

MOVING DAY—The Labs' newest building, the Security Safeguards Office & Lab Building (Bldg. 821), is completed, and Organization 1700 people are moving in. Of passive solar construction, the building's windows are designed to permit passage of the sun's rays in the winter but not in the summer. Solar radiation on the concrete floors kept building between 56° and 65°F last November and December (during construction) without any other heating. Buildings & Facilities Design Division 3643 under Ken Harper had responsibility for design and construction of the new building.

LAB NEWS

VOL. 32, NO. 10

MAY 16, 1980

SANDIA NATIONAL LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV

Weapons Safety Enhanced By "Intelligent" Signal Processing

Recent advances in both electronic design technique and electronic technology have resulted in a new and less expensive safety system for nuclear weapons, one that exhibits some of the properties of human intelligence.

Like a good researcher, these new safety systems gather data during the entire delivery cycle of the weapon, comparing the actual environment with the one in which the weapon is designed to function. At the last possible moment—provided all environmental and internal and external signal requirements are met and verified—the safety system permits the weapon to arm and fire.

One of the key elements in these new safety systems is the trajectory-sensing signal generator (TSSG), a whole series of which are being designed and developed for production by the Unique Signal Generators Division 2331. Arlin Cooper, who headed the division until recently, and Jim Caruthers, who heads it now, told us that the new safety systems were dependent

on certain technological advances. They listed four areas in which successful development work had made possible the design of TSSGs:

- *Standard and custom integrated circuits.* ("Integrated circuits used to consist of a few components processed into a common silicon substrate. Now a single chip can contain 100,000 components.")
- *Microprocessors.* ("Single chips now have more processing power than entire early electronic computers.")
- *Self-testing techniques.* ("Sophisticated self-checking techniques made dramatic improvements possible in both nuclear safety and system reliability.")
- *Error-correcting codes.* ("Relating these codes to linear math structure has given us greater freedom of design and made circuit implementation relatively simple.")

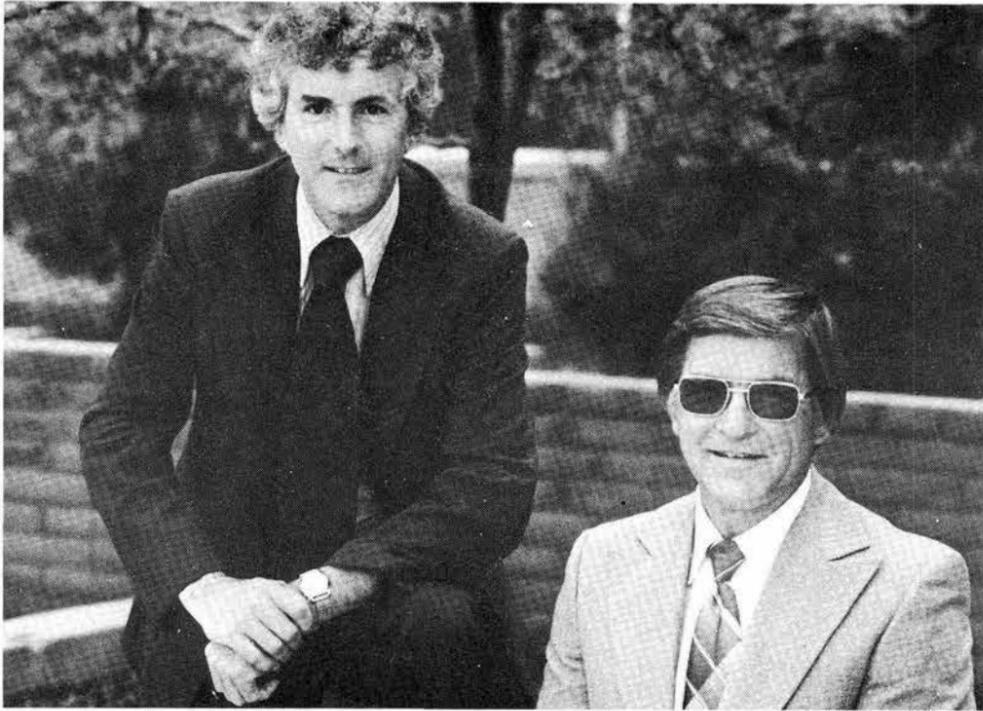
The first TSSG which incorporated an "intent enabling" signal supplied by the pilot (the MC3072) was developed for the B77 bomb. A microprocessor mixed a

digital sequence, generated automatically under pilot control, with stored information and acceleration measurements to derive an arming sequence. Without an intent signal from the pilot, the arming sequence was impossible since the signal was not available from any component in the weapon. The B77 program has been shelved, but the MC3072 will be used in the B83 and is being considered for other systems.

The MC3052, a TSSG used in the W78 Minuteman III, also mixes stored information with measured information to generate a complex arm signal. In another version of the MC3052, a "smart circuit" compares information relating to the opening and closing of contacts with stored information to determine how the contact information should be interpreted.

The most sophisticated TSSG to date is being developed for the W86 used in the Pershing II missile. This device makes

[Continued on Page Four]



DICK SPALDING (1260) and DICK CHAPMAN (3244)



SANDY DOLCE (1116)

Supervisory Appointments

SANDY DOLCE to supervisor of Experiments Division 1116, effective April 16. Since joining the Labs in 1966, Sandy has worked both at NTS and Albuquerque. His work has been concerned with radiation diagnostics measurements and development of x-ray sources. Since 1974 he has been technical director of work relating to the Labs' participation in tests at NTS. In that function, he has directed two tests—Mighty Epic and Hybla Gold—and is currently the technical director on Miner's Iron.

Sandy earned a BA from the University of Illinois and an MS and PhD in physics from Rutgers. He is a member of the American Physical Society. Off the job, Sandy enjoys composing music, writing and cave exploring. He and his wife Dauneen have four sons and live in the NE heights.

* * *

DICK SPALDING to manager of Space Projects Department 1260, effective May 1. Dick has worked with satellite systems since coming to the Labs as a staff member in June 1962. During the early years, his

assignments were with the Vela program; 12 Vela satellites were launched from 1963-1970. He was promoted to supervisor of Space Projects Division 1244 in 1965. The group continued to expand in size and number of projects. Two years ago Dick's group and Division 1255 were given the responsibility for the National Seismic Station project—building unattended seismic stations. This work led to the creation of his new department which comprises these two divisions.

Dick earned BS and MS degrees in EE from Purdue. Off the job he enjoys hiking, camping and biking. Dick and his wife Shirley have two children and live in the NE heights.

* * *

DICK CHAPMAN to supervisor of Capital Planning and Control Division 3244, effective May 1. Dick worked at Sandia as a part-time employee while completing his work at UNM. He earned his BBA in industrial management and became a permanent employee in 1959 in the cost accounting organization. Since then, he's had a number of assignments: credit auditor in finance, medical administrator and personnel representative. He has worked in security and in property management, and he's been working with the capital budget for four years.

Dick's hobbies include woodworking, jogging and fishing; he has a cabin on the Conejos River in southern Colorado. Dick, his wife Nina and one son live in SE Albuquerque.



HISPANIC community leaders came to Sandia earlier this month for briefings on Labs recruiting and employment and education and training. They also toured solar and wind facilities. Bob Garcia, Director of Personnel, welcomed the group and, later, the visitors lunched at the Coronado Club. Among the visitors were, from left, Joe Cordova, Director of the VA Regional Office; Rosie Armijo, Administrative Officer of the IRS; (Mrs.) Ed Romero of Solar America Inc.; and Ray Baca, Director of Data Operations Ctr. for the Social Security Administration. President Sparks joined the group for lunch.

LAB NEWS

Published every other Friday

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA
Editorial offices in Albuquerque, N.M.
Area 505 844-1053
FTS 844-1053
ZIP 87185
In Livermore Area 415 422-2447
FTS 532-2447

john shunny is editor
&

don graham ass't. editor

chuck cockelbreas & norma taylor write
louis erne does picture work
aided by gerse martinez

barry schrader & lorena schneider report livermore.

Science Seminars Aimed at High Schoolers

A series of science seminars for mentally gifted students in Livermore's two high schools is being conducted by staff people at SNLL.

The 16-week program involves 30 to 40 students from Granada and Livermore High Schools who are enrolled in the Mentally Gifted Minors program of the Livermore Valley Unified School District. The students meet voluntarily after their regular school day to hear lectures and take part in discussions with Sandians in various fields of science and engineering.

The Sandia classes are the first program developed between the school district and Sandia, and the schools' coordinator, Judy Raybourn, is enthusiastic over the results.

A wide range of subjects is covered during the 16 weeks. Here are some of them: digital systems and processor-based controllers; symbolic logic; how a micro-processor works; game theory; future energy systems including battery-powered autos, chemical heat pumps for homes, combustion phenomena and engines, and solar-powered electric plants; and solving materials problems with laser holography, ultrasonics and radiography. The final session includes a tour of the Labs.

Sandians helping with the program are John Martin (8161), Lisa Parker (8201), Bob Carling (8453), Don Nissen (8313), Rob Rinne (8320), Joe Iannucci and Mim Fish (both 8326), Doug Macmillan (8411), Bob Noble (8424), Art Kellom and Tony Lucero (both 8461), and Alec Willis, Dan Tichenor, Graham Thomas, Ken Dolan,

LIVERMORE NEWS

VOL. 32, NO. 10

LIVERMORE LABORATORIES

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MIM FISH (8326) discusses energy problems with students from Granada and Livermore High Schools.

Lutz Dahlke and Chuck Oien (all 8444).

Overall coordinator for Sandia working with Ms. Raybourn and the Livermore schools has been Walt Dzugan (8214).

Take Note

Art, music and wine will be featured at the eighth annual Art-in-the-Vineyard on Sunday, May 25. Sponsored by the Livermore Art Association, the show is being held at the Concannon Vineyard on Tesla Road from 10 a.m. to 5 p.m. Sandians Pat Childers (8266) and Evelyne Bachman (retiree) are two of the many artists who will be participating. Original paintings, pottery, weavings, jewelry and other crafts will be on display, with entertainment including folk dancing and musical groups.

* * *

Sandia retiree Ed Healey is recognized in the latest issue of *Golf Digest* for scoring three holes-in-one in 1979 on the same hole. He produced the triple on the par-3, 120-yard 14th hole at Castlewood Country Club in Pleasanton. Ed is only the third golfer in history to report such a feat.

Congratulations

To Jennifer Dayrell and Rick Stulen (8347), a son, Eaton Dayrell-Stulen, April 23.

To Vera Chandler (8273) and Keith Dashnes, married in Reno, May 1.



FORTY STUDENTS and their advisor from the University of Washington's Society of Women Engineers visited Sandia Livermore recently as a part of a week-long tour of Bay Area industry and research institutions. At Sandia, the students toured the Combustion Research Labs, the Computer Center, heliostat test area, and educational television facility. Briefings were given by Tom Cook (8000) and Paul Brewer (8210). Carolyn Pura (8116) spoke on being an engineer at SNLL. Above, Rick Wayne (8450) discusses heliostat operation with a part of the group.

Weapons Safety

continuous acceleration measurements, verifies the source of the information, tests the measured values against stored values, performs redundant processing to improve reliability and makes error-correction checks on sequences of measurements. These error-correction checks allow a prescribed deviation from desired performance. Any deviation beyond that prescribed, however, stops the arming sequence.

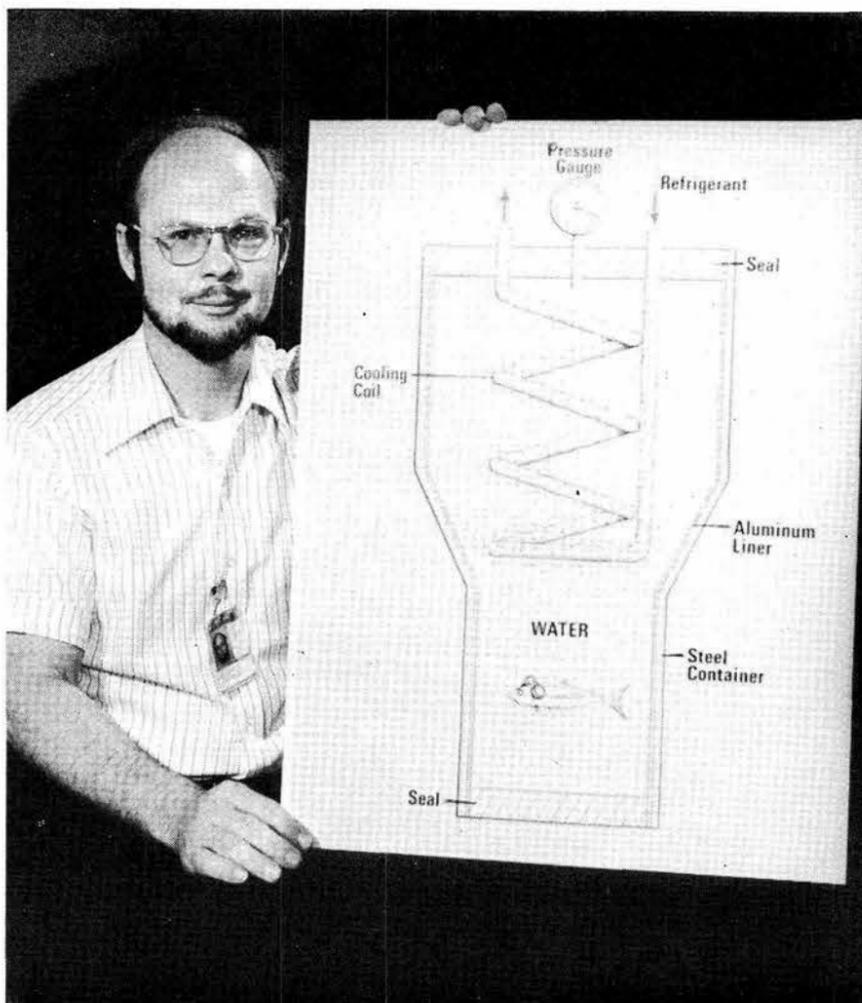
"The improvements we've made in safety systems have increased their complexity," Arlin Cooper told us, "but thanks to advances in integrated circuit technology and design techniques, the new systems are not only more reliable, but they actually cost less to produce. Our newest designs are

also capable of making higher level decisions using available data. This reduces overall hardware requirements and, thus, the cost of the system. More specifically, we've eliminated some of the complex packaging and incorporated the major programmer functions into the Pershing II TSSG, both of which have resulted in substantial cost savings."

Any more improvements in sight?

"Sure," Jim Caruthers said. "As the basic design tools improve, so will nuclear safety devices. It's difficult to predict now how far-reaching the next set of technological breakthroughs might be, or how much more intelligence we'll eventually be able to design into TSSGs. But the feeling today is we've only scratched the surface."

• cec



TOM PREVENDER (1255) displays a drawing which illustrates his recently-patented method for bonding a thin aluminum liner to a steel case. The case is filled with water, sealed, and a cooling coil forms ice inside. Resulting hydrostatic pressure effectively makes the bond.

Patent Awarded

Ice Put To New Use

DOE was recently awarded a patent for a method of forming or bonding a liner. Inventor is Tom Prevender (1253).

"The problem," Tom says, "was to mechanically bond a thin aluminum liner (0.010 inch) to the inside of a steel case of irregular geometry. And the bond had to

remain intact over a temperature range of -60° to 165°F.

"We tried explosive bonding, heat shrinking and adhesive bonding but each of these methods had severe drawbacks.

"The invention consists of using hydrostatic pressure produced by cooling ordinary water so that a fraction of it freezes and expands inside the sealed case. This applies pressure uniformly to the liner so that the bond is effectively made. The ratio of ice to water, and consequently the pressure, is varied by means of a cooling coil submerged in the water. We used liquid hydrogen to cool the coil."

Advantages of the method are (1) very high pressures can be generated, (2) since only water is used, there is no chemical contamination of the aluminum liner, (3) because the bond is made at a low temperature, the ability to withstand temperature cycling is greatly enhanced, and (4) the required apparatus is simple, inexpensive and safe.

Tom joined Sandia in November 1969 and has pursued research in metals and materials. He holds one other patent covering a method to anodize aluminum.



FOR MORE THAN 20 YEARS this five-man carpool has been operating, saving each of its members 80 percent of the cost of lone ranger commuting. From left are Glen Loeppke (4722), John Smatana (5834) and Harold Linker (1714). Standing behind the car are Bill Caskey (4744) and Reuben Weinmaster (2164). The group travels 13 miles round trip to Sandia from the Eubank/Comanche area. Each man in the pool drives one day a week. Rules are simple: "One beep and no waiting" and "no stops for gas or groceries." Bill Caskey worked on some figures which show that the carpool has saved some 9500 gallons of gas in 20 years. Also, several members of the pool delayed buying a second car for many years.



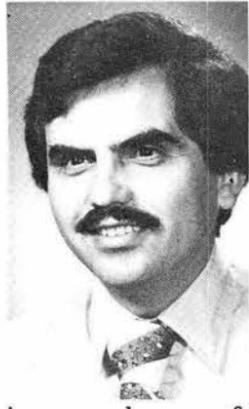
Death

Lena Valerio of the Word Processing Center, Division 2613, died May 7 after a brief illness. She was 33.

She had worked at the Labs for 10 years.

She is survived by her husband.

Miguel Rios Talks Solar in Mexico, Central America



Miguel Rios of Photovoltaic Systems Division 4719 spent three weeks in March on a speaking tour of Central America and Mexico discussing photovoltaic programs in the United States. He met with government, scientific, education and industry representatives

in an exchange of information on alternative energy sources. His trip was sponsored by the U.S. International Communication Agency.

"Throughout Central America," Miguel says, "the energy emphasis is on full development of hydroelectric resources. Still, they are very interested in photovoltaics as an energy source for isolated communities and industries."

"These countries are also interested in gasohol programs, energy from wood, geothermal and other types of solar."

Miguel met with technical people in Panama, Costa Rica, Guatemala and Honduras.

He reports that Mexico, lacking the extensive hydroelectric resources of Central America, is actively constructing nuclear power plants as the long-range solution to its energy needs—their goal is to generate 10 to 40 percent of electrical energy by nuclear reactors by the year 2000. This is their objective in spite of Mexico's large reserves of oil and natural gas.

"Mexico is currently producing two million barrels of oil daily," Miguel says, "and they are exporting about one million barrels. Still, they are interested in alternate energy sources."

In Mexico, Miguel held technical discussions with the management and staff of DIGAASES, a government agency and laboratory developing solar energy and saline water utilization. The agency sent a formal request to Sandia for technical aid in training of their laboratory staff in photovoltaics. Miguel also forwarded a broader request from Mexico to DOE for assistance in developing solar energy technology.

"There are many areas where the U.S. and one or more of these countries could mutually benefit from joint projects," Miguel says. "I intend to keep in contact with my new friends in Latin America and plan to follow-up on some of the possibilities."

Miguel joined Sandia in February 1975 and worked in exploratory weapon systems and reactor safety before his present assignment in photovoltaics. He earned his PhD in physics from the University of Maryland in 1971 and taught physics at Cal Poly prior to joining the Labs.

Congratulations

To Mr. and Mrs. David O'Brien (2451), a son, Jason Daniel, April 21.



INVENTOR & RESEARCHER
Cecil Land (5133) has received many awards and honors in his 24-year career at Sandia. This is the latest, by the Society for Information Display, naming him Fellow in the SID "For outstanding contributions to the development of ferroelectric ceramic electrooptic storage and display devices." Previously, Cecil was named a Fellow in IEEE; in 1976 he received the Distinguished Scientist Award from the New Mexico Academy of Science.

Take Note

The Albuquerque Police Dept. is holding an open house on Sunday, May 18, from 1 to 4 p.m. Featured will be the BATmobile, the crime lab, the horse patrol and the K-9 unit. A number of demonstrations, including rappelling and bomb disposal, are scheduled. APD is located at 401 Marquette NW.

* * *

Flea Markets are spreading: the Base military is running one each Friday and Saturday at the Beverage Mart, Bldg. 20155 (west of the commissary) from 9 to 4. If you wish to sell, it's four bucks a day, and Mr. Weldon at the package store is the contact for booths (sorry, we don't have a phone number).

* * *

"Current Research in Physics and Astrophysics at UNM" is the title of the May 21 Sandia Colloquium. Speaker will be Prof. Marcus Price who is Chairman of the Physics Dept.

* * *

The May meeting of the N.M. Section, ASME is scheduled tonight at the Tanoan Country Club on Academy east of Eubank. Speaker is Ray Rogers of LASL, who will discuss his experiences as head of the

chemistry group of the U.S. scientific team that examined the Shroud of Turin in 1978. Social hour at 6:30 p.m., dinner at 7:15 and program at 8:00. Reservations required.

Retiree Picnic Coming Up

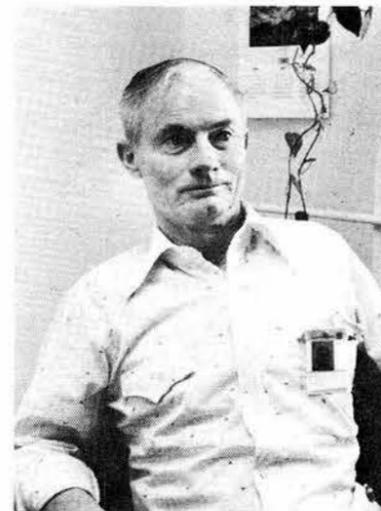
Benefits' Eleanor Kelly has told LAB NEWS that this year's annual picnic for retirees, the 15th, is likely to be the largest yet. The picnic is set for Thursday, May 29, from 4 to 7 p.m. on the Coronado Club Patio.

Parking space will be available at both the C-Club and NCO Club parking lots. A shuttlebus will operate from the NCO parking lot on "B" St. to the patio entrance, and Security Inspectors will be directing traffic.

Sandia retirees now number some 1900, and they reside in 39 states and three foreign countries (Argentina, Canada and England). Attendance at last year's picnic was 875, including spouses.



Howard Singleton (4314)



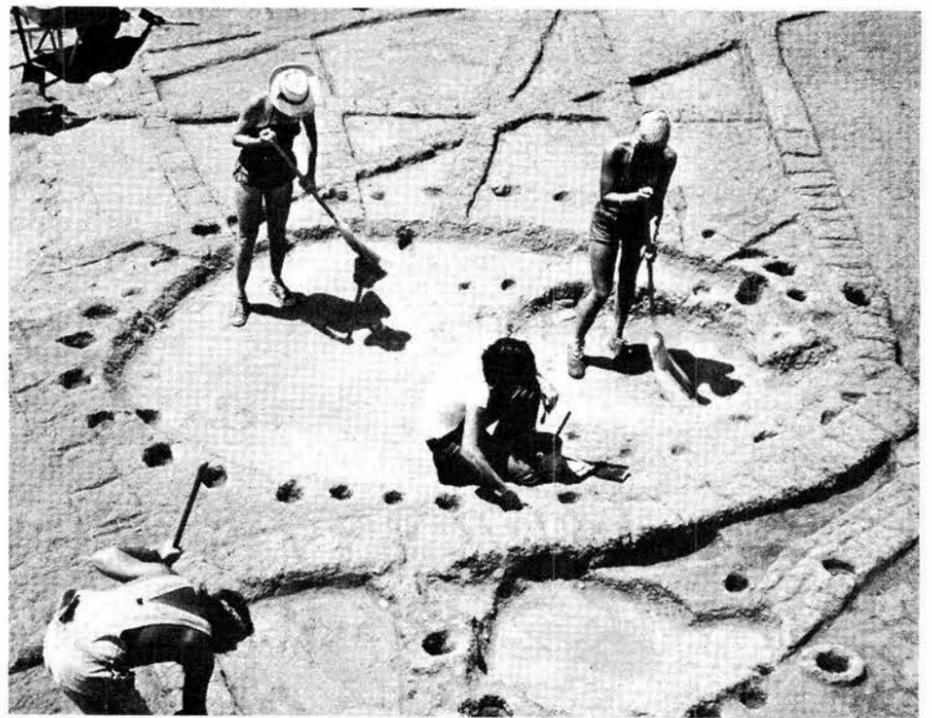
Charley Bates (1473)



Jim Appel (4325)



JIM RODGERS (seated), supervisory archeologist, and Al Ward, director at the Center for Anthropological Studies, examine the delicate reconstruction of a buffalo skull found during excavation of the Los Esteros Dam site near Santa Rosa.



CENTER STAFF AT RANCHO DE CARNUE, site of an 18-century Spanish-Indian settlement, located on the eastern edge of Albuquerque. Sixty-three structures have been identified; 18 dwellings and associated features—*hornos*, refuse pits, corrals—have been excavated. When the Center completes its work of excavation and restoration, *Carnue* will become an historic park.

Our Town

The Center for Anthropological Studies

To the layman, mention of archeology usually brings to mind a sand-choked, prehistoric site. To those who are Southwesterners, the image is probably one of ancient Indian pueblos or of 17th-century Spanish churches. These impressions do, indeed, reflect the interest of archeologists working with prehistory.

But what of the more recent past, that dating back only a few hundred years? In New Mexico, this past includes the remains of three cultures. Investigating the ruins of a small *rancho* or those of a tiny fieldstone house occupied less than 100 years ago also provides a record of cultural development. In many instances, these structures may be the *only* record of that time and place.

Unfortunately, many of these sites are being lost under the onslaughts of urban expansion, highway construction, water projects, strip mining, erosion and vandalism.

The losses are the concern of Al Ward and his staff at The Center for Anthropological Studies, created in 1976 to help preserve and document, as much as possible, this disappearing cultural information.

"The law now provides that cultural resources be identified and documented as the first steps in their preservation," says Al Ward, director of the Center. "The task then becomes one of locating the resource and protecting it. When necessary, we may undertake excavation in order to study a significant site before it is lost."

The Center, located at 11015 Central NE, houses a temporary research lab and recovered artifacts. Eventually, the Center hopes to acquire land and construct a museum and research facility.

"As a non-profit organization," Al says, "we're funded primarily through donations and research grants. Until we get a permanent museum, the knowledge we gain is made available to the public through lectures, publications and special group tours."

Some projects undertaken by the Center are on-going such as that at *Rancho de Carnue*, the site of 18th-century remains of a Spanish-Indian settlement at the eastern edge of Albuquerque. Upon completion, the excavated and restored site will become an historic park.

Much of the Center's work has been archeological surveys for private firms and state and federal agencies. "Today there is more public awareness about archeological and historical deposits," Al says. "The new antiquity laws help, but, also, I think the public is coming to realize the value of this work. And most people are turned off by vandalism."

The center is routinely asked to conduct archeological surveys to determine if projected developments on the land in question will affect significant sites. "Anything of importance found by our archeologists," Al says, "is investigated. Data is documented, and artifacts collected before construction begins."

In some cases, an important site will be preserved. Navajo and Pueblo ruins were discovered by Phillips Petroleum while developing an uranium deposit in northwestern New Mexico. Phillips asked us to investigate and, as a result, restoration and preservation is underway of a site dated between A.D. 1000 and 1050," Al says. "Phillips is constructing the visitor center. When it's completed, we'll return the artifacts and develop exhibits for display."

The Corps of Engineers engaged the Center to investigate ruins at the proposed Los Esteros Dam north of Santa Rosa, NM. This investigation has been underway for three summers. Over 100,000 artifacts are being cleaned, restored and studied. The site consists of a group of ruins, superimposed upon each other, of at least four origins—Spanish Colonial, Comanchero, American and Mexican-American. Of special interest is the Comanchero village—the first archeological site of this type and age (circa 1786-1850) to be recognized

and studied in detail.

"We like to talk about our work to any interested group," Al continues. "We offer museum membership, and we encourage anyone aware of an archeological site that may be threatened with destruction to contact us. We accept a limited number of volunteers in our field and lab work and, of course, we're grateful for any financial aid."

The Center sponsors an annual 16-day safari to East Africa, with Al as the leader. This year, the departure dates are June 22 and Sept. 21. Contact the Center, 299-4836, for more information. • *nt*

Slavic Club Hosts Spring Dance

Ethnic clubs, usually social in aim, are a popular way to bring together people of similar nationalities and backgrounds. Preserving and discovering the customs of ancestors can be fun. The Slavic Club of Albuquerque is such an organization.

Fred Bentz (3713) is one of the 50 or so members; other Sandians in the club include Joe Yambrovich (3432) and Jim de Montmollin (1760). "My wife Mary is of Yugoslavian descent," Fred says, "and we enjoy the group, which has members from most of the Slavic countries. We meet once a month—sometimes for a potluck meal, or a travel film, or to hear some Slavic music. And we hold spring and Christmas dances and a summer picnic."

Fred and Mary, who visited Yugoslavia in 1978, plan another trip there this July. Mary speaks the language and Fred is learning Serbo-Croatian from Joe Yambrovich.

The spring dance will be held at the Albuquerque Garden Center on May 31. "This is a chance to listen or dance to Slavic music and sample Slavic food," Fred says. Fred has tickets and can be reached at 299-2961.

Check Lost and Found

Remember that raincoat in a black zipper case you lost last fall? Or the brown leather briefcase? Or the bifocal glasses with the black frames?

There's a good possibility whatever you lost eventually found its way to Linda Gonzales (4-5677) in Benefits Administration and Employee Services Division 3543. And now's a good time to check. Dean Irvin, who heads 3543, reports that Lost and Found is overstocked. With 55 items on hand (some for as long as six months), they're running out of space. "Soon now," Dean says, "we'll be distributing the items to different charitable organizations or returning them to the finders."

Following is a list of items on hand. Lost & Found and Linda are located in Building 814, Room 1:

brown leather brief case; silver bracelet, white gold solid band; small yellow radio; glass case with small religious items; gold-colored picture pendant; earring, pierced, gold loop; earrings, pierced, brand new; key ring (leather strip through a rock with a turquoise cross in the middle of the rock, five keys; circular gold pin; sunglasses, brown and gold frame; orange glass case; gold key; gold bracelet; man's left-hand brown leather glove

with brown stitch; women's Elgin silver watch; raincoat in black zippered case, silver chain with combination lock; two Chrysler keys in brown leather case.

6"x9" portrait of small blond boy; butterfly necklace; man's bifocal glasses, black frame in black case; silver religious necklace; gold frame prescription glasses, bifocals in black case; brown pipe with black mouth-piece; silver cuff link; black furlined glove, right hand; lady's left-hand brown glove with brown leather; gold-colored choker; woman's left-hand brown leather glove with yellowish stitch; prescription glasses, silver frame, rubber ends in black, in black case; one large silver key, Curtis IND-AA2; bicycle safety light with reflector; Sharp electronic calculator, pocket, maroon leather case; gold Cross pen; two GMC keys; retainer dental plate with two back teeth on each side; blue golfer's hat, medium; man's right-hand brown leather glove with brown stitch;

gold ankle bracelet with little butterfly; dark pink button, 1"; lady's brown frame glasses with two little silver stars in corner, black case; wool beanie, red, white and blue; woman's white wool hat; woman's right-hand glove, tan, wool, with leather on front and back; dark brown plain leather glove, left hand; black notebook with address book inside, 4"x6 1/2"; reading glasses, brown, bifocals; piece of turquoise with bear claw on top and silver clip; lady's right-hand glove, beige with brown leather strips; padlock with combination; pencil, 0.9 m/m, Pentel P209, gold; small silver bracelet; woman's multicolored scarf, mostly shades of blue; wool belt, green, brown, orange and white; lady's white 10-speed, Montgomery Ward's bike.



IF YOU'VE EVER BEEN A LOSER, walk, run or ride to Building 814 and talk with Linda Gonzales in Benefits Administration & Employee Services Division 3543. Linda's in charge of Lost and Found and, as you can see, the range of articles waiting for their original owners runs quite a gamut. The complete list of items is included in the accompanying article. Incidentally, the bike is not a prop, but a bona fide found object.

Leaking Steam Lines Being Replaced



PICK & SHOVEL work is being done to remove and replace old, leaky steam lines. Plant Engineering estimates that more than a mile of such pipeline needs to be replaced.

Plant Engineering's Hal Baxter reports that more than a mile of Sandia's steam lines, some dating to 1946, are candidates for replacement. The retrofit follows upon two infrared aerial surveys conducted last winter whose results highlighted suspect areas, i.e., those which exhibited higher than normal heat patterns.

The problem with steam lines is one of corrosion and leaking, sometimes from the inside out, sometimes from the outside in. Leaking quickly degrades whatever insulation may surround the pipe, and heat losses become significant.

Total extent of the Labs' underground steam system is estimated to be five miles.

The replacement conduits are being poured with insulating vermiculite concrete, added to which is a waterproofing compound. An extra thickness of insulated conduit enhances energy conservation.

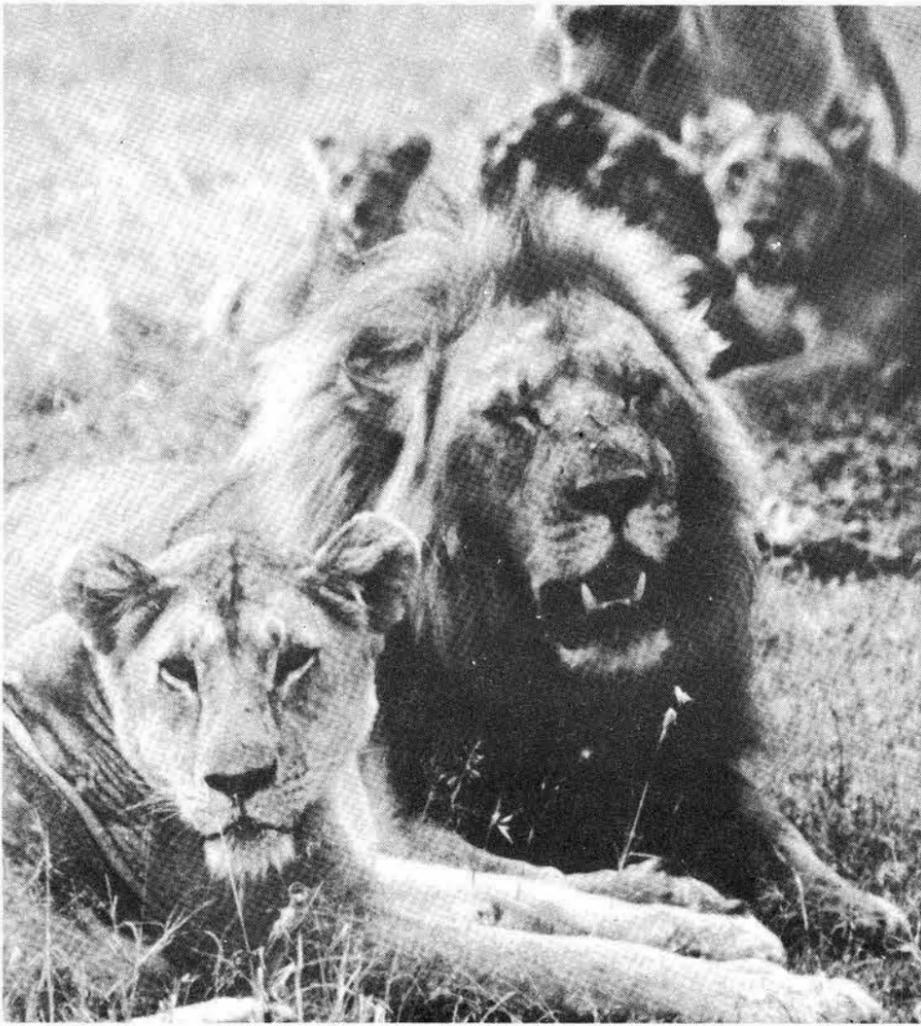
An analysis of heat losses shows that, given present natural gas prices, 100 feet of eight-inch pipe without any insulation experiences a heat loss in one year equivalent to \$4836; with four inches of insulation that loss drops to \$221 and, with eight inches, to \$160. Added costs of using the thicker (8") insulation can be paid off in eight years.



Writing in *Prevention* magazine, Marshall Mandell says, "Chemical pollution of the atmosphere in your home may be making you ill." How will you know? Easy. If you leave for a week-long trip, your head will clear, your migraine disappear, your dizziness stop, your aches and pains subside and your depression fade away. We think Mandell is due a real vote of thanks for this revelation. We've experienced the subsidence of symptoms he describes, but up to now we always assumed it was the undone household chores we were allergic to, not the house itself.

Events Calendar

- May 16-18—"Murder at the Vicarage," Classics Theater Co., The Vortex, Central and Buena Vista SE, 247-8600.
- May 18—Chamber Orchestra of Albuquerque, Baroque Festival, 4 p.m., 1st United Methodist Church, 4th & Lead SW.
- May 18—Paul Horn (flute) and Amram Quintet (jazz), 3 & 8 p.m., Kimo Theater, 766-7816.
- May 18-June 29—NM Watercolor Society, member show, St. John's Cathedral Gallery, 318 Silver SW.
- May 19—American Guild of Organists: Music for Two Organs, 8 p.m., St. Thomas of Canterbury Chapel, 425 University Ave. NE.
- May 20-21—NM Symphony Orchestra, 8:15 p.m., Popejoy.
- May 21—Experimental Aircraft Assoc. meets Coronado Airport, EAA hangar, 7:30 p.m.
- May 23-24—Council of Albuquerque Garden Clubs Spring Flower Show, Garden Center, Sat. 2-8, Sun. 10-8, 10201 Lomas NE.
- May 23-31—[weekends] — "California Suite," Tiffany Playhouse, 8 p.m., 3211 Central Ave. NE.
- May 25—Annual Zoo Play Day: Flamenco dances, puppet shows, mimes, music & games, \$1, 10-5, Rio Grande Zoo.
- May 29—Tesuque Pueblo: Blessing of the Fields, Corn Dance, contact pueblo.
- May 29-June 1—Adobe Theater, "Of Mice and Men," 8:30 p.m., 898-3323.



RUTH BIRCHER on the beach in Ghana, Africa. A successful coup had occurred three days before Ruth's arrival. Other than disruption of the airport, the only outward signs of the upheaval were numerous soldiers in the streets.

LIONS of the Masai Mara Game Park in East Africa's Kenya. Mr. MGM in foreground prepares for siesta, a favorite pursuit, Ruth noted. Photo was taken by Ruth with telephoto lens; most game in park take tourists in stride.

Unusual Vacations

Kenya and Ghana—Amid a Coup

[Ed. Note: Have you taken an unusual vacation? Tell us about it—call 4-1053.]

How unusual is a vacation in Africa? Well, to Ruth Bircher, a computer programmer in Division 1423, it becomes unusual when it's interrupted by a *coup d'etat*.

Last spring Ruth received her master's degree in computer programming and was to begin work at Sandia on July 30. It seemed a good time to visit her sister in London, an aunt and uncle in Ghana, Africa, and a cousin and her husband in Kenya, East Africa.

"Kenya is a wonderful country to visit," Ruth says. "I was there in late May—their winter season. I saw few tourists and lots of animals. We visited Mombasa on the coast (wonderful beaches!) and three of the major game parks where I photographed all types of wild game. The climate is much like that of Albuquerque. The country has 40 native tribes, but English is the official language and Swahili is the trade language."

Ruth stayed two weeks in Kenya and was to fly by Kenya Airways across the continent to Accra, Ghana. Two days before her departure there was a coup in Ghana and she was informed that the airport at Accra was closed.

Working with a Nairobi travel agent, Ruth discarded a somewhat chancy itinerary through Nigeria (she had no visa) and decided, a bit apprehensively, to take an Ethiopian Airways flight.

"There was no way to contact my uncle in Ghana," Ruth says, "and I could only hope that he was meeting the incoming planes. I left Nairobi at 6:30 a.m. on Saturday and flew to Addis Ababa in Ethiopia where I had a two-hour wait. I was

to then take another plane with stops at Kenshasa, Zaire; Lagos, Nigeria; and finally arrive in Accra at 4 p.m. Because of the uncertainty of conditions at the Accra airport, Ethiopian Airways didn't keep to the schedule and I found myself back in Nairobi at 12:30 that afternoon!

"I didn't even get off the plane in Nairobi; the airline decided to try again, and I arrived in Accra at 6:30 that evening. It was already dark, soldiers were everywhere and the information desk, where my uncle had left a message for me, was closed. With the aid of a helpful university professor and a couple of his students, I finally arrived at my uncle's home to find that he was off again to meet another plane, hoping I would be on board!

"Fortunately, the rest of my vacation in Ghana was calm, although the sight of so many soldiers makes you a bit uneasy. Ghana is not geared to tourists. My aunt boils all the water and makes her own bread, and few people chance eating out—in fact, there are almost no restaurants. When I applied for my visa, I had to send them a check in exchange for vouchers for their official currency—cedes. When I entered the country, I had to exchange my vouchers for cedes at the official rate of 2.75 cedes per dollar. The unofficial rate of exchange was 10 cedes per dollar and that pretty well explains the economic condition of the country. Unless you deal on the black market, goods are expensive, and locally produced items are usually pretty poor in quality."

Ruth returned to London, visiting western England with her sister before returning to Albuquerque.

Logistics: Ruth's airfare was excursion rate to Africa, under which she could make two stops in Europe each way. Arranged by a local travel agent, the itinerary included Albuquerque, Chicago, London, Nairobi and Accra, and return, for \$1500. Staying with relatives, Ruth's other expenses were few: at the Masai Mara Game Park motel, full board (three meals and overnight) was \$36/person. At a beach hotel in Mombasa, full board was \$14; however, Ruth says this was their off-season. The game parks had all types of facilities—nice lodges, ordinary motels, rustic cabins and tent camping facilities. Ruth advises early planning for this trip, arranging for passport, visas and shots well in advance.

Sympathy

To Vern Henning (3543) and Corrine Henning-Sachs (3151) on the death of their wife and mother in Albuquerque, May 2.

To Paul Kind (3618) on the death of his sister in New Jersey, May 1.

To Don Longcope (5523) on the death of his mother-in-law in Pasadena, April 24.



The moray eel is apparently the victim of bad press. We've all read of its killer tendencies—the gaping jaws, the needle-like teeth, the rhythmic opening and closing of the jaws as if it could taste its prey. Sheer misinterpretation, says a writer in a recent issue of *Oceans*. He reports that few divers have ever been injured by the moray—and further, that the menacing jaw movements are actually linked to its breathing activity. "Morays are among the most approachable and placid of fish," the writer concludes. "They usually recoil timidly or flee like shy kittens . . ."

Fun & Games

Biking & Fitness—It's true that we're partial to biking, as opposed to running, as a route to fitness, though we do both. Nearly everyone enjoys bike riding right off, but for most the experience of running is fulfilling, rewarding and all those good things, but enjoyable? well . . . This is why we think more people should take a serious look at biking for fitness. Not only is it fun but, also, your feet, ankles, knees, back and other precious parts aren't pounded several thousands times per mile—biking is a smooth, rhythmic activity, weight-supported. We have at LAB NEWS a supply of booklets entitled "The Puch Fitness Plan," donated by a a now-defunct bike store. The booklet contains a well-thought-out approach to fitness using a bike as the principal mechanism. If you'd like a copy, you can pick one up (don't call, please) in our trailer next to Bldg. 814.

* * *

Running—Someone just kicked sand in our faces. Check this item from the latest *LASL Newsletter*: "We've been challenged. The so-called runners at Sandia have thrown a gauntlet at us. They invite LASL runners (sic) to match endurance and speed in the Corporate Cup meet on May 31 and June 1. John Shunny, editor of Sandia's *LAB NEWS*, has written boasting of the 50 or so Sandians who have signed up for the meet. He writes, 'why not a LASL vs Sandia competition within the Corporate Cup?' Why not, indeed!" OK, LASL, you're really getting in over your head, but it's clear you need a running lesson and we'll graciously provide it during that weekend. Meanwhile, Sandia Corporate Cup runners, tomorrow (May 17) is time trials day at Wilson Stadium. We'll also practice a bit. Be there ready to run by 9 a.m.

Other runs: LAB NEWS has entry forms for three events, the May 24 minimarathon (13 miles) at Thoreau, the Amarillo Marathon on May 24, and the San Juan Pueblo Run on June 8, 12 miles and 3.5 miles.

* * *

Basketball—Summer basketball league play will begin June 9. Teams or persons interested in playing may call Ron Van Theemsche, 4-6824, or Skip Dougherty, 4-8486.

* * *

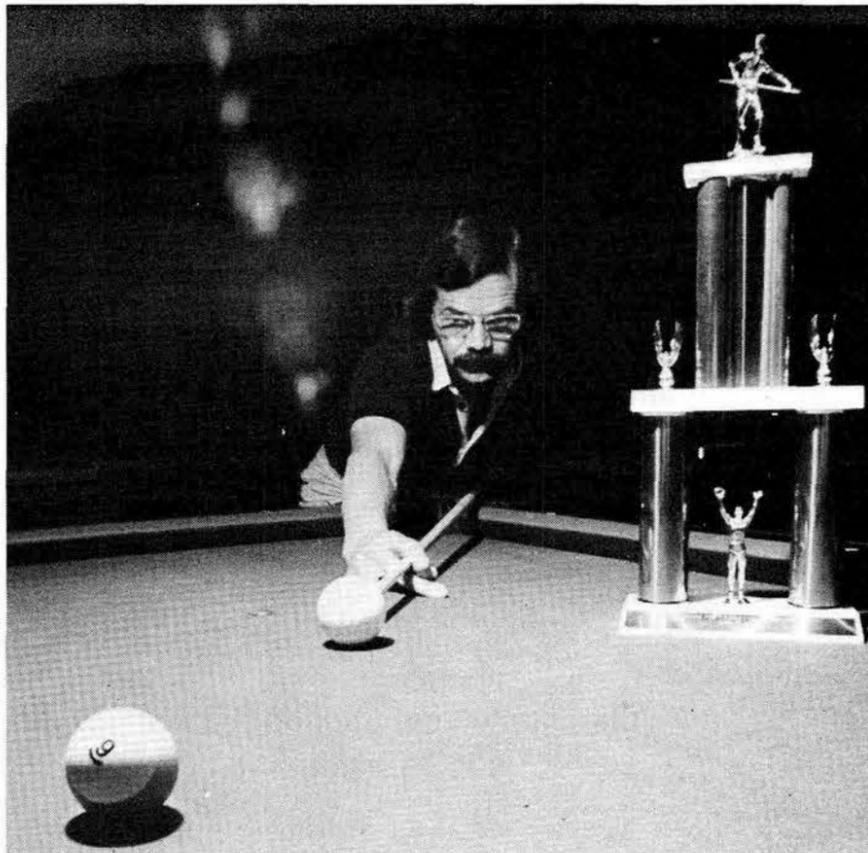
Handguns & women—The Sandia Labs Rifle & Pistol Assn. is again offering basic training in handgun use and safety to female Sandians and their dependents. Call Dave Overmier, 4-3436, if you're interested.

* * *

Table Tennis—Dave O'Brien (2451) reports that the Labs Table Tennis Assn. held its team tourney last month. The winning team was made up of Jim Sanchez (3425), Jarvis Bumgarner (1732), George Perkins (2516) and Dave O'Brien. A singles tournament is planned within the next few months.

* * *

Dinner theater—The on-Base Breakaway Rec Center is offering the melodrama



MINNESOTA FATS? WELL HARDLY! It's not New Mexico Slim either (though that name certainly fits), but LAB NEWS' own Gerse Martinez, who recently stroked his way to third place in the Friar's Pub Tournament of Champions. A pool shooter *extraordinaire* of long standing, Gerse's impressive trophy made number five in a growing collection.

"The Drunkard" on Saturday, May 31, at the Center. The play is presented by the Repertory Theater of America and cost, \$6/person, includes both dinner and the play. Reservations: 844-5420.

* * *

Swimming—A family pool & patio membership in the C-Club will run you \$20 for the season (over and above the \$5 per month Club dues). Compare this to cost of swimming in city pools: \$16 per month for a family, \$9 per month for an adult, \$5 per month for children 12 and under. Most city pools close one day per week, but the C-Club is a seven-day-a-week operation.

* * *

Dancing—If this is your thing, the Y has classes in Beginning Modern Dance, Advanced-Beginning (sic) Modern Dance and a Dance Movement Workshop. These start the week of May 5 and are held at the downtown YMCA at Broadway and Tijeras NE. Call Carrie Kittell, 242-1659, or the Y, 243-4571, for more information.

* * *

Bingo?—A reminder: there's cash bingo every Monday night at the Breakaway Rec Center (opposite the gym) with two \$500 jackpots and other goodies. Early bird specials start at 6:45 p.m., and regular bingo at 7 p.m.

* * *

Kirtland Little Theater—Want to do some acting off-the-job? The Kirtland Little Theater is being formed, and actors are needed as well as people with other theater experience. Call the Breakaway Center on 4-5420 if you're interested.

* * *

Women's Golf—The Sandia Women's Golf Association held its annual tournament at Socorro recently. Winners were Ree Gerchow (3222), low gross; Pat Anderson (1522), low gross runner-up; Mary Gonzales (1585), low net; Clara Gearhart (3141), low net runner-up; Sybil Milligan (ret.), low putts; and Rosalie Crawford (1), least strokes to the green.

feed back

Q. I suggest that building heating needs [particularly Bldg. 836] could be greatly reduced if the solar reflecting screens could be removed for the winter months. Merely sliding some screens to one side or the other does not fully allow solar insulation. Also, some windows are sealed shut and screens are not accessible.

A. Your suggestion to remove 836 solar screens in winter months is a good one, technically speaking. The sunlight thus admitted would constitute a passive solar gain, which would reduce the steam demand for the building.

Administratively, the proposal presents problems. Where this scheme was tried several years ago, the following happened:

1. Handling caused screen damage, particularly to frames, which made repairs necessary before reinstallation. Additionally, the louvers on the screening are fragile and tear easily or flatten out when brushed by something solid.

2. Storage had to be outdoors in a dirt lot, which meant that washing was necessary. Since most were custom fitted, it was felt that future effort in this area would require some numbering and record keeping effort.

Since the operating people do not have the manpower within present ceilings to undertake a task of this magnitude twice a year, perhaps an alternate solution may work out in our situation:

One layer of screens essentially screens out most incident energy, therefore, two layers would screen very little more, but would leave one space exposed to accept incoming energy. Should this scheme appeal to you and you feel that you need help in sliding the screens, call Telecon on 4-4571.

R. W. Hunnicutt—3600



Mark Twain was mightily acclaimed toward the end of his life. Still lecturing in his 70s, he made the following comment at one of his public lectures: "I was sorry to have my name mentioned as one of the great authors, because they have a sad habit of dying off. Chaucer is dead. Spencer is dead, so is Milton, so is Shakespeare, and I am not feeling very well myself."

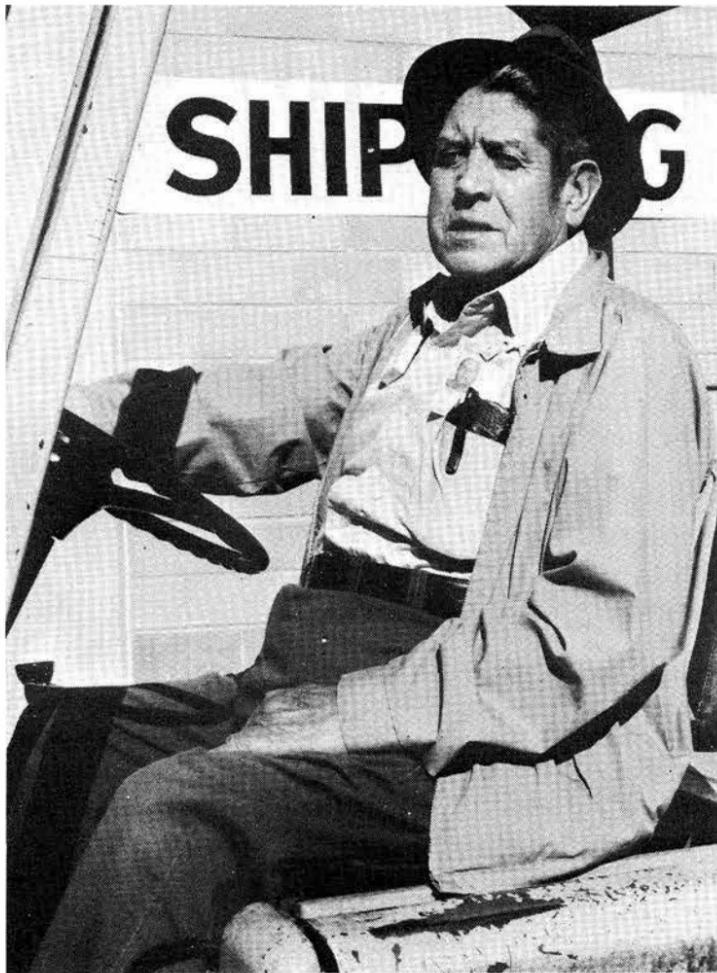
MILEPOSTS
LAB NEWS
MAY 1980



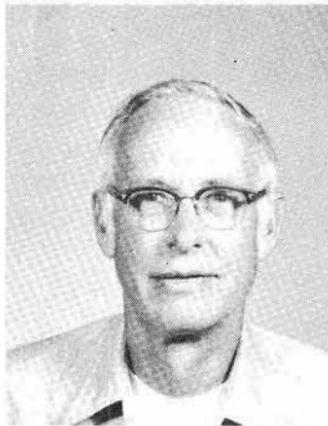
Bob Lucas - 2323 20



Jack Lafleur - 2117 25



Candido Montoya - 3417 30



George Steck - 5641 25



Bob Moll - 1716 25



Ken Gels - 8313 20



Robert Alther - 1471 20



Jim Park - 2162 25



Jan Vandermolen - 8215 10



Gertrude Williams - WE 10



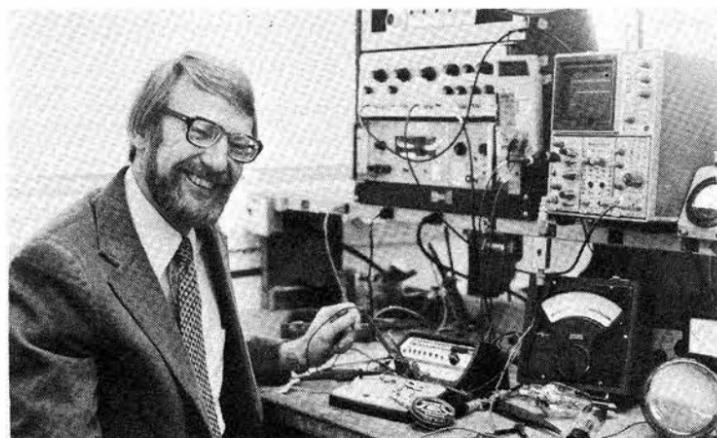
Emilio Chavez - 3417 30



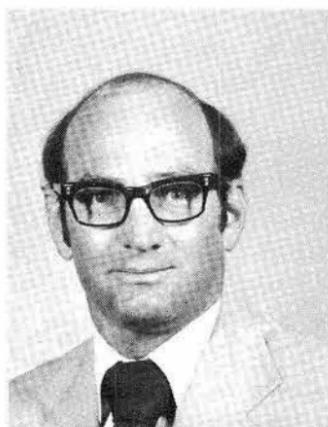
Burl Duncan - 3251 30



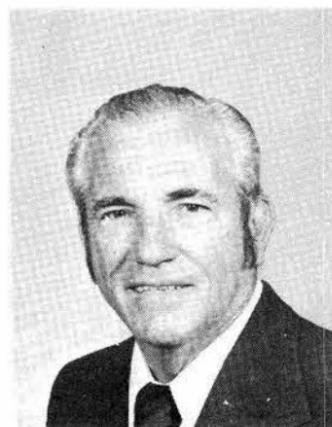
Amy Kahoiwai - 3742 25



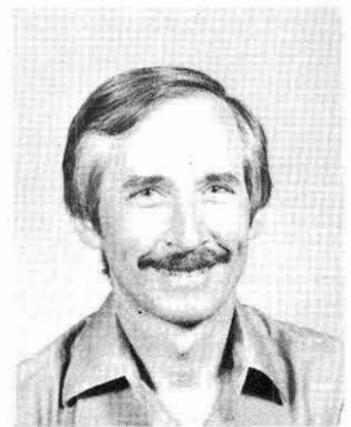
Bill Riggan - 2351 25



Sam Varnado - 4741 15



Don Knott - 3642 30



Charles McCarty - 2112 20



AMONG THE 150 classic cars to be on display at the State Fair Grounds Sunday, May 18, from 10 to 4, are these three owned by Sandians. The show, sponsored by the New Mexico Car Council, embraces every kind of car from Corvairs and Chevys to MGs and Studebakers. From left are Dick and Zora Freeman (3733) and their '29 standard Model A roadster, Barbara and Manny Vigil (4552) and their '56 T-Bird, and Roger Campbell (2631) and his '31 Model A deluxe roadster. Admission to the show is \$1; kids under 12, free.

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. Mail to: Div. 3162 (M0125).

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name & organization.
9. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

MOTORCYCLE (Motocross) tires, 2 ea. 4.50-18, 1 ea. 4.60-18, 1 ea. 3.00-21, \$8 ea. Navratil, 293-5527.
FIVE-HOLE '61 Ford rims w/new tires, G78-14, \$20 ea. Cilke, 296-3665.
REFRIGERATOR-FREEZER, frostfree, 14.1 cu. ft., coppertone, Coldspot, 32w, 27d, 65h, \$125. Rainhart, 821-3690.
WHEEL RIMS for 15" Chevrolet wheels. Lee, 281-5496 weekends only.
 '77 17' Komfort trailer, self-contained, \$4500 or best offer. Baca, 298-1505.
SADDLE, western, used, \$300 or will trade for English hunt. Lambert, 344-9012.
POP-UP pickup camper, Bethany, sleeps 4, ice box, heater, sink, stove, AM-8T stereo. Rayner, 821-5534 after 5.
WATERBED, 1 1/2 mos. old, 3/4 size, safety liner, heater & control, dk. wood stain, padded side rails. West, 268-6464.
CARPETING, green, 50 yds., \$75; blue-green, wool, 25 yds., \$50. Vandi, 255-0685.
COUCH, easy chair, hassock; moss green vinyl. \$80, can deliver. Hawkins, 281-5239 evenings & weekends.
 '77 GOLDSTAR cabover camper shell, LWB, 60" high, side bench seats, sliding front window, jacks included. McAllaster, 298-8371.
FILL DIRT, free, 18 yds., you haul. Stewart, 298-3332.
FREEZER, GE 17 cu. ft., 7 yrs. old, upright, best offer. Hughes, 265-1698.
COMPLETE stereo system; Zenith 19" B&W TV; couch; table; bedroom set w/dbl. bed; best offer takes each. Trowbridge, 293-1073.
COMPREHENSIVE collection of 28 hardback railroad books, copyrighted from 1937 to 1965. Bennett, 293-1217.

CHINA, 62-piece set, Sears Silver Sonata pattern, white w/platinum rim, antique style cups, \$50. Paul, 296-6500 after 3.

ANTIQU printers trays, all sizes, old type, & cuts; bathroom porcelain sink, \$5. Peterson, 256-7514.

FRANCISCAN Desert Rose china, complete service for 12, includes 22 matching stemware glasses, 147 pieces, 1/2 retail price. Wangerin, 298-3159.

VELVET rust-colored Lazy Boy rocker-recliner, \$99; new hexagon end table w/storage underneath, \$39. Paul, 299-6387.

CARPET, gold sculptured, 33 yds., pad included, \$2/yd. Hendrick, 296-2163.

PIANO, Baldwin baby grand, small 5'4", dark wood. Miller, 293-6437.

CAMPER for mini-truck, AMF Scamper, crank-up HT, heater, stove, ice box, never used, \$1500. Tucker, 299-7711.

LINED CURTAINS; yel./gold rug, 10'x11'; 4 patio chairs; glass fireplace screen; fireplace access., silver/blk. Melville, 296-3378 after 5.
REYNOLDS cornet, \$100. Stirbis, 299-5363.

SMALL house dog, adult female, black poodle mix, needs good home. Munson, 299-1400.

KENWOOD stereo amplifier, model KA-5500, \$200. Babicz, 299-5938.
FREEZER, lg. size Frigidaire chest type, \$150. Yost, 299-9642.

USED washing machine, \$65. Pruskowski, 292-5307.

BABY ITEMS: crib and mattress, \$50; high chair, \$10; stroller, \$20; crib to bed conversion kit, \$5; potty chair, \$2. Widman, 293-7279.

SEARS exercycle, \$75. Kidd, 255-7461.
LARGE flagstone, best reasonable offer; free, dig & haul 6 Armstrong juniper shrubs; also top soil. Eifert, 299-3847.

STAINLESS steel kitchen sink, 22"x33", best offer. Doughty, 296-1465.

CHILD'S bicycle, 20" Schwinn w/training wheels. Bertram, 294-8350.

SIX 5-pc. place settings of Westmoreland sterling, George & Martha pattern, including extra pieces. Kent, 256-1221.

TEXACO diesel engine oil, 26 qts. #30, 51 qts. #20, 60 cents/qt. Stuart, 299-9190.

FENDER-RHODES electric piano, 88 key, \$700. Barnaby, 265-4353.

SEARS Craftsman 2hp air compressor, 20-gal. tank, 2 cylinders on wheels, 220 volt, extension cord. Jones, 821-6374 or 881-1918.

J. C. PENNEY 220V electric clothes dryer, 10 yrs. old, \$50. Martinez, 299-8204.

TWO chairs, gold velvet w/skirt, \$60 ea. or both for \$100. Duvall, 881-4406.

'72 APACHE MESA solid state camper, sleeps 6, furnace, 3-way reffrig., twin propane bottles, battery. Paterson, 299-1062.

LA-36 Decwriter II hardcopy terminal, 132 column, 30 character per second, RS-232, \$1000. Phelan, 299-8521.

BLACK vinyl recliner; 4 ea. Ford truck tires & rims, 5-hole; portable GE dishwasher. Trentham, 255-7145.

VINTAGE Coca-Cola cooler, ice-chest type, no top, \$10. Berg, 296-2695.

T-HANDLE tap wrench, Starrett gauge, calipers, dividers, blocks; RCA port. stereo phonograph in plastic case, 2 4" speakers. Easton, 256-7717.

SELL-TRADE: touring saddle for '75-'76 Honda 550F, may fit other years; fiberglass fairing w/windshield, will fit anything. Edmund, 883-9520.

MATTRESS & box springs w/frame, less than 1 yr. old, extra firm, \$200. Hawn, 298-1231.

BACKPACKER'S TENT, 4 adults, lt. wt. 7#8oz., complete, rip-stop nylon, orange, \$85. Stevens, 299-6086.

25" COLOR TV, recently overhauled, old style wood cabinet, \$85. McConnell, 268-3109.

CARPETING, 3 yrs. old, 45 yds. green sculptured, 20 yds. lt. blue sculptured, best offer. Manteuffel, 281-5992.

MAXELL UDXL/reel; Sleeping Beauty moving-coil cartridge; Grace unipivot arm; Infinity speakers; classical records, tapes; Bugwacker; tool grinders. Norris, 877-6415.

TRAVEL TRAILER, 20' Coachman w/Ford F100 equipped to tow, many extras. Jeske, 299-2810.

TRANSPORTATION

'70 VOLVO, AC, AM/FM, complete maintenance records, \$1695. Copeland, 243-2400.

'78 CORDOBA, white, 16,500 miles, luxury pkg., \$5000; '77 Jeep Renegade, 258 engine, Levi upholstery, HT, 15,000 miles, \$6000 or best offer. Baca, 298-1505.

'79 AMC JEEP, CJ-7, 6-cyl., 3-spd., low mileage, stripes, soft top, carpet. Behring, 265-7205.

'78 VOLKSWAGEN Sirroco, \$6800, 26,000 miles, AT, factory air, AM/FM/stereo, mag wheels, SB radials, new Dec. '78 \$8485, consider older VW in trade. Cummings, 884-3602.

SCHWINN Varsity 10-spd., men's, \$50 firm. Hughes, 265-1698.

'66 CHRYSLER Newport, 4-dr., AC, PS, PB, AT, new tires, \$1000. Paul, 255-0422.

'77 MUSTANG II, 4-spd., 4-cyl., AC, PS, PB, sun roof, 31,000 miles. Campbell, 821-8675 after 5.

'77 PACER, 38,000 miles, PS, AC, AM/FM tape, radial tires. Hendrick, 296-2163.

'76 YAMAHA YZ80, w/Minuki kit, \$350. Stirbis, 299-5363.

'74 JEEP, CJ-5, 232 ci. 6-cyl., 19,000 miles. Woodall, 266-8952.

'58 CHEVY 3/4 ton pickup, 6-cyl., \$1000. Hymer, 293-6029.

26" girl's bike, 3-spd., 19" frame, Sears, \$60. Higgins, 299-4302.

'75 VW BUS, 7-passenger, AC, radio, sun screens, new tires, trailer hitch, carpeted. Pryor, 344-2931.

'75 CHEV. pickup, C10, swb 250, 6-cyl., 3-spd., HD bumper, radio, gauges. Liguori, 256-3613.

'69 CHRYSLER Newport, 383, PS, PB, AT, AC, 85,000 miles, \$600. Miller, 869-6383.

'75 BUICK LeSabre, less than 30,000 miles. Hobbs, 268-6461.

350cc MOTORCYCLE, needs work, \$100 or best offer. Hartman, 293-2862.

REAL ESTATE

1 ACRE, Bosque Farms, bluegrass pasture, bus to Tech Area, \$19,900, terms. Rouchkus, 266-8577.

2-BDR., 2 baths, 2 fireplaces, central heat, hw floors, private back yard, SE hts. Nob Hill, low interest. DeHaan, 268-6120.

MOUNTAIN PROPERTY: 10-20 acres in pines, stream frontage, county road access, 13 mi. west Las Vegas, \$1400/acre. Muir, 883-7933.

ESTANCIA VALLEY, 5-acre tracts, \$9500, \$100 down, 10% interest, 1 1/2 miles south of Estancia on 41. Garton, 298-8510.

FOR RENT

LG. 1-bdr. duplex, near 4th & Menaul, partly furnished, utilities paid, first & last month's rent, \$195 plus \$50 DD. Summers, 881-7765.

ON Maui, Hawaii, condominium, completely furnished, white sand beaches, summer or fall bookings available, \$200/wk. Schmedding in Tucson, collect 1-602-299-0215.

NEARLY NEW 2-bdr. apt., close in, 4-plex, complete kitchen, fenced yard, \$215/mo. unfurnished, \$235/mo. furnished, plus utilities. Klimas, 293-6892.

1-BDR. APT. near UNM, utilities paid, \$215/mo., laundry, security complex, adults, no pets. Tucker, 299-7711 or 843-6352.

NORTH VALLEY condominium, pool, tennis, jacuzzi, sauna, patios, appliances, utilities paid, 1-bdr. Monk, 881-0784.

2-BDR. APT., 435 Dallas SE, stove, reffrig, carpeted, w/d hookup, no pets, \$185/mo. Falacy, 293-2517.

4-BDR. for rent 1 yr., furnished or unfurnished, 2 1/2 baths, Sandia Heights, avail. June 16. Munson, 299-1400.

NEAR foothills, views, earthtone carpet, dishwasher, dbl. garage, 3 yrs. old, \$425/mo., 14324 Camino Del Rey. Bell, 294-2094.

2-BDR. unfurnished townhouse apt. near Central & Tramway, carpeted, dishwasher, view, \$215/mo. plus

electric, \$100 DD. Berg, 296-2695.
2-BDR. APT., 13200 Mountain Pl. NE, carpeted, drapes, reffrig., dishwasher, disposal, AC, storage, laundry facilities, walled yard, \$275 + utilities. Garcia, 298-8460 after 6.
3-BDR. HOUSE, fp, all kitchen appliances, dbl. garage, workshop, landscaped, \$440. Blewer, 268-9019.

WANTED

STEREO photography equipment: cameras, viewers, projectors, antique cameras. Mattox, 821-3945.

SMALL VIOLA, student size, 16 1/2" - 17". Tischhauser, 293-9768.

HOUSESITTER for occasional two- or three-day trips, \$7.50 & food. Pope, 255-6702.

LEAKY aquarium, 25 gals. or more, to be used as a terrarium. Yonas, 294-3384.

INEXPENSIVE piano suitable for donation to a non-profit org., piano player for a Roaring '20s dance June 14. O'Neill, 898-5753 after 5.

RETIRED MAN for summer job: church camp caretaker, Sandia Mountains, trailer provided. Stixrud, 298-0478.

4.80x8 BOAT TRAILER TIRE; camper awning. Baxter, 344-7601.

EXERCISE bag w/platform & swivel. Stuart, 299-9190.

SHOP MANUAL for '65 Chevy II Nova. Martinez, 299-8204.

The Science-Engineering Secretary, authors: Stafford & Culpepper; Remington-Rand "Line-A-Time" or similar copy-holder. Smiel, 865-9081.

ROOMMATE to share 2-bdr. house, close to work, \$225/mo. Gonnsen, 265-5379.

WORK WANTED

YARDWORK at a reasonable price, experienced teenagers working for team travel expenses, references, ask for Mark or Matt Atkins, 298-5762.

WORK FOR college student: interior painting at a reasonable price, free estimates, ask for Fred. Stixrud, 298-0478 or 292-5002.

SHARE-A-RIDE

PERSONS wanted to form carpool from South Valley (Isleta & Blake area) to arrive around 7 a.m. Riddle, 877-5939.

LOST AND FOUND

LOST—Turquoise Spidel watch band, sunglasses in dk. brown case, RX sunglasses in black case, high school ring (North Mesquite class of '74, initials MAC), gold Bulova watch w/stretch band, gold Timex bracelet watch.

FOUND—Gold ring, 2 keys (FE1221 & 9P16). **LOST AND FOUND**, Bldg. 814, 844-5677.

SWIMMING TIME — Some changes have been made in the patio and pool areas of the Coronado Club. Most noticeable are the missing trees, the huge cottonwoods that shaded much of the area. The trees were old, diseased and rotting, and their roots were causing continuous problems. New trees have been planted, however, and the grass is lush and green. Inviting you to the grand opening of swim season Sunday, May 25, are Jim Kaiser (3432) and Lisa Polito (3001). It's an all-day party from 11 a.m. to 6 p.m. with games and special events for kids.



Coronado Club Activities

Fiesta Mañana

TONIGHT at Happy Hour an exotic buffet menu is offered — quail and frog legs or chicken cordon bleu. A group called Showcase plays for dancing while Gary Waters and guitar entertain in the lounge. Next Friday, May 23, a choice of jumbo shrimp or T-bone steak is offered on the buffet menu, Gary Waters plays the lounge and Bob Banks and the Trio hold the ballroom. Happy Hours start right after

work on Fridays and run until midnight. To reserve buffet tickets, call the Club office, 265-6791, by mid-week.

TOMORROW is Fiesta time at the old C-Club with strolling mariachi musicians, Rio Grande style Mexican food and the Together band playing for dancing. You should have your tickets by now but if you don't, call the Club office *right now* and find out about reservations.

WHERE ELSE except at the Coronado Club can you buy standard mixed drinks and draft beer on Wednesdays from 4:30 to 6:30 for two bits?

JUNIOR BOWLING—In the recent city tournament, the Coronado Junior Bowlers took almost a third of the total trophies awarded. The Coronado group with 40 members is the smallest league in the city. Curtis Eckhart, Michele Roberts and Ervin Hill won the top all-events trophies in separate categories. Coaches are Ciss Kelly (3542) and Charlie Kaspar (KAFB).

TRAVEL DIRECTOR Frank Biggs (4231) has packages to Mazatlan for Nov. 3-10 and Nov. 10-17 for \$300, double occupancy, and a tour of Washington, D.C., Oct. 1-5 for about \$500. A Caribbean cruise is available June 7-15 for \$798. Also, Frank has deals on Hawaii and Europe. See him in the lobby tonight between 6 and 7.

Sandian Henry Neues Among Holders of Medal of Freedom



The recent award of the Medal of Freedom, the nation's highest civilian honor, to 14 distinguished Americans brings to mind that Sandian Henry Neues (1411), QA field representative, also holds the medal.

Henry received the bronze medallion from President Eisenhower in 1951 for his work in establishing vital radio communications between Japan and Korea in the early days of that conflict. Henry was a civilian employee of the Department of Army stationed with the Eighth Army headquarters in Japan. To complete the installation, Henry volunteered to go into Korea and work, "sometimes behind enemy lines."

"In the early days of the war," Henry recalls, "the perimeter shifted hourly. I was shot at more as a civilian in Korea than I ever was as a soldier in WWII."

Among those honored with the Medal of Freedom this year were Lyndon Johnson, Adm. Hyman Rickover, Beverly Sills, John Wayne and Robert Penn Warren. Only about 300 Medals of Freedom have been awarded since the honor was established in 1945.

"From now on," Henry says, "it's me and Hymie and Lyndon and Duke and Bubbles."

(Ed. note: former Sandia president Donald Quarles—March 1952 to September 1953—was awarded the Medal of Freedom posthumously in 1960.)

