The Center, during its construction stage from 1962 to 1966, employed students for the summer, but the effort was more to provide the needed help for the building of the Center and less to provide disadvantaged individuals with employment. In 1967 the social upheavals

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THE MUON

-WHO NEEDS IT?

By Steve Kociol

If it were necessary to sum up in one word the status of high energy physics today, that word would probably be - confusion. No one really understands why so many "elementary" particles exist (well over 100 have been found), and with the exception of electromagnetism, no one understands the nature of the forces which operate between these particles.

By far the greatest number of particles interact via the strong nuclear force and are related together in an obvious way, as if they were all members of a very large family, both generated and bound together by their strong mutual interaction. Progress is being made all the time in sorting out the relationships and one hopes that in the process the basic interactions will also become understood.

The weakly interacting particles are much fewer (only four and their anti-particles) and the relationships are clear, but paradoxical. The muon and electron are clearly brothers, but the muon weighs 207 times more than the electron and lives only two millionths of a second, while the electron is stable. Outside of mass and lifetime, the muon is identical in every way to the electron. It has the same

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PART OF SLAC CHORAL GROUP APPEARING IN MAY 20 & 21 SHOW

Choral Group Production

The SLAC Choral Group is currently in rehearsal for their next show which will be presented in the SLAC Auditorium. It is being given on two consecutive days, May 20th and 21st (Wednesday and Thursday) during the noon hour beginning at 12:15.

The show's producer, DeeDee Mayes, of Stores, tells us the entire production consists of various love song and is appropriately entitled "A Thing Called Love". Bette Reed of CDA's swing shift will sing "Put A Little Love in Your Heart" and Polly Lea (Publications) will also solo. A duet will be sung by Vernon Smith of the Electronics Shops and Rhonda Dave, also of the CDA group. DeeDee Mayes will offer a piano solo.

In all, approximately 18 members of the chorus will be in this production, including three instrumentalists: Ted Syrett on base guitar, Frank Noga on tenor

guitar, and DeeDee on piano.

The group has been practicing each Tuesday and Thursday noon and, in addition, soloists and production people meet on Mondays and Fridays to hash out details of producing and presenting this show. All SLAC personnel, as well as their guests and families are welcome to attend. Although the show is being produced for your pleasure, there will be an opportunity to contribute to S.E.R.A. (SLAC's Emergency Relief Association) for those why may wish to do so. Convenient receptacles will be placed in the outer lobby for this purpose.

People who have seen previous productions by this group do not need to be encouraged to attend - they know they have enjoyable entertainment in store. If, however, you've never heard this group, then be sure to be there at the noon hour on either the 20th or the 21st of May.

Safety Office Training Sessions

The training session shown in the photos is one of the ways in which safety training is conducted at SLAC. It was presented on April 6 in the research yard. In general, S. U. Assistant Fire Chief Barr's recommendation is to telephone extension 2313 before attempting to extinguish any fire yourself since trained firefighters equipped with respiratory protection and fire-resistant clothing are only a few minutes away from any SLAC location.

Why are sessions like this necessary? Lack of knowledge contributes to accidents. The number and frequency of injuries in which the person states he didn't know a hazard existed, or was not given any special instructions, or didn't think a hazard was involved reveals the need for repeated instructions.

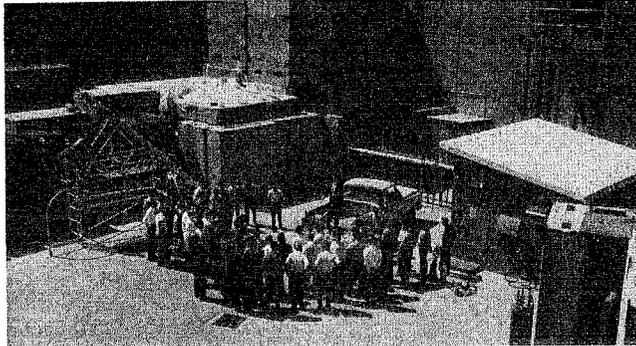
Training as a part of accident prevention programs has as its objectives the stimulation of interest in safety and the provision for specific instruction concerning how to avoid accidents. Reported injury experience, safety inspections and discussions supply information for training sessions.

Supervisors who recognize that the need for safety training is no different from the need for training in any of the other phases of their operations convey instructions to their groups periodically. They supplement their presentations by calling upon others for well-rounded training activities. As appropriate, they utilize the available training services of the Fire Department, SLAC Medical Department, Health Physics and others.

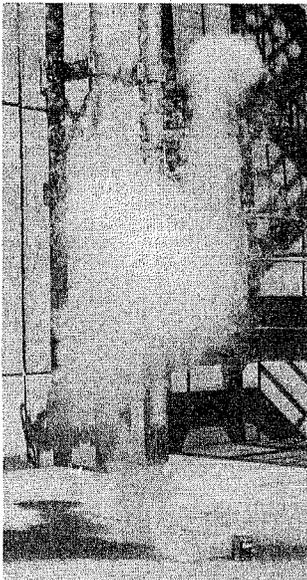
Training and licensing for operators of cranes and forklift trucks or electric carts are provided through cooperation of Crafts Shop and Plant Office, respectively.

Instruction in electrical safety, proper lifting techniques, heart-lung resuscitation, fire extinguisher operations, and, in general, basic accident prevention and first aid care may be arranged by any supervisor's calling the Safety Officer on extension 2221.

To help fulfill various needs for safety training, the Safety Office has available motion pictures, a mannikin for demonstrating and practicing heart-lung resuscitation, other visual aids, a library of authoritative accident prevention and industrial hygiene reference material, and has access to many local specialists in the University and outside.



As part of the SLAC Safety Training Program S.U. Assistant Fire Chief John Barr demonstrates the characteristics of combustible metals.



To emphasize the hazard potential of combustible metals, Chief Barr dropped an ounce of sodium metal into a water filled coffee can. The result was the explosion shown.



Another view, same explosion.

Child Care Center Status

By Glenda Jones

The hopes of establishing a Child Care Center at SLAC in the near future have been diminished. Director Panofsky feels strongly that the Auditorium Breezeway must be reserved as supplemental space for scientific meetings and conferences and as space to provide food service for larger groups. Money for building a new and separate facility is not available right now. Knowing the importance of good child care to working women workers and what it would offer to potential women workers at SLAC, the impasse over space is frustrating.

On the Stanford Community Children's Center's (S.C.C.C.) proposal the space situation is more encouraging. President Pitzer's Committee on the Use of Land and Buildings has approved the use of the Stanford Elementary School for child care and other compatible community activities. With the question of space eliminated, we can concentrate on the other questions of getting a good program established and making it possible for the community to establish and control the Center.

Besides space the proposal is asking Stanford to contribute utilities and maintenance of buildings and grounds; legal assistance and costs of incorporation; liability insurance; medical exams for parents, children and teachers who need them for participation in the Center; that Center employees be eligible for Stanford employee benefits; accounting assistance in administering our payroll. In order to serve the needs of low-income families we must be able to prorate the fees based on ability to pay. Therefore, we are asking the University to subsidize low-income users. Further, in order to ensure the Center will make it through the initial period of adjustment, we are asking the University to pick up the bill up to \$5,000/quarter for any deficit. The Committee on the Education and Employment of Women is now studying the proposal so it can recommend action to President Pitzer.

The Child Care Center will be operating during the summer. It would help the committee plan programs for summer and fall if we know what your needs are. If you would like to be part of the Center now or in the future, please let us know. Do you think you might need child care this summer? Let us know. Call Glenda Jones, ext. 2411.

DISCOUNT TICKETS OFFERED SLAC'ERS

Disneyland, Sea World of San Diego and ABC Marine World of Redwood City are three entertainment centers offering discount prices on single tickets or group discounts to SLAC employees. The Disneyland "Magic Key Ticket Book" provides an adult with admission and any 10 attractions for \$4.50, and \$11.00 value; a "junior" from 12 through 17 with a \$10.35 ticket value for \$4.00; and a child a \$7.60 book for \$3.50. Sea World offers 75 cents off per adult admission and Marine World offers 10% off on all individual tickets and price concessions for blocks of tickets.

A new offer to employees is for a group discount price to HAIR, the American Tribal Love Rock Musical now in its tenth month and being presented at the Orpheum Theater in San Francisco. A group reservation also reserves choice seating locations and is "by far the most enjoyable and satisfying way to see — and experience — HAIR," according to their Group Sales Director.

For discount tickets, for arranging a group sign-up for HAIR or Marine World, or for additional information on tickets and discounts, see Marie Arnold in SLAC's Benefits Office, Room 238, the A & E Building.

The Frustrating Muon

(Continued From Page 1)

spin and electric charge. And in all cases to date, its interactions are identical with that of the electron, once the mass difference is taken into account. So it seems that the muon is just a heavy electron. Bill Toner, Group E physicist and author of a recent review article on muons (SLAC Publication 693) puts it this way: "The muon and the electron are like two identical twins, except that one of them is a midget and the other a giant."

Physicists refuse to accept this. They feel there must be some real difference between electrons and muons in terms of their interactions. Why else would the mu exist at all? How does it fit into the scheme of things?

In 1936 the muon was discovered by Anderson at CalTech, and just by being found it caused an uproar in the physics community. In 1935 the Japanese theorist Yukawa had predicted the existence of a particle about one-seventh as massive as the proton. This particle was invented to act as the mediator of the nuclear force — it was to interact with neutrons and protons within an atomic nucleus, and so bind the whole thing together. So, when the muon appeared with about the right mass, it was immediately hailed as the Yukawa particle. Unfortunately, it didn't have the right properties. In particular, it didn't interact via the nuclear force at all! After eleven years of confusion, Powell and Chialini

at Bristol found a Yukawa particle, the positively charged pi meson, or pion.

The discovery of the pion was important in its own right, but it did nothing to help explain the reason for the muon's existence. During the 23 years since the pion was discovered, many experiments have helped pin down the properties of the mu, but we still don't know why it exists.

Suppose we take a negative approach and ask what would happen if the muon didn't exist. The only result that Toner could think of would be that the pion would live ten thousand times longer, but he is unable to think of any consequences of that. Why would the pion lifetime be increased by the muon's nonexistence? The reason is that 99.99% of the time, the charged pion (itself a short-lived particle with a lifetime of 26 billionths of a second) decays into a muon and a neutrino. So if muons weren't available to decay into, the pion would be forced to live 10,000 times longer.

Being an electron accelerator, SLAC is very well suited for creating intense secondary beams of muons and using these to investigate possible muon-electron differences. In next month's SLAC News we'll discuss the SLAC muon beam and the experimental results Group E has obtained in its study of this frustrating particle.

Health Plan Enrollment Open

The Benefits Office of the Personnel Department is now accepting applications for enrollment in any one of the three basic health plans:

BLUE CROSS/BLUE SHIELD
UNITED MEDICAL
CLINICS/BLUE CROSS
KAISER FOUNDATION
HEALTH PLAN

At this time, all employees may enroll or add dependents for coverage effective June 1, 1970. The DEADLINE for submitting applications for this coverage will be MAY 8, 1970.

Stanford contributes \$10.00 per month toward the cost of any one of the above plans.

NO health examination is required; and preexisting illnesses will be covered. Applications must be made through the Benefits Office, Room 238, A & E Building. Call Extension 2357 for more information.

A NEW LOOK AT QUANTUM ELECTRODYNAMICS

By Charles Oxley

Some difficulties have been countered in fusing the two great theoretical advances of modern physics—quantum mechanics and the electromagnetic aspects of relativity. It is surprising that two fairly difficult and mathematically complex theories should have additional difficulties in their combination. The work of Dirac, Heitler, and others had produced a limited theory which was able to calculate some facts, but was not in a correct relativistic form. This theory was a primitive form of quantum electrodynamics—that theoretical framework which deals with the way the lightest elementary particles (photons, electrons, and muons) interact with each other and with external electromagnetic fields.

In 1947, Willis Lamb uncovered an effect in measurements of the energy levels of the electron in the hydrogen atom. A simple (and inaccurate, but useful) model of hydrogen has the electron moving in an orbit about the proton, which is this simplest atom's nucleus. Not all orbits are possible; the electron must be in one of a discrete set. You know which orbit the electron is in, you can use the theory of quantum mechanics to compute the electron's energy. Typically, hydrogen electrons have energies of a few electron volts (eV). Now, a more rigorous treatment shows that just knowing the orbit is not enough in determining the energy. The same orbit may have different energy states. One such effect was measured by Lamb and Retherford, and its discovery led to a challenge of existing quantum electrodynamics (or, in theorists' slang, QED). The challenge was, simply, for QED to calculate correctly the observed difference between the two energy states investigated by Lamb. This particular energy difference is only about a millionth of an electron volt, so the calculation had to be very precise.

The first calculation of the "Lamb shift," as it became known, was by Peter A. M. Dirac. Shrewdly using the available theory, he made a calculation correct to a first approximation. However, younger theorists had been concerned with unmanageable divergences (or infinities) in the available QED. Thus, Feynman, Schwinger, and others, perfected a beautiful, concise and relativistically correct edition of the theory. This revision led to small additional corrections for nuclear size and other effects. Following the measurements in hydrogen by Lamb and Retherford, and ionized helium by Lamb and Skinner, improvements of the Lamb Shift measurements brought more precise knowledge of the magnitude of the effect.

As a result, increased success was sought to the new QED. Some notable examples were: refined calculation of the electron's magnetism by virtue of its spin; inclusion of the heavy electron (muon) without signs of other effects; extension upward of the range of validity to 10⁻¹⁴ cm nuclear size (10⁻¹⁴ cm) by high-energy electron scattering, and processes like mu pair production. (The range has also been extended upward—10¹⁰ cm—through space-probe exploration of the earth's magnetic field).

But, alas, despite all the corrections and other successes, the Lamb Shift itself remained in slight disagreement with theory. This was the situation last summer when it was surveyed by Brodsky and Appelquist of SLAC. They found that of the half-dozen small corrections—the first order Lamb Shift, all had been calculated by two or more groups independently.

The one important unchecked calculation was that of the second order correction. It had been calculated by

Norman Kroll, then at Columbia. He had turned the detailed calculation over to a student, who completed it after three years of labor. This had been the only calculation of the second order effect.

In tackling this problem afresh, Brodsky and Appelquist had tools that would do for them the algebra and tedious computation. These tools were the computer programs and the SLAC computer. The algebraic symbolic solution program had been worked out by A. Hearn at Stanford. An efficient and powerful "multidimensional integral" program had been devised at CERN by G. Sheppey and improved by A. Dufner formerly of SLAC. Several patterned algebraic errors were uncovered, and the whole problem was done with superior accuracy within two months! The correction turned out to be four times that of the erroneous figure, and the Lamb Shift now agreed very nicely with the precision experiments.

Thus ends, for a while, the story of small disagreements between the theory of quantum electrodynamics and the real physical world as we know it. Quod erat demonstrandum(?)

From the ultra-small, as probed by SLAC experiments, to the very large as probed by space rockets, QED is valid—a fantastic range of 24 factors of 10, or a million billion billion!

Summer Employment

(Continued From Page 1)

of the Country occasioned a reorientation of the program to include job opportunities for those young people who were disadvantaged by their social, cultural or financial status. The government's criteria for the Youth Opportunity Program were adopted. In this way, SLAC was committed to become sensitive to the needs of disadvantaged people living in south San Mateo County and north Santa Clara County in particular and the Bay Area in general. As we go into our fourth year, we view the program with more and more hope that it will achieve for the disadvantaged the opportunity of pursuing better fields of employment.

Despite "budget squeezes" and "tight budgets," this year's Summer Program will continue to include seventy-five openings for Youth Opportunity Program participants. Ideally, we would have expected an increase in the number of slots available for YOP's, but those who count the shekels saw no way. Non-YOP openings were reduced however, and this fact has reduced the overall total for the Summer Program to ninety-six. This is less than previous years, but we trust that this will not set a trend. It would be a comfort to know that the Atomic Energy Commission considers the program of summer employment so essential that it would deliberately and directly fund it. But alas, the AEC simply urges the labs to milk their budgets for summer programs. The disadvantaged find it difficult to wait for final budget tabulations. Or is this perhaps, another inevitable disadvantage?

The Summer Employment Program is an institutional commitment on the part of SLAC. But a more necessary definition is that it be a personal commitment by everyone to provide help for those less fortunate. The student needs experience, the trainee needs training, the minority member needs exposure, and in general, the disadvantaged need to know that the advantages of working at SLAC can be theirs too.

The actual Program will begin on June 15th and will continue through September 11th. Group Leaders have been advised about specific plans and through them we hope everyone at SLAC will become informed about the Program. If at the end of the summer, we can report that a good and profitable time was had by all, we won't feel trite in telling you so.

SLAC Dictionary

Part 2

In which we continue to define some terms commonly used in high energy physics.

CHOPPER: At SLAC, a device which increases the separation of electron bunches within a given pulse of electrons. Useful in certain experiments. Sometimes called a "beam knockout" system.

COCKROFT-WALTON ACCELERATOR: A device for accelerating charged particles by application of a very high direct-current voltage to a stream of gas ions in a straight insulated tube. The particles (which are nuclei of the gas ionized, such as protons from hydrogen) gain energies up to a few million electron volts from the single acceleration provided by the device.

COSMIC RAYS: Radiation of many sorts that stems directly or indirectly from sources outside the earth's atmosphere. Cosmic radiation is part of the natural background radiation, and some of its constituents have extremely high energies.

CROSS SECTION: A measure of the probability that a nuclear reaction will occur. Usually measured in "barns," it is the apparent area presented by a target nucleus (or particle) to an oncoming particle.

CYCLOTRON: A particle accelerator in which charged particles receive repeated synchronized accelerations or "kicks" by electrical fields as the particles spiral outward from their source. The particles are

kept in the spiral by a powerful magnet.

DEUTERIUM: An isotope of hydrogen whose nucleus contains one neutron and one proton and is therefore about twice as heavy as the nucleus of normal hydrogen which has only the proton. Deuterium is often referred to as heavy hydrogen; it occurs in nature as 1 part to 6500 parts of normal hydrogen.

DEUTERON: The nucleus of deuterium (heavy hydrogen). It contains one proton and one neutron.

DOSIMETER: A device that measures radiation dose, such as a film badge or ionization chamber.

ELECTROMAGNETIC RADIATION: Radiation consisting of electric and magnetic waves that travel at the speed of light. Examples: light, radio waves, gamma rays, X rays. All can be transmitted through a vacuum.

ELECTRON: An elementary particle with a unit negative electrical charge and a mass 1/1837 that of the proton. Electrons surround the atom's positively charged nucleus and determine the atom's chemical properties.

ELECTRON VOLT: The amount of kinetic energy gained by an electron when it is accelerated through a voltage difference of 1 volt.

ELEMENT: One of the 103 known chemical substances that cannot be divided into simpler substances by chemical means. Examples: hydrogen, lead, uranium.

Bowling League Has Roll-Off

The socially active SLAC Bowling League had its annual Roll Off, Wednesday, April 22nd. At that time the winners from the first half, Herm Zais's MFS team (Zais, Ann Starks, Ralph Wise, Bill Davies-White and George Cruickshank), and the winners of the second half, Morris Beck's Slow Starters (Beck, Pete and Mrs. Munzell and Dick Bierce) met to determine who the first and second place final winners would be. Zais's team, the Sandbaggers, won and Herm also won the honors for the most improved average for a male bowler for the season. He had picked up 10.3 points on his average, while Vickie Oliver of the Stanford Computation Group at SLAC had improved by six points to qualify as the most improved woman bowler for the year.

All the other teams met the same night for a Sweepstakes play-off for cash prizes. After the games, everyone was invited to an informal end-of-the-season celebration. They went to the Melody Inn in Los Altos for food, drinks and a rehash of the season.

On May 6th, the formal Bowling Banquet will be held at Lori's

LOST & FOUND OFFICES

SLAC's "Lost and Found" offices for personal items are the receptionist's desk in the A & E Building lobby and Margie Barnes' desk in the Director's reception area of the Central Lab. Peggy Nichols, who has had the A & E receptionist job for the past two years, reports only a few loose keys, a lipstick, "Pink Apricot" in color, a dark-brown eyebrow pencil, and several pairs of safety glasses on hand currently. (She had some woolen mittens but the moths got so thick she had to junk them.) Margie has keys, a lady's watch and lady's ring, men's gloves and a pair of man's sunglasses that appear to be prescription ground.

For information on any of the above items, call Peg at Extension 2555, or Margie at Extension 2604.

restaurant in Redwood City at 6:30 p.m. After dinner, winners in the various divisions will receive trophies and cash awards and then all League members will finish off the evening with dancing to Lori's live band.

There will be a report on the banquet and trophy winners in the next issue of the SLAC News.

SLAC NEWS

Stanford Linear Accelerator Center

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SLAC PERSONALITY-

John Stewart Alcorn

John Alcorn, having celebrated only nine birthdays, is probably the youngest engineer at SLAC. Born on February 29th in Tulsa, Oklahoma, he observed the next five leap years in Houston, Texas. Unlike most people from that area, he has retained no appreciable accent.

He attended Rice Institute in Houston and graduated as a Mechanical Engineer in 1955. During and after that time he worked for six summers in the oil fields of Texas and Louisiana, the last three as a "roughneck" on a drilling rig.

In his fifth year of college John became Rice's head cheer leader where he claims he was billed as "The World's Worst Yell Leader" — chiefly because he could never remember his lines. Supposedly in desperation, he invented a quickie yell — "R.I. — Rice Fight!" — which, believe it or not, is still in use at Rice.

John then served two years in the United States Navy aboard a destroyer in the Pacific. He states that most of this time he spent either seasick (he kept a special bucket on the bridge) or ashore. Ashore for John meant Japan, San Diego, Hong Kong, Hawaii and Rangoon, Burma.

By 1958 he had followed his wife-to-be back here from Texas. They were married here and with his wife and two boys (aged 4 and 6) John is still living in Palo Alto. He considers himself lucky. He likes his family, he likes living in this area, and he likes his job.

Before coming to SLAC, John worked at Aerojet Nucleonics in San Ramon. In 1961 he went to work for William M. Brobeck & Associates in Berkeley where he worked on cyclotron design, magnets and even automated lawnmowers.

Prior to starting a family, and with a life-long interest in European history leading him on, John, with his wife, left Berkeley and for six months lived in Europe. They went from country to country doing just as they pleased. This included a three-week trip through Russia during the hot season and featured a bus with neither air conditioning nor roll-down windows. Crossing many long distances in this fashion, without interruption or stops, gave John a lasting impression of the immensity of Russia! He found the young men inquisitive about our country and way of life. Also about his colored dacon drip-dry shirts — for which he said he had several offers. At the time of interview, John was wearing an excellent example of capitalistic extravagance — a gold, red, grey, chartreuse, tan and yellow-patterned shirt which any Russian would be happy to pick up as a collector's item.

He reported another interesting facet of his European tour. John has run five miles, twice a week regularly, for many years and as part of his visit he recalls running the Road from Marathon to Athens, jogging on the Appian Way in Rome, along the coast of Yugoslavia, and over the well-tended paths of London's Hyde Park. Now he confines his running to the Stanford track or an occasional jog through the streets of Palo Alto. In the days before jogging was the "in thing" to do, John reports he raised a few eyebrows around town.

After Europe, John returned to Brobeck until 1965 when he migrated to SLAC. He was worked primarily in the Bubble Chamber Group designing magnets and helping build the 40" Hydrogen Bubble Chamber Magnet. He is now working with David Leith on mechanical design and construction of the proposed Leith Large Wire Spark Chamber Magnet which is as big as its name is long. This would be the biggest magnet at SLAC weighing in at about 500 tons or 1,000,000 pounds.

Other interests of John's include tennis and mountain climbing. He has made several climbs in the Sierra with other SLAC people and is currently in Class '3' max.

When asked if he had any sedentary hobbies, he said that like any normal nine-year-old, he enjoyed building model airplanes. John, who is very youthful looking, blue-eyed, and freckled, touched at his greying sideburns as he said it. He makes his display models from absolute scratch. It takes him about seven months to carve one out of wood. He claims they're a hang-up from earlier years and substantiates this by saying all his planes have to have a propeller. Asked if he ever wanted to learn to fly, he replied, "In an airplane? Never!!"

Jokingly we asked John what he did with his spare time and with absolute seriousness, he said he liked to do "pencil drawings." Investigation proves that John Alcorn does indeed do pencil drawings — large elaborate efforts. Skillfully delineated social commentaries, so beautifully drawn that he has had one-man exhibits at the University of California and Stanford. He is particularly proud of a show Foothill College prepared especially for his work — about 25 in all — for which he received much social and professional acclaim. His drawings take three to six months to complete or longer. Some have involved him in seven to nine months of exquisitely detailed and documented drawing. His latest has the title "The Peaceable Kingdom Come." It took him seven months to draw and he says it was

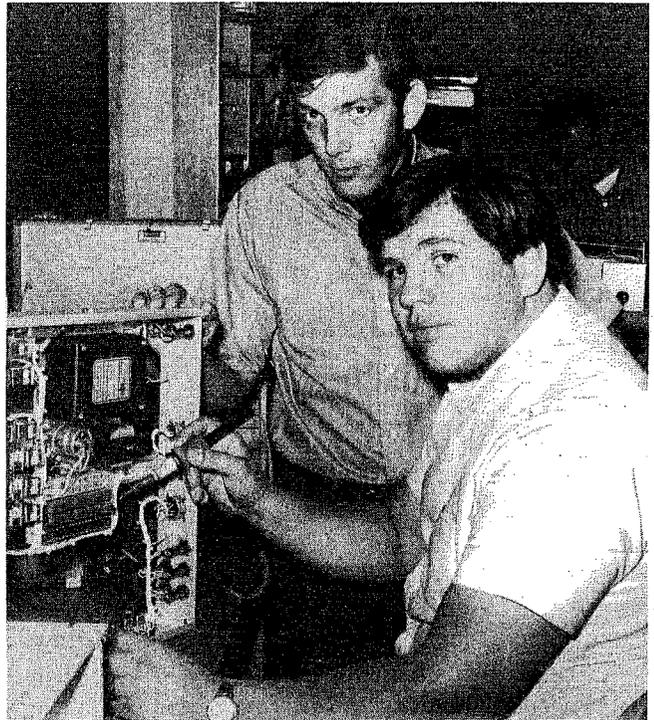


John Stewart Alcorn

designed to offend as many people as possible! Prints of some of his drawings are available but John remains reticently modest about their availability.

Perhaps on the theory that if you want to get a job accomplished you go to a busy man, SLAC's SERA (SLAC Emergency Relief Association) named John to their Presidency for this year. When asked about it, John reported SERA as "alive and doing well." He added that he really believes in the organization and its purposes. That, plus his unusual energies, seems to insure that SERA was wise in their choice of a president.

In the very near future, SERA, with John's help, is planning to sponsor an Art Show at SLAC. Contributions in any art media will be welcomed. More about this latest project of John's will be forthcoming in the next issue of the SLAC NEWS.



George Burgueno, Electronics Instrumentation, working on a gas flow control system designed by his supervisor, Eugene Cisneros.

Training Program

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San Mateo. They will attend classes at CSM in the morning.

Ron Koontz, Accelerator Physics, supervises four trainees. His approach is somewhat different in that his goal is to encourage participants to get a degree in engineering, rather than stop at the technician level. He notes that most trainees, with or without the diploma, really don't have a solid high school education so he encourages them to spend the time (about a year and a half) necessary to remedy this in junior college classes and then to spend the two years of course work necessary to get them to the point where they can transfer to a four year college on the junior level. The goal is a degree in electrical engineering.

David Jammer and Mario Smalls, trainees under Koontz, are at the point where they've completed the college preparatory make-up phase. Fred Hooker is about eight months further along than this, while Ele Juarez, having just become a trainee, is beginning course work.

While at SLAC, Accelerator Physics trainees learn all phases of basic fabrication and wiring, panel layout, wire wrapping and other skills.

The total cost of salaries of trainees in S.T.P. is initially divided equally by the line department and the Personnel Department. Later this proportion changes as trainees become more productive. Departmental instruction time and also materials and supplies used by trainees for educational purposes may be charged to Personnel.

How do people presently enrolled in the program feel about it? George Burgueno is very enthusiastic, and wishes more organizations would institute a program like this. George got into the program as an electronic technician trainee in June, 1969. He was initially referred to Stanford University by an organization concerned with economic opportunities for Mexican-Americans. Stanford suggested he try SLAC, and he did. He had taken courses at San Jose City College and is continuing to do so while here at SLAC. His first six months at SLAC were spent learning about chassis wiring and fabrication and in helping with modulator

maintenance. Now he's working under Eugene Cisneros in Electronic Instrumentation, building from scratch a gas flow control system for a wire spark chamber.

Steve Combs is an example of a successful S.T.P. graduate. He recently completed two years in the program and was hired as a mechanical draftsman. Steve was working in the SLAC mail room in early 1968 when Aaron Baumgarten, a mechanical engineer in RAD began a two-month informal course in drafting for him and Ray Manuel, who is currently in the service.

The course was initiated when Baumgarten saw Combs and Manuel doing some drafting in the mail room. With the help of Joe Fish, some real drafting equipment was made available and they received instruction after their normal duties had been completed. At the end of this informal course, Steve was accepted as a trainee in S.T.P. and worked in a variety of places at SLAC. He found the people he was involved with to be very helpful and cooperative — a sentiment shared by all the trainees interviewed. He feels, however, somewhat more than two years might be required in the case of drafting.

What about the future? In spite of recent budgetary restrictions, SLAC plans to continue the program at or near full strength with twenty-five trainee positions authorized. This is only one of a number of SLAC programs designed to deal with the plight of disadvantaged persons. Other programs will be discussed in future editions of the News.

Want Ads

For Sale — 25-HP Elgin outboard motor with electric starter. Includes gas tank. \$100.00 Jack Nicol, ext. 2173.

For Sale — Altec-Lansing speakers, A-7 Components: 803B woofer, 802 D/H. F. driver on- 811B horn with 800E cross-over. All in a walnut cabinet. \$140.00. Urban Cummings, ext. 2308 or 321-8859.

Found — National Audubon Society Membership card and membership decal. No name other than SLAC on card. Can be claimed in Room 233 A&E Bldg. ext. 2204.