



SOME OLD FRIENDS got together at the Labs this week as AT & T President Robert Lilley (center) and former Sandia President Monk Schwartz (left) met with President Sparks. Mr. Lilley's opening quip to Mr. Schwartz: "You're looking pretty good for an ex-installer." He was in town as keynote speaker at the UCF luncheon.

President Sparks Emcees UCF Kickoff Luncheon

On Tuesday this week, President Morgan Sparks was master of ceremonies at the kickoff meeting for the 1973 Albuquerque Community Fund campaign.

He introduced Robert Lilley, president of American Telephone and Telegraph, principal speaker at the kickoff luncheon. Mr. Lilley discussed the social responsibilities of business organizations and the use of technology in the public interest.

A member of the UCF board of directors, Mr. Sparks is deeply committed to helping raise this year's UCF goal of \$1.775 million.

"It's a source of great pride to me," he told the LAB NEWS this week, "that Sandians will contribute almost 20 percent of the UCF goal.

"One of my first large meetings with Sandia people when I came to Sandia a year ago was to address the workers of our own in-house effort. I reviewed the Sandia program before the meeting and was made aware how responsible Sandians are as community citizens. The facts made this plain — about 85 percent participation at a very high level. Individual contributions averaged about \$70. This was the best record of any group I had worked with. Back East the communities are diffused and the in-house effort is spread thinly over hundreds of agencies. Obviously, Sandians identify strongly with their city and support its needs in a very real way.

"As we start this year's drive, I want our employees to know that I'm with them. One of the reasons I invited Bob Lilley here for the UCF kickoff was to share with him my enthusiasm for Sandia and Albuquerque. Supporting our Employees Contribution Plan is the best way I know to reflect this enthusiasm."

LAB NEWS

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SEPTEMBER 21, 1973

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

How come smoking isn't prohibited in the Tech Area cafeteria?

What is the Labs policy on how many people share an office?

You've asked your supervisor; the subject really isn't in his bailiwick and finding the answer would take a lot of digging. Or perhaps it's a subject you'd prefer not to discuss with him. Sooner or later most people in a large company do have such a question — or comment — and it is this circumstance that prompts the launching next week of a major question/answer program, aptly named "Feedback."

Discussing Feedback, President Sparks had this to say: "Feedback is an experiment to expand communications with all employees and to thus increase their knowledge and understanding of the company. It enables the individual employee to inquire or comment anonymously about any aspect of the Laboratories and to receive a direct and candid written response from the appropriate director."

George Thorne of Employee Relations Department 4230 is Feedback administrator for Sandia in Albuquerque (Walt Dzigan, 8212, is Livermore administrator), and he outlined for LAB NEWS the way the program works.

"To submit a question or comment the employee picks up the preaddressed Feedback form that's available at or near the bulletin boards in most buildings. He or she writes out the question or comment, fills in name and address information, and drops the form in the company or U.S. mail — it's already addressed and stamped. As administrator, the

(Continued on Page Three)

For a Personal Need to Know

feedback



FEEDBACK'S the name, and your questions about the Labs will be individually answered under the new question/answer communications program. George Thorne (4230), Feedback administrator, displays batch of forms and dispenser, shortly to be posted at numerous locations around the Labs.

Afterthoughts

Big Trouble, Right Here On KAFB--From the Sept. 11 Base Bulletin, this item is addressed to you people out there who continue to scoff at the law: "BASE DECALS: Paragraph 2-2.1d, AFSWC Sup 1/AFR 125-14, 'Motor Vehicle Traffic Supervision,' 13 March 73 requires that all other military base decalomania will be removed from a vehicle regardless of its location, i.e., windshield, front and/or rear bumper, etc. ...Failure to remove such old decals, even though properly registered and displaying the current Air Force and/or Sandia Laboratory (sic) decalomania, is grounds for barring the vehicle from Kirtland AFB until compliance. Security Police continue to see vehicles not in compliance with this requirement... vehicles displaying more than one decal will...be cited when found on base." There's more, but you get the idea. We have it on good authority that an elite Decal Squad has been formed to deal with those hard core types that just won't let go of the old decal. This is a very sticky business...

818 Lives! (maybe)--In our last issue, we traced the history of Bldg. 818 and probably left the impression that it was about to be thrown to a pack of bulldozers. Well, there have been several objections to such a rude ending (including a letter of protest to Pres. Sparks), and I'm happy to report now that the creaky old place may yet survive--not here, but elsewhere. When buildings become surplus, Dick Malone (AEC/SAO) routinely contacts state and county officials and he is hopeful that someone out there will move 818 and restore it to a useful role in society. We'll keep you posted.

One For The Road--Other countries show more ingenuity than we do in their treatment of drunken drivers. An item sent to me by Hal Baxter related that in Turkey the offender is taken out of town 20 miles and forced to walk back. In Malaya, it's a family affair --both the driver and spouse are locked up. And the Australians are really cute: drunk drivers' names are sent to local newspapers and are printed under the headline "He's Drunk And In Jail."

"For as I like a young man in whom there is something of the old, so I like an old man in whom there is something of the young; and he who follows this maxim, in body will possibly be an old man, but he will never be an old man in mind." Cicero, *De Senectute* *js



Supervisory Appointments

NICK MAGNANI to supervisor of Physical Metallurgy Division 5531, effective Sept. 1. Assigned to the metallurgy group since joining the Labs in '68, his principal area of interest has been the study of stress corrosion cracking of uranium.

Nick earned a BS degree in chemistry in 1964 and his PhD in metallurgy in 1968 from Iowa State University. He is a member of the American Society of Metals and vice chairman of its local chapter; he also belongs to the National Association of Corrosion Engineers, and the Acoustic Emissions Working Group. Nick spends a lot of his spare time working with the Albuquerque Breakfast Civitan Club and a Cub Scout group. His favorite hobby is woodworking.

Nick and his wife Louise have two sons — Paul, age 9, and Chris, age 6 — and live at 2921 La Palomita NE.

High Altitude Study

Big Balloon Goes Up Oct. 2

A huge balloon carrying a 4650-lb. payload of atmospheric measurement instrumentation is scheduled for launch from Palestine, Texas, Oct. 2. The balloon, filled with 13 thousand cubic feet of helium at launch, will expand at altitude — the goal is 100,000 ft. — to more than 12 million cu. ft. Radio-controlled experiments will be done at 50,000 ft. and at 100,000 ft. over a 30-hour period with particular interest in sunrise effects.

Sandia fielded a record-setting balloon experiment last year which carried a 235-lb. payload to 159,000 ft. It was launched from Holloman Air Force Base. The new balloon will be launched using the facilities of the National Science Foundation's National Center for Atmospheric Research at Palestine.

Frank Hudson (4762) who directs Sandia's participation in the Department of Transportation's Climatic Impact Assessment Program (CIAP), is scientific advisor for the balloon project.

"The balloon program is a cooperative effort among a number of agencies," Frank says, "including Bell Laboratories. Others are the White Sands Atmospheric Science Laboratory, Penn State University, and

University of Texas at El Paso. We will be making measurements in an area, important to Sandia's atmospheric effects programs, where the chemical kinetics and the dynamics of the atmosphere are least understood. The Bell Labs instrumentation will detect very small amounts of important atmospheric constituents such as nitric oxide, one of the concerns of the CIAP program. Other instruments will measure solar ultraviolet, cosmic rays, electrical conductivity, positive ions, carbon dioxide, water and, of course, densities and pressures. It's a comprehensive sampling package."

Keith Smith, supervisor of Instruments and Sensors Division 1255 is coordinating the operation, and a number of the division's members are playing key roles. Frankie Crutcher is project engineer for the experiment, assisted by Preston Herrington. Ralph Schellenbaum is responsible for the ultraviolet instrumentation, Bob Woods for the mass spectrometry. Tom Devlin, Ed Marsh and Rex Myers have been involved in the instrumentation, calculations and packaging.

Molly Ellis (4762) is doing computations to predict atmospheric composition for comparison of theory and the measurements.

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&
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Annual ECP Drive Starts Oct. 1

Sandia's annual Employees Contribution Plan Drive starts Monday, Oct. 1, with a kickoff meeting of directorate representatives, solicitors, ECP committee members, union presidents and large staff. President Morgan Sparks will address the group.

ECP Committee Chairman Bill Snyder (5320) says that the goal of this year's drive is the same as in the past — "100 percent participation at the Fair Share level." Fair Share is defined as one hour's pay per month, although Sandians will have new options this year to increase their contributions.

Although an employee has always been free to give any amount he wished, the next explicit category above one hour's pay has, in the past, been one and two-third hour's pay or one percent. This year Sandians may select from an additional three categories — .7% or one and one-sixth hour's pay per month, .8% or one and one-third hour's pay per month, and .9% or one and one-half hour's pay per month.

The new options correspond to the scale used by the Albuquerque United Community Fund for designating Fair Share contributions. The downtown scale, for example, recommends that a person earning between \$14,000 and \$14,999 give .9% of his annual salary as his Fair Share.

The ECP committee emphasizes that each individual makes his own decision. One dollar a month is the minimum contribution to be a member of ECP.

It is estimated that Sandians will contribute about \$350,000 to ECP this year. Some 84% of employees contribute to ECP, 50% at the Fair Share level. The average gift of contributors is \$73 annually.

ECP funds go to the 34 agencies of the Albuquerque United Community Fund and to eight national health agencies as well. The Sandia employee contributions are divided on the basis of the fund-raising experience of the agencies in the Albuquerque community.

Next year's ECP funds will be distributed as follows:

Agency	Pct.
United Community Fund	85.2
Cancer Society	3.1
Heart Association	3.0
Cerebral Palsy	0.8
Muscular Dystrophy	1.8
Arthritis Foundation	1.4
Multiple Sclerosis	1.5
Crippled Children	2.0
Cystic Fibrosis	0.7
Reserve	0.5

Directorate representatives will begin contacting coworkers on Tuesday, Oct. 2. Everyone will be asked to fill in a new payroll deduction card this year to update records.

"The past performance of Sandians and ECP is outstanding," Bill Snyder says. "We are looking forward to a successful drive with significant increases in participation. The ECP drive will end Oct. 10. The downtown UCF organization has a goal of \$1.775 million. Sandians always deliver their fair share to this community-wide effort."



TATER, three-stage rocket system developed by Sandia, achieved a velocity of 10,700 feet per second in the heavy atmosphere under 11,000 feet. The successful first flight of the system was conducted recently at Tonopah Test Range.

Flight Tested at Tonopah

TATER Is One Tough Fast Rocket

At Tonopah Test Range last month, a 40-ft. long, pencil-shaped rocket streaked low across the horizon and set a number of records of sorts.

The three-stage rocket system, a team effort of Aerodynamics Project Department 5620, achieved a velocity of 10,700 feet per second in the heavy atmosphere below 11,000 feet. The vehicle experienced extreme temperatures and the thermal protective coatings were almost totally consumed by the flight, but the 65-lb. payload riding behind the graphite nosecone survived and was recovered.

"It was an important test," Larry Rollstin (5624), aeroballistic designer of the system, says, "and we were all pretty tense before launch. Sandia is running a continuing program of materials research on missile nosecones for the Air Force. Later this year, a number of TATER systems are scheduled for launch from Wallops Island in Virginia. Requirements are for an inexpensive system which can achieve velocities above 10,000 fps at low altitudes."

Noteworthy about the Sandia System is that it combines existing or "on the shelf" rocket boosters. First stage is a 110,000-lb. thrust Talos, second stage a 60,000-lb. thrust Terrier and third stage a 35,000-lb. thrust Recruit. Sandia has flown a Terrier/Recruit combination for several years and has achieved velocities close to 9000 fps.

"It's a trade-off aerodynamically," Larry says. "We were able to gain about 2000 more fps with a third stage, but the loading factors increase tremendously. Our three stage rocket (called TATER from the first letters of the three boosters used) experienced a dynamic pressure of nearly 100,000 pounds per square foot during its flight. I know of no other rocket system that has withstood this kind of pressure loading and high temperatures in the lower atmosphere."

The Talos burned for 5.2 seconds and pushed the system to 3000 fps. An acceleration sensing switch then fired the second stage Terrier; it burned 4.1 seconds and increased the velocity to 6500 fps. Again, the sensor fired the Recruit and the remaining stage streaked to 10,700 fps within another two seconds.

From the 16-degree launch angle, the rocket climbed to 12,000 ft. above the ground before the nosecone parachuted gently to impact 25 miles downrange from the launch

site, about three minutes after launch. Excellent radar and optical tracking and documentary photography during the test were obtained by Tonopah Test Range personnel.

Although the launch was primarily a rocket development test, the nosecone was an actual test unit and data was telemetered. Jerry Hochrein (5644) was responsible for the nosecone experiment.

Bob Fellerhoff (5623) is the lead mechanical designer for the TATER system. Don Johnson (5626) is responsible for the parachute recovery system and Roy Lanes (9483) for the telemetry system.

After the successful test, plans are underway for the series at Wallops Island. Several TATER systems will be partially assembled at Sandia; some rocket hardware and electronic components are being fabricated in the Process and Fabrication Laboratories (7100). Final assembly will be made on the launcher at Wallops Island facility. • dg

feed back

(Continued from Page One)

question comes directly to me, unopened. At Livermore, the forms are addressed to go directly to Walt. I — or Walt — remove the questioner's identification — it's on a stub — and give the letter a code number. I then forward the question to the appropriate director; when he replies I send the response to the employee at his or her home address. The anonymity of the questioner is thus protected at every step in the process."

On this last point, George adds that he or Walt as Feedback administrators might contact the employee in confidence to clarify points in the question. Also, it is recognized that some questions are of such a nature that the employee may wish or need to be identified, and the Feedback form has provision for approval by the employee of such identification.

There aren't many limitations on what you can ask of Feedback, but, obviously, your subject should relate to Sandia Labs — George can't tell you why you have so much crab grass. And Feedback items on topics of wide interest will appear as a regular feature in LAB NEWS. Look for the Feedback boxes and forms in your area by October 1st.





LIVERMORE NEWS

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LIVERMORE LABORATORIES

SEPTEMBER 21, 1973

UBAC Budgeteer Hilt DeSelm

'We're Getting a Good Deal'

Working behind the United Bay Area Crusade are over 160 volunteer men and women whose difficult and often frustrating job it is to determine how the funds will be distributed — who gets the money.

As members of 10 budget panels, they are responsible for taking a total look at services needed in the community so that UBAC's limited dollars will do the most good. They visit each agency, review programs, audit finances, and then assess the agency requests for Crusade support.

Among these budget volunteers is Hilt DeSelm, SLL's Staff Services Director (8200), who is working on the Institutional Support Panel for the third consecutive year. We discussed UBAC with Hilt.

As a budget panelist, how are you actually involved with UBAC?

We have about 20 agencies per panel, and each panel contains subgroups — three or four people each — that visit the agencies assigned to that panel. For instance, this past year our group made field trips to San Francisco to visit the Northern California Service League and the Westside Community Mental Health Center, and to Oakland to visit the Allied Fellowship Service and the Legal Aid Society.

How are the agencies selected?

Normally they apply to UBAC for funds, and they are then investigated. A subgroup visits the requesting agency to talk with its director and, after the subgroup has made its report, the director will personally appear before the full panel for further questioning.

What's the investigation like?

First we try to ascertain if the service is really needed and what the possibility is of consolidating that service with another to prevent duplication. Then we look at their expenses for the year, including salary. The organizations must be nonprofit, staffed by capable, qualified people, and run by a volunteer board of directors. We also look at the ethnic balance of their board of directors. We consider all these things before we arrive at our recommendations.

When you look for "need" and where the most good can be done, what do you consider?

A good example is the Allied Fellowship Service in Oakland. They provide a "half-way" house service for people released from the state prison who have no jobs, no money, and no place to stay. They are given free room and board for up to a month; after that they are usually able to help defray their expenses. They also receive job counselling and assistance in getting a job. The average length



of stay is around three months before they are established and on their own. I think this outfit fills a very real need.

After the agencies are selected, how are the monies allocated?

Only after prolonged and intensive discussion — it's not a rubber stamp session. In 1973 the largest proportion, 30 percent is being allocated to youth agencies, with 25 percent going to multi-service agencies such as the Salvation Army and Red Cross, 24 percent to family services, 14 percent to health agencies, and the remaining seven percent to community development.

Are you involved with the administration costs of UBAC?

No we're not, but year-round costs of raising funds and of administration amount to 5.2 cents on each dollar for campaign funds and 4.6 cents on each dollar for administration — a total of 9.8 cents on each dollar. There are only 68 full-time paid UBAC employees, but literally thousands of volunteer workers.

How are these administrative costs controlled?

The board of directors of UBAC controls expenditures and staffing. And the records are audited annually.

As contributors to UBAC, are we getting our money's worth?

I firmly believe we are. Consider our fund raising costs — the cost of similar campaigns in the community averages 30 cents on the dollar for fund raising alone.

Are there problems?

Actually, the chief problem is how to make the dollar stretch. Last year the request figure was about \$20 million and a little more than \$16 million was raised. As a consequence, some agency requests had to be scaled down and a few were eliminated

entirely, although there were eight new ones added last year.

Are there ground rules on how agency operating funds are obtained?

The agencies get their money from private or federal grants and foundations. Some charge fees for services on the basis of ability to pay, or gain dues from sponsors or members, or raise money through sales and benefits. But fund raising drives which defeat the purpose of the "once-for-all" United Crusade drive are discouraged, unless a separate, supplemental drive is authorized for some good reason.

Any other observations?

I think some Sandians perhaps feel that UBAC spending is too heavily concentrated in San Francisco and Oakland. Actually, it is spread throughout the five participating counties, Alameda, Contra Costa, Marin, San Francisco, and San Mateo. UBAC dollars come back to Livermore to support youth groups such as the Boy Scouts and Girl Scouts, the Family Service Agency, YMCA, and others. I wish each Sandian could visit an agency, like say, the Westside Community Mental Health Center and see the enthusiasm and dedication of the staff. UBAC works hard at getting the most for the "customer," and I'm convinced we're getting a good deal.



LIVERMORE ADMINISTRATOR FOR "FEEDBACK," Labs' new communication medium (see article on page 1), is Walt Dzugan (8212). Employees submitting questions will receive a written response from the director chiefly concerned with the subject of the question. Topics of general interest will be published in LAB NEWS.

Kidney Problem? 'Don't Get Depressed' Says Dick Jacobson

When Dick Jacobson, a mechanical engineer in 8114, found out 21 years ago that he had polycystic kidney disease, in which the kidneys slow down or fail to function, he was told to drink lots of water and that was about it.

"The discovery did not come as a complete blow. My father had the disease, it's hereditary. They didn't have chronic dialysis machines in 1952, and at the time it seemed to me as if my kidneys could keep functioning indefinitely," Dick recalled.

Kidney disease is our fourth most frequent cause of death. The kidneys, which weigh less than a pound, handle the elimination of the toxic end products of metabolism. The entire blood volume of the body circulates through each kidney at approximately two gallons per hour. Because of the complexity of this organ, and its continuous function as a blood filter, the kidney is highly susceptible to a variety of diseases.

In 1970 Dick's health became so poor he had to go on a kidney dialysis machine. "Naturally I had some apprehension. However, my doctor had taken me to the dialysis center where I noticed that the people on the machines were of all ages. They were reading, sleeping, or watching TV. None seemed to be in any pain, so I figured if they could do it so could I. I felt better after the first treatment, and after a few weeks I was ready to come back to work," he reflected.

The machine that does this lifesaving job consists of a dialyzer and a delivery system. The delivery system filters incoming soft water, mixes it with salt concentrate, heats and degasses the saline solution, and delivers it to the dialyzer.

The dialyzer consists of special cellophane membranes so arranged that a thin layer of blood flows along one side of the membrane

while the saline solution, which is about the same composition as normal blood serum, flows along the other side. If a higher concentration of certain molecules exists on one side of the membrane, they diffuse through to the lower concentration side and thus can go either into or out of the blood depending on relative concentrations. In one session the blood of the patient goes through the dialyzer about 13 times.

When the kidneys are not working, water accumulates in the body. Dick says he gains about two pounds of water a day. To get rid of this, he spends nine hours on the machine three times a week.

A new disposable kidney machine is now on the market (see picture). Dick plans to switch to it after a training period of several weeks. Dick says, "The new device will not only eliminate the cleaning and rebuilding of the dialyzer, but will also mean a reduction on the machine from nine to six hours. Plus the fact that the disposable kidney does a better job."

Cost of operating the large dialyzer machine, after the initial purchase of \$9000, is \$5000 per year, while the cost of the disposable kidney will go to \$8000 per year.

A kidney patient always holds onto the hope for a transplant that would eliminate the three-a-week dialyzer sessions. This is where the National Kidney Foundation comes into the picture.

Dick describes the donor program as the most important work of the Foundation. He says, "The organ donor program is so simple for the donor. All he or she has to do is carry a card stating that in the event of an untimely death the organs can be used so that others



NEW DISPOSABLE KIDNEY DIALYZER which Dick Jacobson (8114) holds replaces the dialyzer his left hand rests on, reduces treatment time from nine to six hours, and gives better results. Research sponsored by the National Kidney Foundation, a CHAD agency, helped to make change possible.

can survive. Unfortunately, very few people carry these cards." (It is estimated that more than 7500 persons in this country have fatal kidney disease, and there are only enough kidneys for 1500 transplants a year.) Several hundred people in the Bay Area now await kidney transplants. Dick states, "I've been on the waiting list now for two years and eight months and I've never been called." One transplant surgeon observed that if every person in California carried a card, two percent of auto accident victims would provide enough transplants for all kidney patients.

In addition, the Kidney Foundation has a program of kidney disease detection in children so that something can be done to prevent them from getting serious renal disease. Also, people with transplants are provided with anti-rejection drugs — a big expense item.

Today about 50 percent of the cadaver transplants are successful. Another 10 percent require additional anti-rejection drugs, and 40 percent are rejected. However, the research done by the Kidney Foundation continues to improve that success figure.

For anyone with a kidney problem, Dick says, "Don't get depressed. Something can be done and often it's very successful, as in my case. There's a change in the life style, but at least you can keep going at an almost normal pace.

"I urge each Sandian employee to pick up a donor card at Medical, fill it out and carry it. Just think, it may be your greatest gift to your fellow man. The LEAP Program, in which the Kidney Foundation participates through CHAD, is possibly your greatest financial gift." •wj

Sympathy

To Chet Tarne (8183) on the death of his mother in Brookfield, Ill., Aug. 27.

LEAP Campaign Begins Sept. 24

Monday, Sept. 24, marks the beginning of the 1973 Livermore Employees' Assistance Plan fund raising drive, and employee meetings describing this year's program are scheduled for Sept. 25 and 26. During the week-long drive, squad leaders and solicitors will contact each person within the Laboratories.

Campaign goal of the LEAP committee is a 10 percent increase in individual giving. "Hopefully, employees will consider either the Leap Share (one hour's pay per month) or the Fair Share way of giving," says campaign chairman Arnie Rivenes (8363). "This year a Fair Share is based on a graduated scale according to income. We hope this graduated scale will encourage more employees to go the Fair Share route."

Through LEAP, Sandians support both local service agencies and those under the United Bay Area Crusade (UBAC). In addition, LEAP funds assist national health agencies sponsored by the Bay Area Combined Health Agencies Drive (CHAD). Of funds contributed this year, 12 percent goes to five agencies in the Livermore area, 15 percent to CHAD which works with 12 national health agencies, and 72 percent to UBAC, representing some 184 agencies in five Bay Area counties. The remaining one percent is placed in reserve.



CLARE JOST (8112) displays the "People-Helping-People" pin given to Sandians who qualify as "Fair Share" or "LEAP Share" contributors.

FUN & GAMES

Foul Season Is Here — When it was mentioned that this is the season to “take to the field for game birds and water fowl,” it seemed appropriate for that information to be included here. With a little assistance, I discovered it was waterfowl, not a game of water polo, I wanted to write about.

From Sept. 1 until mid-January you can hunt (in the field) game birds (feathered) and waterfowl (“swimming game birds as distinguished from upland game birds and shorebirds”). These categories include dove, pigeon, grouse, quail, goose, pheasant, crane, prairie chicken, coot and gallinule (an aquatic bird and please don't confuse it with a gallinipper which is a large mosquito).

As for the many exceptions to rules for hunting these species, you'd better check out the Game and Fish Department's official proclamation before you fire a shot.

* * * *

Sandia Runners Ass'n. — Dave Saylor (5122) has invited SRA'ers to participate in the Albuquerque Road Runners events. Next Sunday, the 23rd, the Roadrunners are meeting at San Mateo and Ponderosa NE. Here's the schedule: 2:15, Men's Novice, 3 miles; 2:40, Men's Open, 5 miles; 2:50, Women's Run for your Life, ½ mile; 3:15, Men's Run for your Life, ½ mile; 3:20, Women's Open, 1 mile; 3:20, Men's Intermediate, 1 ½ miles.

SRA Chairman Dennis Mottern reports that membership is nearly one hundred. Since so many SRA'ers (12) completed the La Luz Trail race last month, Dennis feels that many other members would compete next year with a little encouragement and some appropriate training — like making a few trial runs up the mountain. “Running and completing the La Luz race has to be one of the most satisfying achievements for any local runner,” states Dennis. “I'd like to see more SRA'ers enter the event and, if interested members will contact me, perhaps we can work out some sort of training schedule.”

* * * *

Sandia Tennis Ass'n. — The Fall Tournament starts this weekend (singles) at the Base courts on Main St. (now Wyoming). You're too late for the singles if you don't already have your entry in, but you can still enter the doubles which will be held the weekend of Oct. 6 and 7. Entry deadline for the doubles is Sept. 28; send your name and that of your partner to Tom Kerley, 5323.

* * * *

About Fun & Games — LAB NEWS is happy to report company-related athletic and hobby events. But let us know! We have no special pipeline to these events — so call Norma on Ext. 7841 to give her the details or better yet put them down in writing and send them to us. Our deadline is the Friday before the Friday of issue.

* * * *

Chess Club — Will meet in October on the 1st and 15th at 7:30 p.m. in the El Dorado Room of the Coronado Club. Members and others interested are welcome to attend.

Congratulations

Mr. and Mrs. Melvin Olman (5722), a daughter, Cheryl Annette, Sept. 6.

Mr. and Mrs. Don Davis (1243), a son, Jason Edward, Aug. 26.

Mathematical Library Seminars

Carl Bailey is project leader for the Math Library Project in Applied Mathematics Division 2642. “Anyone who uses a computer to solve commonly occurring mathematical problems should become familiar with the mathematical routines library,” Carl says. “The library contains between 40 and 50 general routines, and chances are one of these will fit the needs of an individual. Check out this service before you write your own routine.”

A series of seminars on the use of the library routines is being planned. Carl, Rondall Jones (2642), and Larry Shampine (5121) will discuss the use of these routines.

The initial session of the series acquaints users with the library and the consulting services and associated support. Eight technical sessions follow; each covers use of routines available in one or two areas of numerical mathematical computing. The complete schedule is given below.

Math Library Seminars		
Series 1 Bldg. 806, Rm. 201 Tuesdays — 1:15-3:00	Series 2 Bldg. 836, Rm. 114 Wednesdays — 1:15-3:00	Series 3 Bldg. 6588, Rm. 47 Thursdays — 1:15-3:00
Oct. 2 Overview of the Math Library	Oct. 3 Overview of the Math Library	Oct. 4 Overview of the Math Library
Oct. 9 Zeros of Polynomials, Special Functions	Oct. 10 Minimization, Zeros of Functions	Oct. 11 Minimization, Zeros of Functions
Nov. 6 Numerical Quadrature	Nov. 7 Linear Algebraic Equations, Error Handling	Nov. 8 Linear Algebraic Equations, Error Handling
Dec. 4 Eigenvalues and Eigenvectors	Dec. 5 Ordinary Differential Equations	Dec. 6 Ordinary Differential Equations
Jan. 8 Fast Fourier Transforms	Jan. 9 Data Fitting by Least Squares Polynomials and by Splines	Jan. 10 Data Fitting by Least Squares Polynomials and by Splines
Feb. 5 Minimization, Zeros of Functions	Feb. 6 Zeros of Polynomials, Special Functions	Feb. 7 Zeros of Polynomials, Special Functions
March 5 Linear Algebraic Equations, Error Handling	March 6 Numerical Quadrature	March 7 Numerical Quadrature
April 2 Ordinary Differential Equations	April 3 Eigenvalues and Eigenvectors	April 4 Eigenvalues and Eigenvectors
April 30 Data Fitting by Least Squares Polynomials and by Splines	May 1 Fast Fourier Transforms	May 2 Fast Fourier Transforms

Math Book Published

Melvin Scott of Applied Mathematics Division 2642 has been informed of the publication of his book, “Invariant Imbedding and Its Applications to Ordinary Differential Equations: An Introduction.” Published by Addison-Wesley Publishing Co., Reading, Mass., the book will be used as a textbook by undergraduate seniors and first-year graduate students. Melvin is currently using the book in his noon-hour course, “Numerical Solution of Two-Point Boundary-Value Problems.”

Melvin joined the Labs in August 1966 and, until March of this year, was with the Reactor Studies Division 5222. His work has included neutron-electron transport studies and mathematical analyses for the Simulation Sciences Research Department 5220.



MELVIN SCOTT displays new book on invariant imbedding.

Yesterday's City — Chaco Canyon

In a day from Albuquerque you can drive 800 years into the past. Chaco Canyon National Monument, 170 miles northwest, preserves the impressive remains of a vigorous and imaginative people, ancestors of the modern Pueblo Indians, who flourished in an unlikely dry wash from the late 5th to early 11th centuries.

The canyon is about 10 miles long and a mile wide. Its population of 5000 lived off fields of corn, squash and beans that were irrigated by means of a system of earth and stone dams which held the runoff from the summer rains.

Inside the canyon are ruins of a dozen or more "apartment house" structures built of cut and shaped stones. The largest, Pueblo Bonito, contains more than 800 rooms and a dozen circular ceremonial rooms — kivas — plus two great kivas in the courtyard.

More than 50 million pieces of stone were quarried, cut, shaped, transported and laid by a people who had no metal tools, no beasts of burden, no wheeled carts, no concrete mixers. Their masonry still stands. Its workmanship is excellent. At one time, Pueblo Bonito was five stories tall constructed in the shape of a giant "D," the structure's curved wall runs for some 800 feet.

Unlike antiquities in other areas of the world the Chaco structures were not built as a temple or tomb under the lash of a despot. They were built by individuals cooperating in their aim to house families.

The great kivas, churches for the entire community and places where serious business was conducted, are impressive. One such great kiva has been reconstructed at Aztec National Monument, north of Chaco. Half underground and roofed with giant timbers, the kiva is a remarkable achievement in architecture and building skills. Inside, in the huge darkened room, a cultured and creative people practiced their religion.

The ruins of two great kivas are found at Pueblo Bonito. A mile away is another — called Casa Rinconada — which has an inside diameter of 64 feet. And a great kiva has been unearthed at each of the larger ruins at Chaco.

Corn was the primary business of Chaco Canyon. Corn brought 600 years of prosperity for the Chaco people. It brought relief from the daily necessity of the hunt, the constant moving for survival. It enabled the Chaco people to stay in one place, gave them time for elaborate religious ritual, the leisure to pursue the arts of pottery making and weaving, and enabled trade with peoples of the Mesa Verde, Gila, and Mogollan. Copper bells from Mexico have been found in the ruins as well as cages that are presumed to have held brightly-feathered parrots from regions far to the south. Turkeys and dogs were domesticated.

The pinon and ponderosa forests that once lined the surrounding mesa are gone



GIANT KIVA, one of many at Chaco Canyon ruins, was scene of elaborate rituals. Large beams of timber supported a roof of smaller timbers, juniper bark and packed earth.

now. They went for firewood and for roof timbers. As the trees dwindled around the year 1100, other misfortunes plagued the people of Chaco. Tree ring analysis tells us that a prolonged drought was occurring. Raiders from the north became more aggressive and outside doors and windows were bricked up. Entrance was gained only by ladders. Still the raiders harassed them as they tended their fields.

So the people left.

Chaco Canyon, Mesa Verde, Aztec, Gila — all the great pueblos were abandoned around 1140.

Archeologists speculate that continued drought, soil depletion, and erosion, and harassment by nomadic raiders prompted the exodus. The people resettled and rebuilt — the Hopi in Arizona, the Pueblos along the Rio Grande and the Zuni in New Mexico are descendants of the Chaco people.

* * *

For a national monument, Chaco Canyon sees few visitors — perhaps a hundred a week in the summertime. The museum and visitor center, staffed by the National Park Service, are excellent. There are camping and picnic facilities but no restaurants, motels or gas stations.

Still, a visit to Chaco is great for a weekend outing. Try going up via Hiway 44 through Cuba and Blanco and returning by a different route — across the Navajo Reservation to Crownpoint and Thoreau on Hiway 57. You travel a dramatic landscape — stark, primitive. In the distance you see an occasional horseman or a small band of sheep. Until you reach Interstate 40, only contrails in the sky remind you that this is the late 20th century. •dg

Fusion and Electron Beams

(Ed. Note: This is the first in a series of articles describing Sandia's growing effort in energy related programs, an effort that derives from the AEC's new orientation toward the field of energy. Later articles will deal with laser fusion, solar power, geothermal energy, hydrogen economies, and other potential energy sources.)

In 1965, when the AEC's Division of Military Application (DMA) authorized Sandia's first large pulsed electron accelerator, Hermes I, Sandia began development of what has become an extensive electron beam and pulsed power capability. The sustained DMA support of this capability has made possible the development of simulation facilities that have played a vital role in DMA-sponsored weapons effects activities.

Recently the utilization of this capability has been expanded to include other applications. Although a significant portion of the support for these applications continues to come from DMA, primarily for the development of pulsed power, the AEC's Division of Controlled Thermonuclear Research (CTR) has recently accepted Sandia's proposal for an R&D program devoted to the compression and heating of thermonuclear fuel by electron beams. The acceptance carries with it \$250,000 in funding for the first year of effort. The initial program will emphasize the physics of beam focusing and energy absorption in solids. If results from these first steps are encouraging, future steps will involve the supercompression of matter using the beams to heat the outer region of a spherical target.

"CTR acceptance means we have support for the fundamental research that will underlie any major electron beam fusion program," says Gerry Yonas, manager of the Plasma and Electron Beam Physics Research Department 5240. "The next milestone would be gaining funds for a facility to test concept feasibility. We have proposed such a facility, labeled Ripper, to DMA. In the meantime, the program is proceeding with existing machines such as Reba, Hermes, and Hydra. Ripper would also be employed in the

simulation of weapon effects and in our laser fusion program.

"Our three divisions are all involved in this work — the Plasma Theory Division 5241, under John Freeman, provides the theoretical backup; Al Toepfer's Electron Beam Research Division 5242 is responsible for the experimental aspects; and Tom Martin's Pulsed Power Research and Technology Division 5245 is developing the electron beam machines, instrumentation and facilities. Although the program is still in an early phase, we're already getting assistance from several of Jack Walker's (5220) people, including Larry Posey's division (5226); mechanical, electrical, and diagnostic support from Carter Broyles' people in 1100; and from two or three other 5000 directorates. Our project coordinator comes from 1500.

"So the electron beam fusion program depends on a broad range of talents; fortunately Sandia has them. A major problem is that of coordination — to combine the scientific, engineering, and systems approaches optimally."

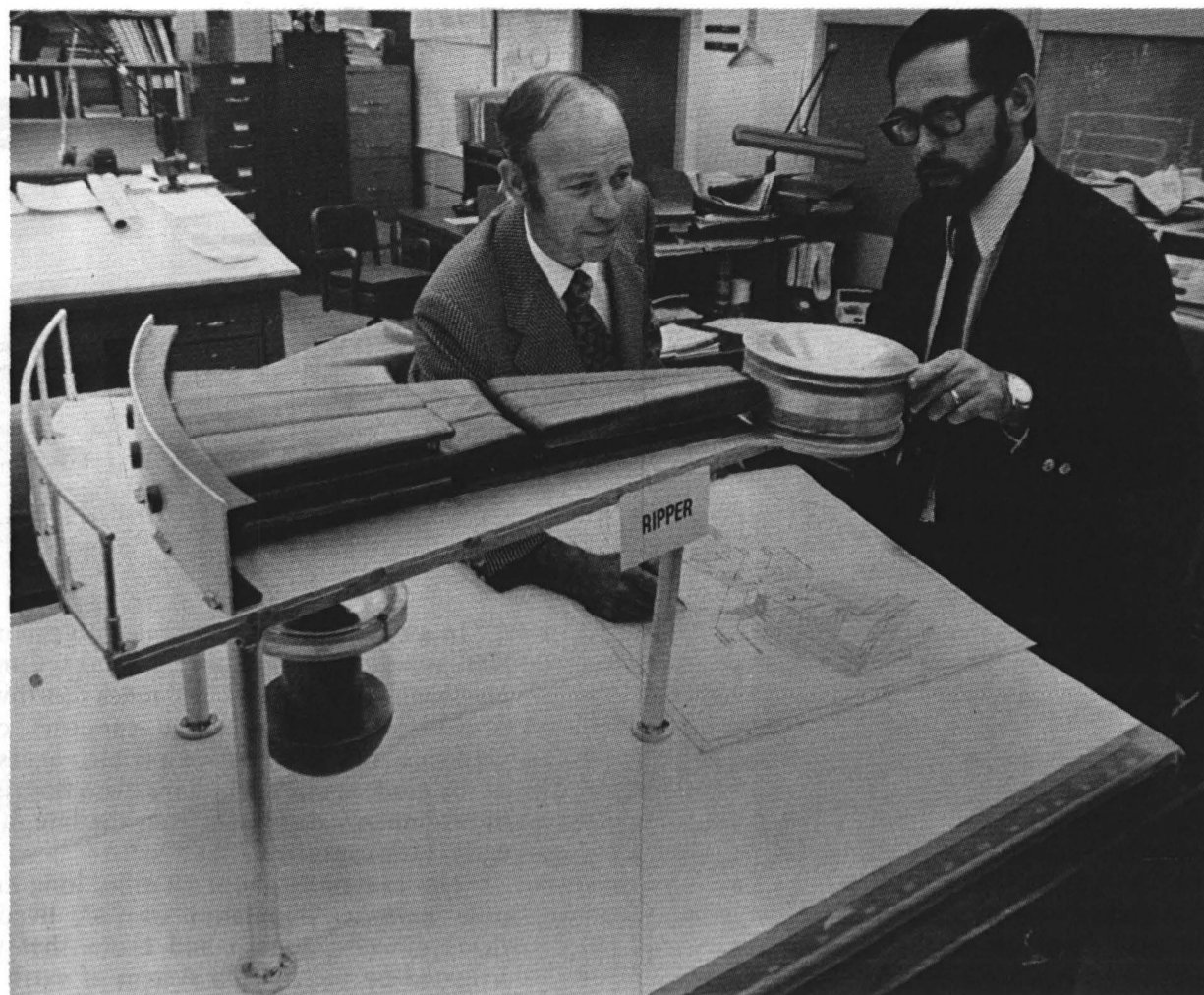
Fusion, the source of the sun's energy, is generally accepted as the ultimate means of energy production for the earth. The fuel — deuterium, a hydrogen isotope — is found in water and therefore plentiful; it is readily available, essentially hazard-free, environmentally acceptable — and cheap.

But there's a hooker: power-producing fusion requires physical conditions beyond present scientific capabilities. Those conditions are rigorous: a) heat the fusion fuel above ignition point — about one hundred million degrees kinetic temperature; at that point the fuel becomes a plasma, a totally ionized gas; b) while maintaining its temperature, isolate the plasma from its container long enough so that the release of fusion energy is greater than the energy required to heat the fuel; and c) convert the released energy to a useful form, such as electricity.

Fuel densities must be high and confinement times long in order to reach an efficient reaction. The most widely accepted approach for achieving the required conditions is confinement of the plasma in magnetic traps — toroidal pinch devices, for example. A second approach is pulsed fusion through inertial confinement; this is the basis of both laser and electron beam work toward fusion at Sandia. (Laser work is being done in Laser Physics Department 5210.)

Under inertial confinement, matter is compressed beyond solid density; when this occurs, one desirable result is that confinement times are far below those required in magnetically confined methods. Compression is achieved by heating the outer region of a millimeter-size sphere to temperatures of roughly one million degrees and, simultaneously, driving the fuel inwards in reaction to the expanding outer region. The outer region of the pellet acts like a rocket exhaust as the heated material becomes, in effect, a superhigh energy density propellant. The "payload," the solid layer that implodes, compresses and heats the fuel to the thermonuclear conditions.

Sandia's electron beam fusion effort, now concentrated under Yonas, builds on the Labs' experimental and theoretical



THE RIPPER MODEL with Tom Martin (left), whose Pulsed Power Research and Technology division 5242 is developing the facility, and Gerry Yonas, manager of the Plasma and Electron Beam Physics Research department 5240. The facility would increase by a factor of ten the amount of power now available at Sandia for electron beam fusion studies and permit the first feasibility studies of the concept at Sandia.

achievements in focusing the electron beam. Jim Poukey, John Freeman, and Al Toepfer are largely responsible for developing the numerical and analytical techniques that have led to an understanding of the limitations and requirements for beam focusing. In focusing, a stream of electrons is accelerated in the electric field of a megavolt diode; currents of millions of amperes can be attained if the diode is large enough.

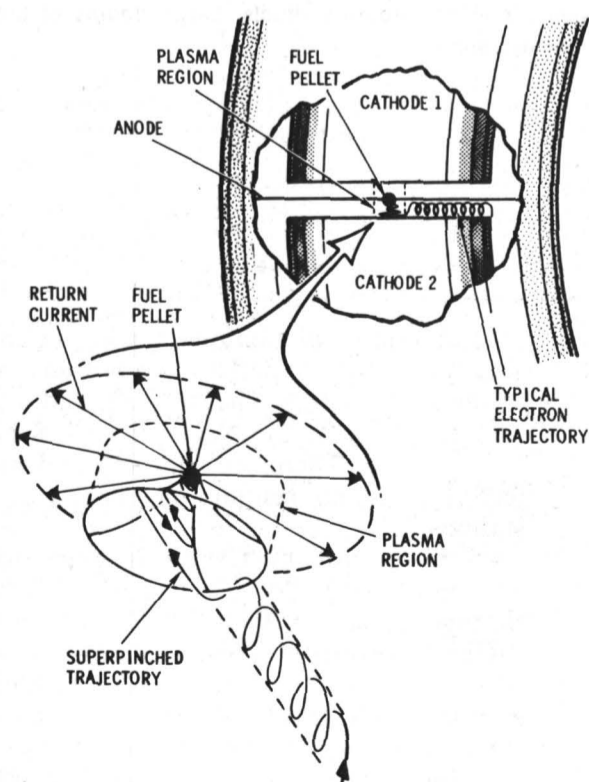
The problem is to focus the current. Some natural focusing occurs, but as the beam pinches, electrostatic repulsion begins to prevail. But it has been found that when positively charged ions are added to the negatively charged electron beam, these ions neutralize the space charge (that is, decrease the force of repulsion), which in turn allows further pinching of the beam. This "self-pinching" can operate in a plasma beyond the diode, but the degree of beam compression has been found to be extremely limited. After several years of research into beam concentration, it has been shown, within the last year, that introduction of such a plasma into the diode itself would provide a reproducible "superpinch" — and a possible means of achieving fusion. The critical experiments were carried out last fall on Sandia's Slim pulser by Ken Prestwich (5245) and Yonas. The technique calls for focusing of the beam onto the anode containing the fuel pellet.

Such an intense electron beam has also been shown to heat plasma effectively, and this finding could lead to a way to reach fusion temperatures in conventional fusion approaches. In addition, such beams have been shown to accelerate ions in the gas through which the beam propagates. Conceivably, this property of beams could be the basis of an entirely new concept for high energy ion acceleration. Research continues in these areas.

So far, energy released (in the form of neutrons) from a plasma at thermonuclear

temperatures is insignificant compared to the amount of energy expended. The major goal is "breakeven" — the point at which energy in equals energy out. "We need about a hundred times the power to achieve breakeven that we now have with either Hydra or Hermes," says Gerry. "But we'll work in steps: first, 10 times as much power, and then the jump to the level needed for breakeven. The proposed Ripper facility would give us the factor of 10 and, if things go well, the second — and final — step would take us to the breakeven point."

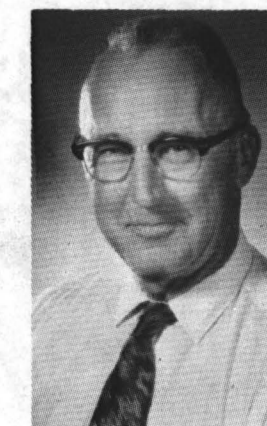
"Fusion by electron beams, or for that matter by any other method, has not even reached the feasibility stage," Gerry states. "To predict exactly where we're going is like asking the Wright brothers to design a 747 — before Kitty Hawk. Our research indicates we're heading in the right direction. We're able to demonstrate remarkably improved beam control over that possible even one year ago. The rate of progress is encouraging and, if our research continues to provide the right answers, we've got a reasonable chance to achieve breakeven before 1980." •bh



"SUPERPINCH" concept, showing diode-contained plasma within which focusing of electron beam compresses fuel pellet.

Credit Union Reporter

By Bill Prekker
Chairman,
Education Committee



Retiree Membership

Until last month, the Credit Union charter allowed membership to "members of this Credit Union who are retired from . . . employment . . . and retain their membership in this Credit Union." The Board has amended the charter to eliminate the last condition. It now reads simply "persons retired as pensioners or annuitants from . . . employment." The CU welcomes retirees who had closed out their accounts to come in and reopen them.

Credit Union Brochure

The updated second edition of "Your Credit Union" is now available, new pictures and all. Pick up a copy at the CU offices; it's a handy guide to all the services available.

Those Confusing Interest Rates

Confused by all the bank and savings-and-loan TV commercials touting their passbook and certificate interest rates? It's true that the maximum allowable rates which can be paid by insured banks and savings-and-loan associations have recently been increased. But so have interest rates on their loans. Let's compare CU rates with those advertised by a local savings-and-loan association. Their passbook interest rate is 5 1/4% with no minimum deposit, no specified length of time, and day in to day out interest. Except for the latter condition — CU dividends can be paid no oftener than quarterly — that's very close to a regular CU share account. Contrast that

5 1/4% rate with our 6% compounded quarterly — with no confusing restrictions. Even their 90-day certificates pay only 5 3/4%.

The rest of the savings-and-loan certificate schedule looks like this: 6 1/4% on 1-year certificates with a minimum of \$1000; 6 1/2% on 2-year certificates with a minimum of \$5000; 6 3/4% on 2 1/2-year certificates with a minimum of \$10,000, and 7 1/4% on 4-year certificates with a minimum of \$15,000. Sounds good, doesn't it? It is good, but don't overlook the penalties. If you withdraw any portion of the amount prior to the due date, you lose 90 days interest, and the rate earned on the amount withdrawn drops from the certificate rate to the passbook rate of 5 1/4%. Then too, you may want to borrow, using your deposited money as collateral. At other financial institutions you generally borrow at 2% above the rate received; at the Credit Union the spread is only 1.2%. If you have any questions in this area, drop by and we'll try to give you the answers.

Speakers

- G.C. McDonald (7623), "Wilderness Backpacking," Downtown Optimist Club, Aug. 3.
- H.R. Shelton (3132), "You're OK, I'm OK," Silva Mind Control Society, Aug. 7.
- H.H. Patterson (1230), "Mexico and the Sea of Cortez," Duke City Exchange Club, Aug. 9.
- H.C. Monteith (9344), "ESP Research in Russia, England and America," Downtown Optimist Club, Aug. 10.
- S.G. Vandenvender (4732), "Bicycling in Albuquerque," Sandia Civitan Club, Aug. 10.
- R.M. Jefferson (4761), "The Current Power Crisis," Duke City Exchange Club, Aug. 16.
- J.M. Long (1111), "Albuquerque TIP (Turn in A Pusher) Program," Duke City Exchange Club, Aug. 23.
- B.L. O'Neal (3313), "Evaluation of Personnel Exposures in a High-Energy, High-Intensity Beta-Gamma Field," Third International Congress of the International Radiation Protection Association, Sept. 10, Washington, D.C.
- D.H. Loescher (2433), "A Shielded Flat Cable Usable at 370°C," Fall Meeting, Institute of Printed Circuits, Sept. 10-13, San Francisco.
- C.E. Land (5113), Invited Speaker, "Variable Birefringence, Light Scattering and Surface

- Deformation Effects in PLZT Ceramics"; N.S. Gillis (5151), "Self-Consistent Approximation Schemes for the Treatment of a Prototype Ferroelectric"; G.A. Samara (5130), "Vanishing of the Ferroelectricity in Displacive and Hydrogen-Bonded Ferroelectrics at High Pressure," Third International Meeting on Ferroelectricity, Sept. 10-14, Edinburgh, Scotland.
- A.W. Johnson and J.B. Gerardo (both 5212), "Mechanisms Controlling the Decay of the 1730 A Continuum of Xenon Radiation," "Electronic Recombination and the Effects of Metastables in a Helium Afterglow," and "1730 A Laser Terminating on a Dissociating Level"; R.A. Gerber and J.B. Gerardo (both 5212), "The Effect of Metastables on the Transition from Ambipolar to Free Diffusion: He-Ar Mixtures," XIth Conference on Phenomena in Ionized Gases, Sept. 10-14, Prague 6-Dejvice, Czechoslovakia.
- L.A. Doyal (2114), "Acquisition and Analysis of Partial Pressure Analyzer Data," First Symposium on Quadrupole Applications, Sept. 11, Albuquerque.
- J.G. Fossum (2113), "Expandable Modeling of Bipolar Devices"; J.T. Cutchen, J.O. Harris and G.R. Laguna (all 2521), "Electrooptic Devices Utilizing Quadratic PLZT Ceramic Elements"; W.D. Smith and D.G. Schueler (both 5113), "Self-Limiting Electrooptic Variable Density Filters," 1973 WESCON Convention, Sept. 11-14, San Francisco.
- D.F. McVey (5625), "Strain Measurement on Parachute Webbing with Elastomeric Strain Gages," Conference on Stresses and Strains in Textile Structures, Sept. 12-13, Manchester, England.
- G.A. Samara (5130), "Temperature and Pressure Dependence of the Dielectric Response of Ionic Crystals and the Properties of Soft Mode Ferroelectrics," Sept. 17, Queen Mary College, London, England, and Sept. 18, Federal Institute of Technology, Zurich, Switzerland.
- J.W. Reed (5644), "Distant Blast Predictions for Explosions," Annual Explosives Safety Seminar, Sept. 18-20, San Francisco.
- L.S. Nelson (5324), "The Use of Continuous Wave Lasers in High Temperature Science," seminar sponsored by the Laboratory for Ultra-Refractories, Sept. 21, Odeillo, France.

Authors

- P.J. Chen (1540), "One Dimensional Acceleration Waves in Inhomogeneous Elastic Non-Conductors," Vol. 17, Nos. 1-2, ACTA MECHANICA.
- M.J. Clauser (5241), "Ellipsoidal Coordinates — A Natural Coordinate System for Calculations of Laser Irradiation of Slabs," Vol. 12, No. 3, JOURNAL OF COMPUTATIONAL PHYSICS.
- D. Emin (5155), "On the Existence of Free and Self-Trapped Carriers in Insulators: An Abrupt Temperature-Dependent Conductivity Transition," Vol. 22, No. 1, ADVANCES IN PHYSICS.
- B. Granoff (5315), H.O. Pierson (5313) and D.M. Schuster (5314), "The Effect of Chemical-Vapor-Deposition Conditions on the Properties of Carbon-Carbon Composites," Vol. 11, No. 3, CARBON.
- G.E. Laramore (5151), "Analysis of Low-Energy-Electron Diffraction Intensity Profiles from the (100) and (111) Faces of Nickel," Vol. 8, No. 2, PHYSICAL REVIEW B.
- J.M. McKenzie (2114), "Reactor Equivalence of an Arbitrary Neutron Spectrum by Multisource Synthesis," Vol. 20, No. 4, IEEE Transactions on NUCLEAR SCIENCE.
- R.T. Meyer, A.W. Lynch, J.M. Freese (all 5324), et al, Letter to the Editor, "Residual Hydrocarbon and Hydrogen Contents of Carbons and Graphites," Vol. 11, No. 3, CARBON.
- P.S. Peercy (5132), "Observation of an Underdamped 'Soft' Mode in Potassium Dihydrogen Phosphate," Vol. 31, No. 6, PHYSICAL REVIEW LETTERS.



Annual Retiree Dinner

Retiree Report

Good Food, Good Friends, and Mexico City

Ted Alexander (June '69 Labs retiree) keeps his friends informed with a sort of round-robin newsletter. In one written this summer he recounts the good times had by MIT alumni at the 25th Fiesta, an annual event staged by the MIT Club of Mexico City. Ted and a couple of friends flew to Mexico City to enjoy the festivities, which included lots of good food, attendance at the Folklorica, visits to the homes of several Mexico City MIT club members, and a tour of the Monastery of San Angelo. The monastery was built in 1615 and includes a museum and an arts and crafts workshop.

Ted has visited Mexico many times and, before returning home, he rented a car and spent several days introducing his friends to some of his favorite vacation sites. Their return trip was made aboard the "Aztec Eagle," the elite Mexican train which runs from Mexico City to Nuevo Laredo, just south of the Texas border near the Gulf.



Harrison and Doris Young



'Drop in for a Mai Tai'

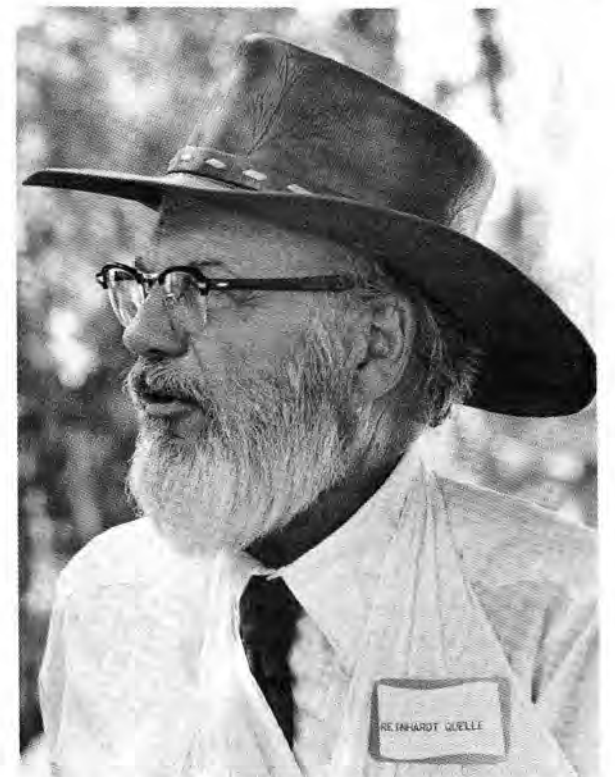
Doris and Harrison Young (April '73 Labs retirees) selected Hawaii as a retirement location, at least for a year or two, because it offered things they like: year-round swimming and snorkeling, tennis, and hiking.

"We live in a condominium on the Poipu Beach Road below the town of Koloa on the Island of Kauai," Harry writes. "There are mangoes, lychees, bananas, hibiscus, plumerias, etc. around the pool and buildings (I haven't missed the yard work yet). A small irrigation stream rushes through the woodland a few yards from our dining room window."

"Dorie spends a good bit of her time (walking on air) raising orchids and gardening, baking breads, making jams and chutney. She collects camera sunsets and has painted two landscapes in acrylic."

Harry says he spends too much time and money keeping his bird feeder filled and settling the quarrels among the birds. "We hiked into Hanakapiai Valley to a remote beach several weeks ago but it was too crowded — there were six people ahead of us! And we have visited Barking Sands several times to keep in touch with Sandia."

Tentative future plans include flights to San Francisco and Idaho Falls to visit their



750 Came, Including Burt Quelle In A Disguise.

daughters and grandchildren, and perhaps a South Pacific cruise.

"We do miss you all at Sandia — drop in for a Mai Tai. Aloha nui." "P.S. Sorry we couldn't make the retirement party." • nt

Bulletin Boards Don't Carry Many Bulletins Anymore

(Ed. Note: The following appeared in LAB NEWS early last year. It's not a summer rerun — we're just getting a lot of inquiries about the bulletin boards.)

One of the better WWII cartoons, a Sad Sack I think, shows a soldier resolutely going through all the stuff on the company bulletin board and finally coming to the absolute bottom-most layer, which consisted of a notice something like this: "All Units — There will be a crossing of the Delaware tonight at 2300 hours. Signed G. Washington, Commanding."

Now Sandia hasn't been around quite as long as the U.S. Army, but some of our boards carry material old enough to verge on the quaint. How come? Who's in charge? I hesitate to volunteer this information, but the LAB NEWS office is nominally in charge, with emphasis on the "nominally."

Gerse Martinez of this office has the specific job of overseeing the boards. We have some 25 boards around the Labs, and they are designated "unofficial" and "official." On the latter appear things that one law or another stipulates must be posted, and these generally run to posters and proclamations whose tone and content place them high on the list of important but seldom-read documents.

But it is the unofficial boards that offer the rich and occasionally charming melange: ads that seek a good home for a kitten that is invariably lovable; that offer "crochet panchos (sic) for sale"; that solicit "an old-fashioned ice box"; that extol used cars whose condition, curiously, is never less than good or at worst may only bear faded paint; or that offer mysterious machines — "2 Lyman No. 55 powder measures."

The other category of stuff on the unofficial boards consists of Advocacy for Worthy Causes: attend the Gophers Lodge gala spaghetti dinner so that the Spelling Bee finalists can be sent to the nationals; anyone interested in forming a chapter of the Gum Wrapper Appreciation Society call ext. 2468; join the March For/Against (take one) Legalization of Winking; and the Coronado Club lunch menu.

People find out that LAB NEWS has

Recyclable

Computer Paper Turning Green

"Those are the facts, right off the computer printout. It's all there in black and white — I mean green."

You'll hear it soon. The computer printout paper now facing final tests is light green, a mix of green and ivory, a refreshing change from sterile white. But the change isn't aesthetically motivated: we can get green paper in quantity, not so for white. And we use it in quantity — 30 million pages a year.

Then too, it's economical, at least in comparison with other papers available. And ecologically sound: it's recycled, which is why the green tinge — the inks in used paper prevent the recycled version from ever again being virginally white.

It works too. Preliminary tests subjected the new paper to our highest speed printer, various reproducers and copiers, a burster, and to the microfilm and blow-back process.

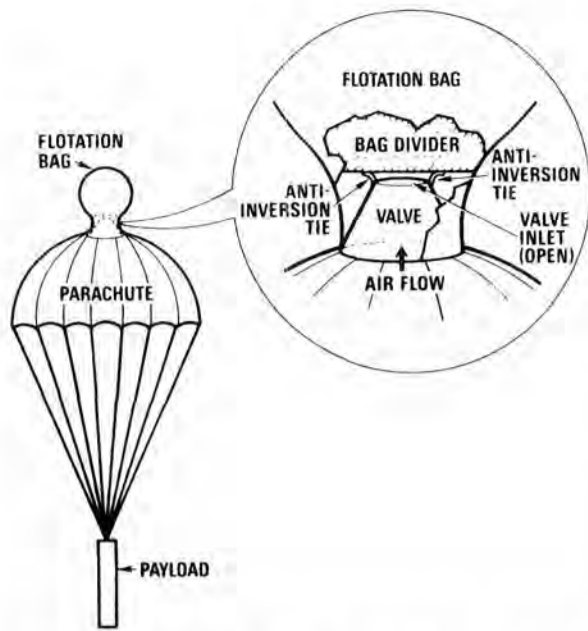
It passed all these tests with flying colors — shades of green.



GERSE MARTINEZ from the LAB NEWS office monitors bulletin boards from time to time. The 25 or so boards at the Labs carry solemn proclamations and entertaining trivia alike. Grafitti? well, occasionally. . .

something to do with the boards and call us to report something offensive to their sensibilities, usually a poster, "Come To The Big Democratic/Republican (take one) Rally Tonight!"; or "Reverend _____ will deliver his inspirational message at the _____ Church. . . ." Political and religious notices, petitions, and commercial ads are not supposed to appear on the boards. But they do and we (usually Gerse) take them down when we see them. If there's any question about something on a board, give me a call on ext. 1053, or if you wish to post a Worthy Cause poster run it past me.

Oh yes. When you do decide to part with that lovable kitten, please date your ad so that it can be taken down (preferably by you) after five working days. We purge the bulletin boards from time to time and ads without dates get very short shrift. •js



DETAILS of valve for ram-air flotation bag are shown in this drawing. Valve was developed by Don Johnson of Deceleration and Recovery Systems Division 5626.

New Valve for Ram Air Flotation System Developed

Don Johnson of Deceleration and Recovery Systems Division 5626 has developed a valve for a ram-air inflated flotation bag that offers a number of advantages over other devices used to keep rocket payloads afloat until they can be recovered.

The new bag eliminates the need for the carbon dioxide backup system. It consists of a spherical bag with a self-sealing valve which resembles a tapered sleeve until the bag is inflated. Then, internal pressure closes the sleeve to keep the air from escaping. A divider extends from the inlet hole up the center of the bag, forming two airtight compartments — a precaution against puncturing of one of the compartments.

In addition to more reliable closure, the new flotation system is lighter, less bulky, more economical, and has a longer pack life than previous systems. CO₂ bottles in other systems have a tendency to leak during storage.

Water recovery systems used by Sandia typically consist of an airtight, rubberized bag attached to the top of the payload parachute. Air funnels through a hole in the top of the chute, inflating the bag before the payload drops into water. Weight of the payload submerges the hole, sealing the air inside to keep the bag afloat. A carbon dioxide inflated bag, within the ram-air bag or attached to it, serves as a backup system.

The new system has been successfully used on 16 flights. Bags have varied in size from 3½ to 35 cubic feet, and payloads have ranged from 50 to 1000 pounds.

Sympathy

To Ken Dickerson (7111) on the death of his brother in Albuquerque, Sept. 1.

To Marcel Reynolds (5252) on the death of his 13-year-old son in an accident near Tres Piedras, Sept. 3.

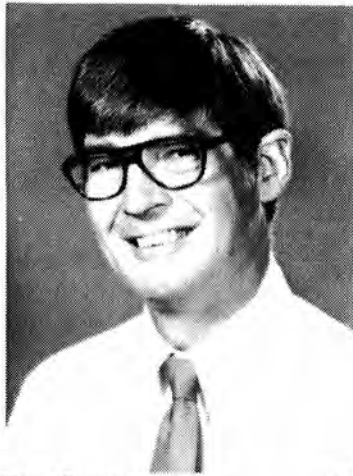
To Lucille Larrabee (2510) on the death of her father in St. Louis, Sept. 9.



"THERE, THERE, green paper is every bit as nice as white."



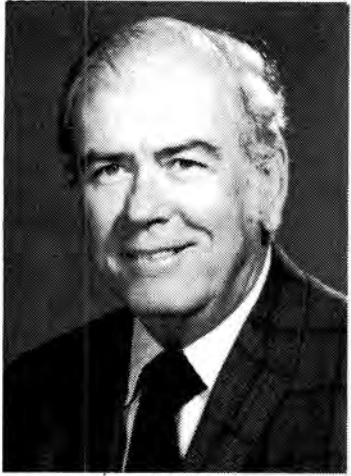
Edmund Baca — 9550



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MILEPOSTS

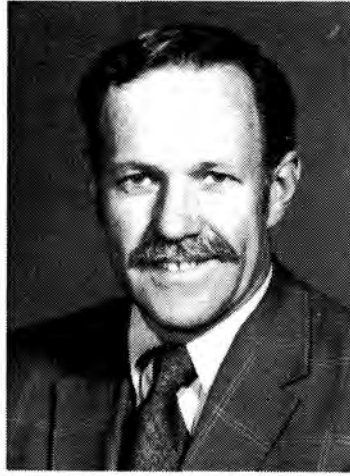
LAB NEWS September 1973



Paul House — 1612 25



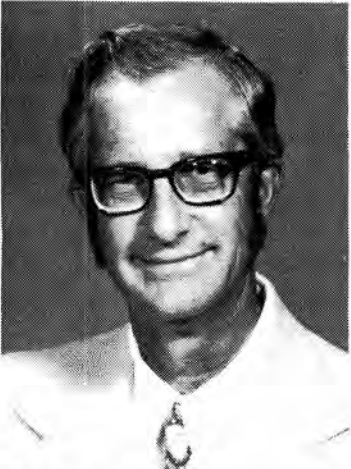
Bill Laskar — 3162 20



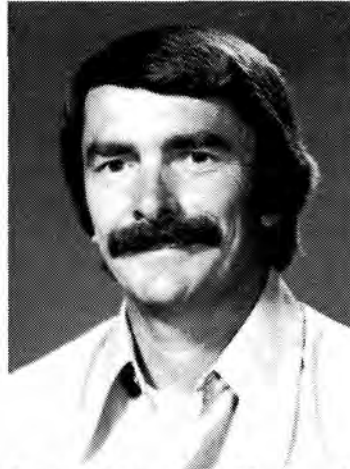
Roger Campbell — 2631 20



Judy Chavez — 8212 10



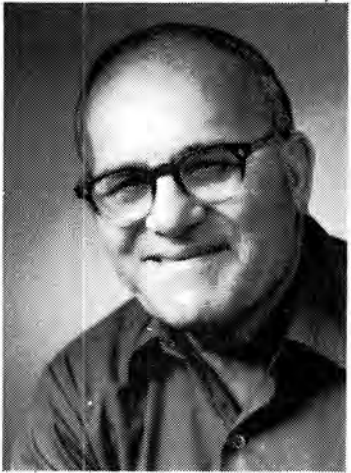
Lew Jones — 5525 15



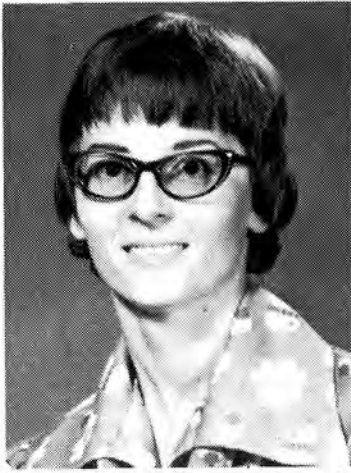
Charles Shipley — 5200 15



R. D. Freyermuth — 7322 20



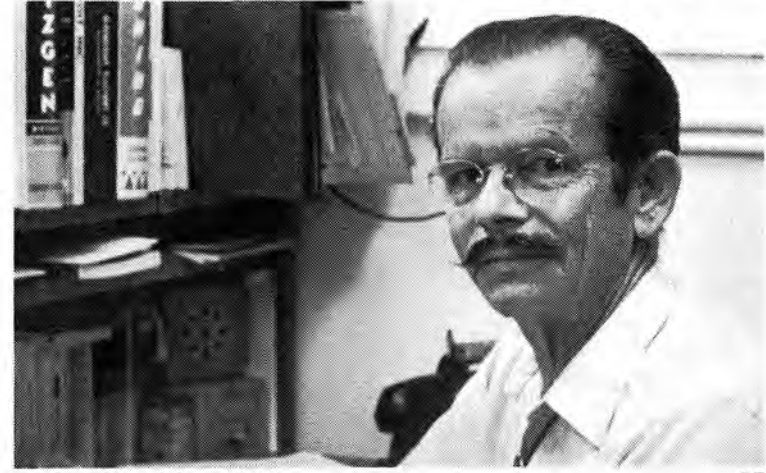
Nick Tavone — 8257 15



Yvonne Riley — 3155 10



Richard Marmon — 7134 25



Reuben Barwick — 4124 25



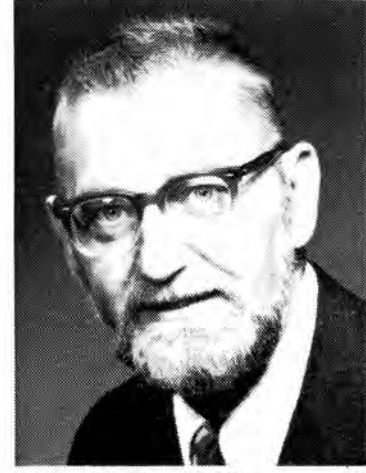
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Teddy Chavez — 7122 25



Marion Tucker — 4152 25

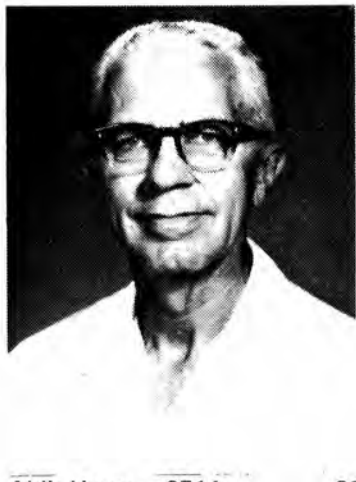


Arthur Roth — 2343 25



Paul Mutschler - 8421

15



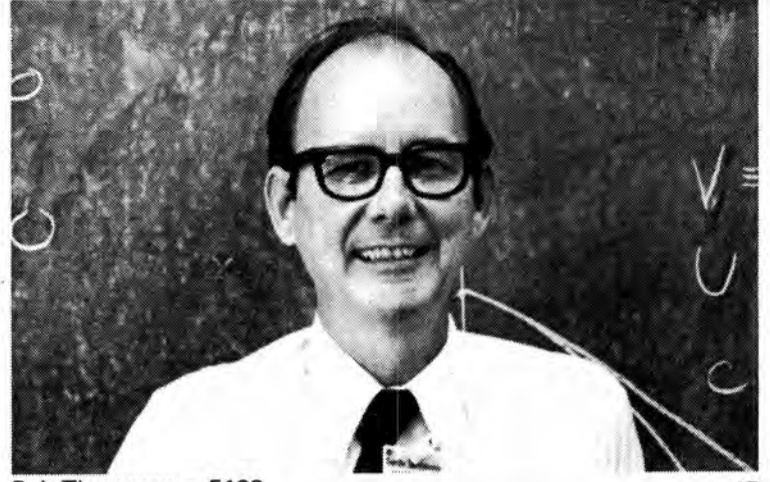
Aldis Hayes - 9514

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Robert Officer - 7552

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Bob Thompson - 5122

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David Begeal - 2413

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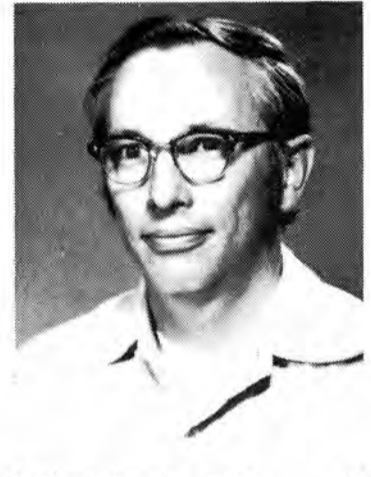
Blanche Matter - 8264

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Ray Mosteller - 1132

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Clifford Condit - 7131

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Wade Cunkelman - 7146

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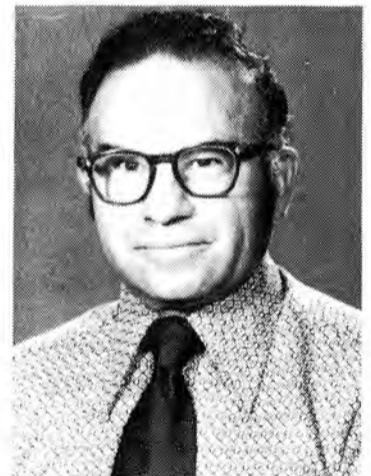
George Burnside - 1116

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Paul Montoya - 1543

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Frank Chavez - 7133

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Jess Burns - 8443

25



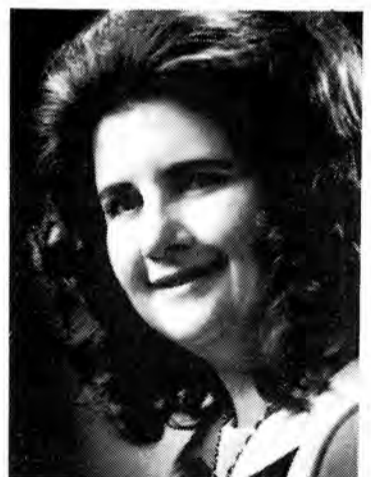
Jack Merillat - 4210

25



Louis Frenkel - 9513

25



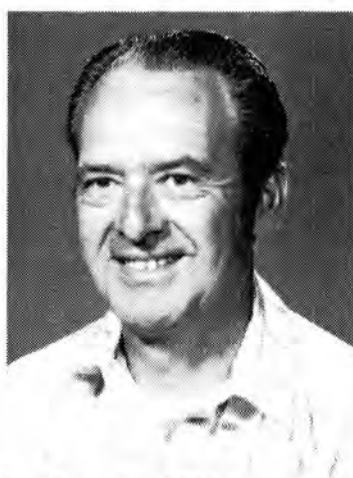
Paula Neighbors - 8441

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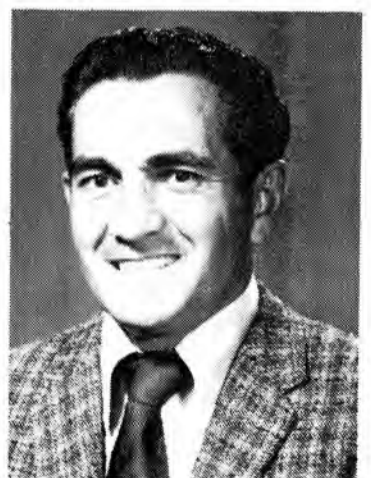
Jack Burkhardt - 2315

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Leo Bressan - 9532

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Joe Lucero - 2515

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AFTER four years of effort involving both classroom and shop, these Sandians are graduating from their apprenticeship program as Electronic Technicians. Jim Reck (center) of Electronic Fabrication Section 7131-2 was one of the teachers of, from left, Sal Baldonado, Tom Welch, Dave Cordova and Joe Maez.



PSYCHO-CYCLIST — The scurrilous scourge of the sidewalks skulks away scoffing at sentient Sharon (Erickson, 5112) sedately sequestering her cycle in a splendidly situated stall. Scorn the scoundrel, sustain Sharon — don't ever park your bike on a sidewalk.

Take Note

A flyer from the YWCA announces a number of unusual classes: Quilling, Spoken Navajo, Gourmet Vegetarian Cooking, Stitchery, Yoga, and the ever-popular The Absolutely Terrified Swim Class. There's more. Classes begin the week of Sept. 24; call the Y on 247-8841 for details.

* * * *

Felix Padilla (7554) was the subject of a

LAB NEWS article in the last issue. Among other things, Felix creates the safety cartoons on our back page. We've just received a release from the State Fair announcing that Felix has won an award of merit for his painting titled "Blue Sagebrush." Other Sandians winning awards: Jim Walston (3155), black and white drawings; Tillie Pierce (3155), water colors; and Fay Spellman (3155), contemporary crafts-jewelry.

Letters to the Editor

Re: The Purchase of Foreign Cars

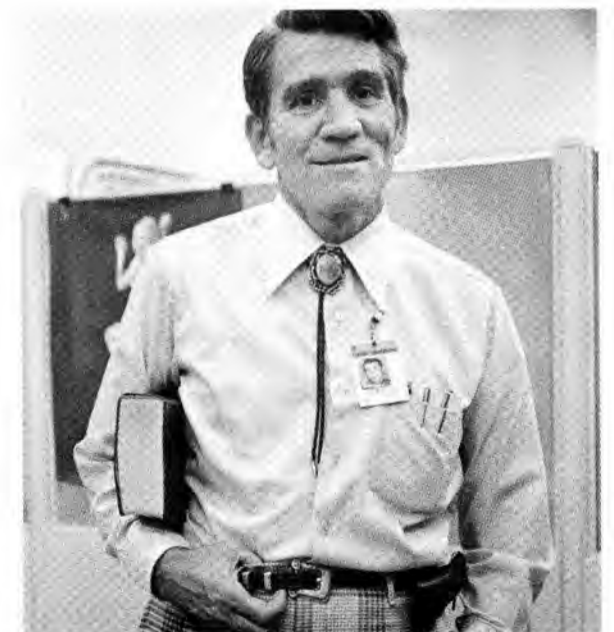
While I can't disagree completely with Mr. McIlroy's letter on this subject (LAB NEWS, Aug. 10), there IS another side to the story. The key is in paragraph 4 of his letter, which says, "The situation worsens when we have to spend dollars abroad to buy gasoline to run our foreign cars." This assumes that if we didn't buy foreign cars, we wouldn't have to buy foreign gasoline. I think it's safer to assume that any given individual who refrained from buying a foreign car would buy an American car instead. So let's make a few comparisons in that area.

Recent models of U.S. cars, detuned to accommodate pollution controls, are lucky to get 10 mpg, whereas foreign models, particularly those with fuel injection, meet pollution standards at peak tuning and get upwards of 22 mpg. Over the life of, say, 200,000 miles (of a foreign, not a U.S. car) the difference in gasoline consumption will be nearly 11,000 gallons. To produce this much gasoline requires on the average, about 20,000 gallons of crude oil, or about 470 barrels. At \$3.00/barrel this comes to over \$1400, which certainly alleviates the bulk of the balance of payments problem.

As the price of foreign oil increases, and we have every reason to believe it will, the offsetting factor becomes even greater. Add to this the steel, plastics, and other materials from this country which have gone into foreign cars, and our balance of payments situation doesn't look quite so bad after all. Then consider the salutary effect of lower gas consumption on the energy crisis and the pollution problem, and perhaps the picture isn't quite as dark as Mr. McIlroy paints it.

W. A. Sherman
(9524)

Retiring



Jesse Getz
(2343)

* * * *

Dick Claassen, director of Electronic Components 2400 and now at the University of Wisconsin as a visiting scientist, has been appointed to the National Materials Advisory Board of the National Academies of Science and Engineering. He will serve a three year term.



Bike Notes

Zia Parkers — If you've been entering the Base by Ridgecrest/Louisiana and the Zia Park gate, perhaps you've noticed the slight obstruction at the entry. An alternative route is to enter the Base at the Truman entrance (a block west of San Mateo and Gibson), proceed south a few blocks until you come upon an east-west thoroughfare (Kirtland

Ave.) that features a bike lane for most of its length. As you approach Zia Park you'll see the turnoff and entry to the housing area.

* * * *

Somewhere out there the Psycho-Cyclist pedals blithely on. Don't let anyone think it's you.

JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.
A maximum of 125 ads will be accepted for each issue.

RULES

1. Limit: 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

MOBILE HOME, dbl. wide Day's custom built, 1972, 24'x56', 3-bdr., 2 baths, built-in all elec. kitchen, skirted, AC, at 4-Hills Park. Ryanczak, 294-4781 after 5.

DUCKS, \$3; auto air conditioner, \$75; house plants. Ericksen, 898-2208.

THREE MALES, all grey kittens, part Burmese, \$1/ea. Barton, 281-3349.

CAMPER WHEELS & TIRES, 16.5x10.0, 8-lug for 3/4 ton GMC, \$40/pair; glass belt snow tires, K70x15.0, \$15/pair. Devore, 266-6159.

21" COLOR TV; Beagle puppies, 13" size, all males; undercounter GE dishwasher; adult & jr. water skis. Chandler, 296-3323.

VICTORIAN library reading table, oak, w/dwr. & shelf, 42x28", \$60; Harvard Classics, 50 vols., \$20. Dalphin, 265-4029.

FLUTE & clarinet, open hole Gemeinhardt "C" flute, \$250; Bundy B-flat clarinet, \$75; appraised by Farleys, 8907 Los Arboles NE. McIlroy, 299-4977.

DINETTE TABLE w/6 chairs; play pen; high chair; booster seat; infant change table. Toepfer, 296-6758.

COLONIAL oak bookcase desk, \$30; weight bench w/weights, \$25; camper, pop-top, 7' long, sleeps 3, \$900. Beasley, 298-3398.

BUNDY FLUTE, recently appraised, \$100. Workhoven, 281-3246.

SKIS, Head 360s, 210cm, no bindings, \$35; ski boots, lady's 9 1/2 med., \$20; ski poles, children, 2 pr., \$3 & \$2; port. typewriter, Royal, \$15. Reynolds, 299-5157.

MOBILE HOME, 3-bdr., 12'x58', clothes washer, AC, \$3600. Martin, 877-7989.

DINING ROOM SET, formal, lt. walnut, 72" buffet, extending table w/3 leaves, 2 armchairs, 4 side chairs, \$595. Sims, 255-6967.

KITTENS, free to good homes, box trained, used to children. Fox, 299-9168.

5-PIECE mahogany bdr. set, traditional styling, \$300. Norwood, 298-8642.

REMINGTON MODEL 721 30-06, 2 1/2 power Weaver scope, sling, \$115. Miller, 299-6476 after 5.

GE electric dryer w/matching dismantled washer; small refrig.; 2" foam rubber mattress. James, 298-0709.

COLEMAN gas stove, lg. 2-burner, \$10; tent, GI 6-man

hexagonal, about 12' diameter, center pole, \$25. Womelsduff, 299-6269.

CLARINET w/case, \$50. Shull, 265-6286.

TWO CHAIRS, turquoise upholstery, \$30 ea.; sofa, lt. brown, \$70; Lawson chair, blue, \$50; drum table, \$30. Steele, 877-1225.

FLOOR POLISHER & carpet cleaner, Electrolux heavy duty model B-8, includes 3 power driven shampoo brushes, 3 polishing brushes, \$95. Perryman, 294-7040.

PROVEN French Alpine buck goat, \$25; free shepherd collie pups, free kittens. Case, 281-3769.

BABY CRIB w/innerspring mattress & bumper pads; baby dressing table. Wetherholt, 299-5736.

SECTIONAL, Kroehler, 4-piece, beige frieze, \$160; round cocktail table, \$35. Kenna, 298-6059.

HARMONY elec. guitar, \$35; '66 Chevy van rear seat, \$10. Shepherd, 299-9066.

HYDRAULIC JACKS, new, 3-ton, \$11; 1 1/2-ton, \$7. Harley, 898-0594.

FLUTE, Artley Wilkins model, solid silver, retails \$650, sell \$450 cash. Fisher, 266-2266.

3.54 to 1 RATIO RING & pinion gears, fits Dana 60 series, full floating axle. Davis, 298-2078 evenings.

DINING ROOM SET, Lane, Danish walnut; camping equip.; bowling balls w/bags; books; CB equip.; color TV; Coleman icebox; tent; misc. Padilla, 296-7107.

MAGNAVOX COLOR TV, 25", Mediterranean style. Grimsley, 268-1427.

COUCH, 96" armless, lime, makes 3/4 bed, \$40. Barth, 299-2668.

POWER MOWER, reel type Toro, 21", \$40; hedge trimmer, Black & Decker, 14", \$20. Rainhart, 299-2887.

GRADE 1 Browning 22 L.R. auto. rifle, case & scope. Swayze, 268-5222.

AMPEX recorder model 2070, 4-track stereo, 10 blank tapes, \$200. Keck, 265-9463.

KENWOOD 2120 AM/FM stereo receiver, \$60; bass reflex speakers w/15" drivers, pair, \$75; Ricoh SLR 35mm camera, auto. or manual, built-in meter, w/case, \$60. Redding, 296-7379.

WESTINGHOUSE RANGE, \$50. Carter, 266-0701.

550-WATT P.A. amp & speakers, Acoustic model no. 260, 261, \$800. Peters, 266-0017.

UNICYCLE, \$25; record player, 4-sp., port., \$15; "Lite-Brite" by Hasbro, \$4. Magnuson, 268-5955.

DIAMOND RING: \$399, lady's 14K yellow gold, 3 diamonds, lg. diamond .42 carat, Judd appraisal, \$525. Gregory, 268-2022.

FOUR WIDE CHROME WHEELS, 15x8, w/sonic sun valley tires, K70-15, 5/32 tread, fit Jeep, Scout, Bronco, Ford pickup, etc., \$80. Ewing, 268-6920.

RABBITS, Dutch, black & white, age 6 wks., \$2.50 ea. Dietzel, 298-3295.

B-FLAT clarinet, Cundy-Bettoney, professional grade woodwind, appraised value over \$175, sell for best offer over \$125. MacDougall, 299-8496.

YOUNG MALE RABBIT, w/insulated hutch, \$15; Craftsman power lawn mower, 18" 6-blade reel, \$20. Olman, 298-5024 5-8 p.m.

TWIN BED w/innerspring mattress, firm, & box spring, maple finish headboard, \$45. Young, 265-7238.

'72 14'x60' MOBILE HOME, 2 lg. bdrs., outside N. gate, east of Wyoming 1/2 block, adult park. McClure, 294-1912.

SMALL HAMMOND chord organ, \$425. Vance 255-8032.

TENT TRAILER, 69 Wards Mainliner, soft top, 6'8" X 8'6" closed, 6'8" X 14' open, 12" wheels, \$400. Perez, 898-3002.

GARAGE SALE: Sept. 22 & 23, baby furniture, bikes, carpeting, stereo, Skilsaw, other items. Barnes, 898-2375, 9691 Asbury Lane NW, Paradise Hills.

FREE KITTENS, 5 weeks old, mix or match. Kirby, 296-7856.

KITCHENAID DISHWASHER, built-in, coppertone, \$25; Simmons hide-a-bed, \$35; old schoolroom desk, \$15; round top trunk, \$20; dining chairs, \$3 each. Jefferson, 299-1125.

SPORTS CAR TRAILER, professionally built, aluminum bed & ramps, steel tubing reinforced, \$150 or best offer. Stevens, 299-6086.

POODLE, standard, female, white, 8 weeks old, not registered, \$40. Wallis, 281-5361.

REYNOLDS CORNET, Honda Trail 90, temporary utility pole, small refrigerator. Hansche, 281-5350.

SEWING MACHINE, Universal with wood cabinet, all attachments; 2 twin size bed frames; want air compressor with tank. Brooks, 299-1884.

TRASH BAGS, city approved, \$2/box; "Spanish in 30 Seconds" booklet (samples on bulletin boards), \$1; and noon-time book sale; proceeds to South 10 Village Project. LAB NEWS, 802/100.

GE PORTABLE DISHWASHER, \$40; old gas stove, works, \$15; baby things: portacrib, highchair, stroller. Brandon, 294-1285.

RED MALE AKC miniature dachshund puppy, \$60. Shock, 877-3728.

TRANSPORTATION

'62 FORD sta. wgn., \$300; boy's 5-sp. bike, \$45; girl's bike, \$25. Villa, 298-0435.

20" BOY'S Polo bicycle, hi-rise handlebars, banana seat, chromed fenders, chain guard. Joseph, 299-6989.

'73 YAM 250 Enduro, \$700.

Eaton, 294-6891, 869-2847.

'71 VW 1600cc, dune buggy, fully upholstered, custom top & sides, tow bar, fiberglass body, \$850. Smart, 298-0987.

BICYCLE, Sears 20", 5-sp., \$30. Wilkinson, 299-8327.

'71 VW Transporter, new tires, headers, AM/FM radio, new battery, West Coast mirrors, camper bed, maintenance record available. Kohut, 298-0695.

BIKE, boy's 26" 2-sp. Schwinn, \$25; 2 girls' 20" bikes w/banana seats, \$12/ea. Anderson, 299-5727.

'61 VW, sun roof, new brakes, \$350. Shipman, 255-2523.

'66 JAWA 250cc, new tires, needs minor work, adult ridden, \$125 or best offer. King, 298-2991.

'67 CHEV. stn. wgn., loaded, \$500. Brown, 293-0927.

'72 FIAT 124 Spider, white, 5-sp., Michelin radials, 1600cc engine, radio, driving light, 21,000 miles. Eagan, 299-9630.

LO-PROFILE 18' jet boat w/421 Pontiac engine. Botin, 296-6132.

'71 KAWASAKI 100 trail bike, street or dirt, extras, \$275. Sayer, 294-2565.

'59 FORD F-100 pickup, V8, 1/2-ton, 4-sp., snow tires, \$495. Johnson, 255-2846.

'56 PONTIAC, AT, PS, PB, PW, 16 mpg in city, 64,000 miles, \$200; 3 AQHA horses, 1 Appaloosa. Rogers, 298-7907.

'66 FALCON, std. trans., tires fair, \$495. Snowdon, 344-4637.

'72 DATSUN pickup, PM 1600cc, camper shell, Paris Valley, carpeted, radio, 11,000 miles, G-60 Dynaglass tires, window boot. Kaspar, 255-2996, 265-8228.

'73 VOLKSWAGEN Super Beetle, limited edition sport bug, 3,500 miles, cost \$3075, sell for \$2,600. Campbell, 299-1142.

'72 VW fastback, AC, AT, warranty. Norris, 299-4717.

'67 3/4 ton FORD truck w/10 1/2' camper, low mileage, \$3000, will sell camper separately. Barton, 299-3738.

'72 FORD Club wagon, 12-pass., van, AC, PS, PB, AT, V8, under 20,000 miles, \$3745. Morgan, 299-2850.

BOY'S 20" bike, green Schwinn Varsity 10-sp., 1 yr. old, \$90. Mauney, 299-3634.

'69 CHEV. Caprice, fully equipped, vinyl top, 4-dr., \$1350. Bustamante, 296-4753.

'73 TRIUMPH TIGER 750, still under warranty, \$1350 or best offer. Sample, 268-9581.

REAL ESTATE

CUSTOM 4-bdr., den/fp, 2 1/2 bath, 2520 sq. ft., covered patio, .37 acre. Monterey Manor, lg. equity, 6 1/2% loan. Zucuskie, 299-3093.

NE, 3-bdr., 1-3/4 bath, w/w carpets, drapes, AC, disp. landscaped, huge enclosed back yard w/access, \$26,500, terms. Hunt, 299-2967.

LAKE FRONT LOT at Conchas Lake w/view & easement to waterline. Getz, 299-4865.

BRAZOS, 2 one-acre lots, \$3600 ea., 20% down, balance REC, or \$3200 each cash; 1/2-mile from river. Lassiter, 298-2461.

JEMEZ PROPERTY, 1 acre lots. Carli, 298-9271.

FOR RENT

1973 MOTORHOME, Dodge w/all the extras, discount for hunting season, daily or weekly rates. Fox, 266-6606, 299-5736.

SMALL, furnished 1-bdr. house, no pets, utilities paid, \$80/mo., 202 1/2 San Pablo SE. Dodson, 255-0265.

1 BDR furnished, \$125 plus utilities, no pets, 1 or 2 adults. Sawyer, 266-6779.

WANTED

LADY'S 3-sp. bike. Stromberg, 255-6131.

OLD HI-FI or stereo system for use in church, willing to pay \$40-\$50. McGuckin, 299-1342.

THREE-SPEED full-size boy's bicycle. Bouton, 898-3562.

'68 OR later Ranchero or El Camino, V8, std. shift, excellent condition. Jordan, 299-4004.

METAL SKIS, about 185 cm. Baxter, 344-7601.

CANNING JARS, pints & quarts. Groll, 898-0641.

3/4 TON 4-wd Ford pickup w/AT. Reif, 296-2179.

USED BANDSAW & drill press, price must be reasonable. Frasier, 299-6933.

RIDE from 221 Rhode Island NE to Bldg. 800. Weiss, 266-2278.

USED metal tool shed, 7'x10' or larger. Barton, 265-8607.

WOMAN as a helping hand for general light housework, Monday through Friday, 9:30 - 12 noon, own transportation. Robertson, 255-6707.

OLD PLAYER PIANO, any kind, any condition, working or not. Sander, 299-5761.

GOOD USED refrigerator w/freezing compartment. Peterson, 256-7514.

INEXPENSIVE occasional chair or love seat that needs upholstering. McFarland, 281-5346.

BASKETBALL TEAM to scrimmage, practice, etc. w/our team, our team average 6' tall. Zucuskie, 268-3105.

LOST AND FOUND

LOST — gold button cover black w/initial S, dropgold filligree earring w/gold stone, key w/red tag "World Book." LOST AND FOUND, Bldg. 832, tel. 264-3441.

FOUND — Small brass key, tobacco pouch. LOST AND FOUND, Bldg. 832, tel. 264-3441.

Minor Fiesta Tonight

TONIGHT will be a minor fiesta at the Club as Happy Hour features a couple of favorites — Sol Chavez and the mighty Duke City Brass will play for dancing in the ballroom from 6:30 to 9:30 p.m. and Denny Gallegos entertains onstage in the dining area from 9:30 to 12:30. In the meantime Club manager Jim Shultz will spread Rio Grande-style Mexican food for the buffet. Then Happy Hour bar prices (cheap) will be in effect from 5 until 10 p.m. So with all this going for it, the evening may turn into a major fiesta.

* * * *

NEXT FRIDAY, Sept. 28, will see oriental food on the buffet and Frank Chewiwie on the bandstand. Yolanda Adent will hold the main lounge. On Friday, Oct. 5, German food will be the buffet feature and the Rhythmaires will play for dancing.

* * * *

SOUL SESSION Saturday, Sept. 29, repeats the Club's successful formula for a great night out that's easy on the pocketbook. Admission is free to members. Happy Hour bar prices will be in effect. The big country/rock sounds of The Country Mile will fill the ballroom from 8:30 to 12:30.

* * * *

DEADLINE for final payment for the Caribbean Cruise is Oct. 5. Some 35 troopers have already signed up for this nine day sea/air cruise scheduled Jan. 4-12. The package includes jet to San Juan, then board the RHMS Amerikanis for a cruise to Caracas, Grenada, Barbados, Guadalupe, St. Thomas and back to San Juan, then jet home. Prices start at \$503 (depending on cabin choice) and the trip is open to members and guests.

* * * *

MAZATLAN tour groups will meet for a pretrip briefing on Tuesday, Oct. 2 at 7:30 p.m. in the Club's dining area.



HAPPY HOUR TONIGHT features Mexican food buffet, Sol Chavez and the Duke City Brass in the ballroom and Denny Gallegos (3148) entertaining onstage in the dining area from 9:30 to 12:30. Here, Denny plays a tune for wife Katy (7221).

Events Calendar

- Sept. 21-23 — "Hamlet," Classics Theatre Co., Popejoy Hall, 8:15 p.m.
- Sept. 23 — NM Mt. Club, Sandia Crest to Cienega, 7 miles, Western Skies, 8 a.m.
- Sept. 23-29 — "Symphony Week in New Mexico" — Albuquerque Symphony Orchestra has a schedule of week-long activities including:
 - Sept. 23 — ASP string ensemble at opening of special exhibit at Zimmerman Library.
 - Sept. 24 — Albuquerque Youth Symphony will play a special salute to ASO at Coronado Center, 7 p.m.
 - Sept. 26 — ASO ensembles at Winrock Center, 7 and 8 p.m.
 - Sept. 29 — Opening Concert of 42nd season, Popejoy Hall, 8:15 p.m.

- Sept. 25 — St. Elizabeth Fiesta, Laguna Pueblo; Sept. 29-30 — San Geronimo Vespers, pole climbing, foot-races and war dances, Taos Pueblo; Oct. 2 — San Francisco Eve candlelight procession at St. Francis of Assisi Church, Ranchos de Taos; Oct. 4 — San Francisco Fiesta, elk and various other dances, Nambe Pueblo.
- Sept. 25 — UNM Wider Vision lectures, "Your Legal Rights As A Woman," 7 p.m. Hokona Lounge East.
- Sept. 26 — Alvin Ailey City Center Dance Company, Popejoy Hall, 8:15 p.m. This modern dance group, considered by many critics to be the finest in the U.S., was chosen to open the Kennedy Center in 1971.
- Sept. 26 — ASUNM Lecture Series, Barry Sussman, *Washington Post* editor who coordinated the Watergate investigation for which the Post received this year's Pulitzer Prize gold medal. 8 p.m., SUB Ballroom.
- Sept. 29-30 — NM Mt. Club, Sierra Blanca car camp, call Norm, 268-1812, by Sept. 25.
- Sept. 30 — NM Mt. Club, Embudo Canyon, 6 miles, Blue Cross Bldg., 8 a.m.
- Oct. 2 — Rod Stewart concert, 8 p.m., University Arena.

e c p FAIR SHARE

LET'S PUT IT ALL TOGETHER....

