

VERY COMFORTABLE is the way Larry Rodke (EG&G/4721) describes the interior of a solar-heated assembly building in the Photovoltaics Advanced Systems Test Facility. Larry works in the building every day—last winter he needed auxiliary heat only one morning following a four-day period of cloudiness and cold temperatures. The translucent south wall admits winter sunlight to heat 26 water-filled black fiberglass cylinders just inside the wall.

The cylinders—18 in. diameter, 10 ft. tall—give a total water storage capacity of 28,660 lbs., a thermal mass which collects and stores heat. In summer, it works in reverse to cool the interior. Larry is convinced—he's building a solar greenhouse at his home. Performance details of the building are documented in a publication by Dale Haskins (4718), *Performance of a Solar Heated Assembly Building at Sandia Laboratories*, SAND 80-0599.

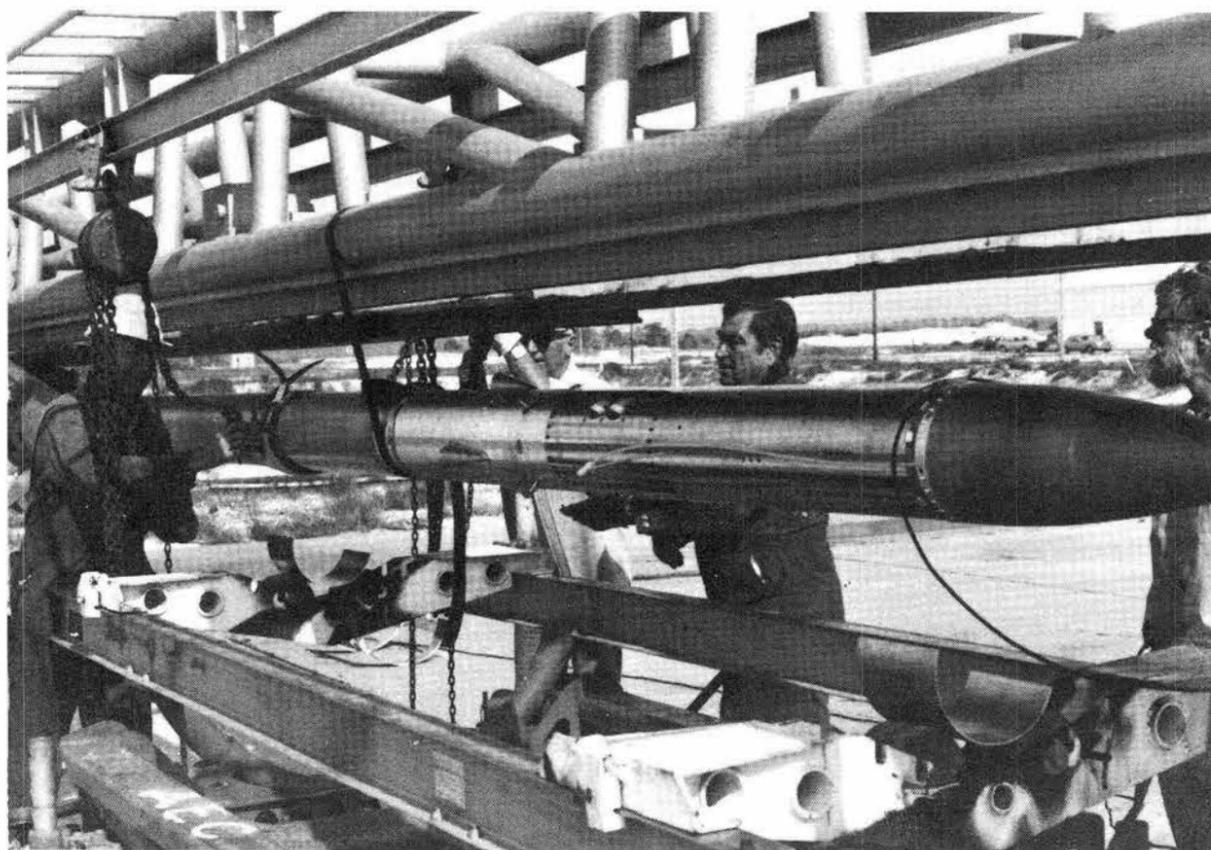
# LAB NEWS

VOL. 33, NO. 3

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

## Sandia Rockets Create Barium Cloud For Satellite Test



TERRIER-TOMAHAWK rocket with instrumented payload is loaded onto launcher at Eglin AFB by Bill Walker (1525), Emil Steinkraus (5523), Jack Bahlman (5523) and Julian Holmes (Naval Research Lab). Sandia launched seven high-altitude rockets in a communications experiment for DNA in early December. Gene Moore (3153) provided photographic coverage.

In early December, a team of 19 Sandians launched a series of seven Terrier-Tomahawk rockets to altitudes of 185 kilometres (116 miles) from Eglin Air Force Base, Florida. In four separate events, the rockets spread a glowing pink and green cloud of ionized barium into the sky above the Gulf of Mexico. The cloud was visible as far away as Indianapolis.

The launches were part of a Defense Nuclear Agency project called PLACES—Position Location and Communications Effects Simulation. The ionized barium simulated the cloud that would be created by a high-altitude nuclear burst. PLACES determined the effects of the ionized cloud upon communication and navigation signals among orbiting satellites, aircraft and ground stations.

The cloud was positioned to coincide with the location of an orbiting LES-8 satellite some 40,000 km (25,000 miles) overhead. Two of the Sandia rockets carried transmitter beacons to simulate additional satellite communications. An Air Force C-135 aircraft, carrying special equipment to receive and analyze the

[Continued on Page Two]

# Afterthoughts

Museum piece--I had recent occasion to visit the Atomic Museum for the first time in a long time and came away much impressed with the helpfulness of the staff and the high quality of the exhibits. Nuclear weapons have for more than three decades been the keystone in our defense and are thus legitimate subjects for a museum. But unlike, say, an old battleship, nuclear weapons hardly ever inspire affection or even nostalgia, and a museum curator given the task of displaying these weapons must grapple with the public's antipathy to the things. The weapon displays at the Atomic Museum are just about right, I'd say--straightforward, no flagwaving or other hype, just factual background data. The museum also has a great collection of vintage photographs, energy exhibits, and a small library.

\* \* \*

Something for everybody--I like New Mexico because of its diversity. Consider these two items, extracts from the classified ads (which often shade the rest of the paper): "To help overcome math anxiety, the UNM Women's Center is offering a Math Anxiety Workshop Jan. 26 to Feb. 16..." And, "The 5th Annual International Chile Conference will be held in Las Cruces Jan. 30..." Do you suppose learned papers were read? As for math anxiety, they have a point--calculus always seemed to me more of a conspiracy than a discipline.

\* \* \*

Language-- I've grown accustomed though not particularly happy with the newspaper use of "alleged." A bank, for example, is hardly ever simply robbed by some guy they catch in the act. That comes out: "Joe Doakes, the alleged robber, was shot down as he left the bank with nine bags of money presumed to belong to the bank." Recently there was a trial in Santa Fe of one of those characters who jumped the fence at the State Pen last fall and was later recaptured. He was on trial for escaping (among other things) and, you guessed it, the paper called him "the alleged escapee." How can an inmate, incontrovertibly gone from the prison for several weeks be only an alleged escapee? Isn't that like being slightly pregnant?

\*js

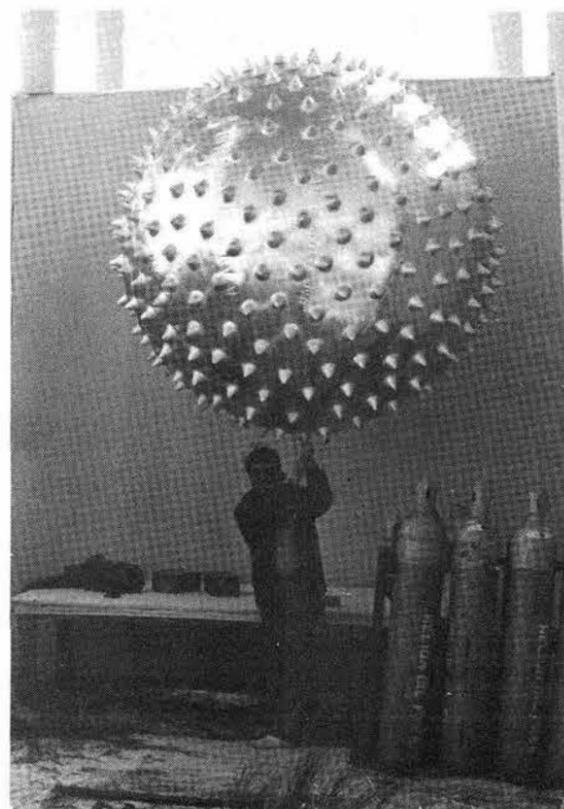
## Events Calendar

Feb. 6-7--NM Symphony Orchestra, 8:15 p.m., Popejoy.  
Feb. 8--Albuquerque Youth Symphony, 3 p.m., Popejoy.  
Feb. 11--Audubon Wildlife Film Series: "Another Penguin Summer," 7:30 p.m., Popejoy.  
Feb. 13-14--An Evening of Bach and Dance, 8 p.m., Rodey Theater, UNM.  
Feb. 13, 15--Albuquerque Opera Theater: "Cinderella," for adults and chil-

dren, 13th-8:15 p.m.; 15th-2:15 p.m., Popejoy.  
Feb. 15--UNM Jazz Bands concert, 8:15 p.m., Rodey Theater, UNM.  
Feb. 20-22--Ballut Abyad Shrine Circus, Tingley Coliseum, 299-5926.  
Metropolitan Opera Radio Broadcasts, KHRM, 96.3 FM; KZIA 1580 AM, 12 noon:  
Feb. 7--Mozart's "Magic Flute"  
Feb. 14--Verdi's "Masked Ball"  
Through March 29--Three sculptors at the Albuquerque Museum: Clement Meadmore, skyscraper sculptures; Bruce Nauman, 1/12 scale models for underground pieces; and Ed Vega, surface structures.

## Check Lost & Found

From time to time, Benefits sends us a list of found items they've had on hand for several months. The present list runs to 30 or 40 items and runs to such things as a beige hat, a blue scarf, a baseball cap and similar expendables. But here's a list of those items that have more than nominal value: silver and turquoise tie clip, gold ring, 5X7 portrait of a young boy, silver tie clip, eyeglasses (five pair), gold chain, key chains (two), gold pen, man's silver wedding band, woman's watch, man's leather coat. Go see Yolanda Armijo in Bldg. 814, room 1, if you recognize a lost treasure in the list.



**SPIKED BALLOON**, called a jimsphere, is readied by Frank Rivera (1135) to chart upper atmosphere winds before rocket launch. Spikes spoil aerodynamic lift of balloon so that true winds may be tracked. Frank also handled administrative and logistic support on PLACES project.

*Continued From Page One*

## Rockets Create Barium Cloud

signals, flew repeatedly through the shadow of the cloud.

"Excellent data were obtained on all four events," said Dick Eno, supervisor of Rocket Systems Division 1525. "Our sponsor considers the project an outstanding success."

The seventh Sandia rocket was fired through the cloud carrying a paired pulsed-plasma probe (to measure electron density) and an ion mass spectrometer. Excellent data were obtained by both instruments.

The Labs was responsible for the rocket systems and payloads, integration of instrumentation and launch events. Sandians from Divisions 1523, 1525, 1171, 5653 and 5635 participated.

"Sandia helped pioneer use of barium clouds to measure the earth's magnetic field," Dick says, "and through the years we have launched hundreds of rocket systems into the upper atmosphere carrying very sophisticated instruments. We did similar communications-related experiments in 1971, 1977, 1978 and 1979."

## Sympathy

To Larry Andrews (2154) on the death of his brother in Missouri, Jan. 24.



William Safire in his book *On Language* refers to the Haitian doctor who asked an American friend the meaning of the English expression "having sex." He was told that it meant "making love." "And that's all?" he asked, obviously bewildered. "Then why do you say that to people when you're surprised to see them? You know, you say, 'Oh, for having sex, it's good to see you again.'"

## LAB NEWS

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aided by gerse martinez

barry schrader reports livermore.

## Fun & Games

**Softball**—Tom Massis has begun to organize fastpitch softball players, men and women, for league play this summer. If you're interested, give him a call on 4-1540. His deadline to sign up teams for city league play is Feb. 23rd, so don't delay. Slowpitch teams will be organized in April.

\* \* \*

**Corporate Cup**—Coach Henry Dodd (4744) has an alarming report: Los Alamos runners are already in training for the CC (to take place May 16-17) and have taken a blood oath to repay Sandia for the drubbing we gave 'em last year (we had 148 points, they had 85). For starters, Henry needs a head count and asks that interested runners send their name, organization and phone extension to Corporate Cup, Tom Lenz, Coronado Club. Veterans from last year are urged to re-up, and new participants are needed, especially women and sprinters. Last year's Corporate Cuppers—there were 45—had a fun time in the various events, so sign up and join the fun.

\* \* \*

**Arts & crafts**—Recreation Manager Tom Lenz suggests that many Sandians and their dependents would have an interest in one of the creative arts: silk screening, tole and decorative painting, pottery, photography and the like. And there's a first-rate A&C Center on Base which we can use, so why not run a few classes and take advantage of it? The essential ingredient is people, six or so for a class, and Tom is willing to set up one or more classes in any of these skills. Let him know of your interests on 4-8486 and he'll take it from there.

\* \* \*

**Biking**—If you haven't yet ridden the Paseo del Nordeste bike path, then you should (because it's fun) and a good time to do so is at its official opening on Sunday, Feb. 8, at 10 a.m. Mayor Rusk will cut the ribbon, and a bike ride over the trail follows. If you're a runner, there's going to be a minimarathon on the trail at 12 noon (the trail is 6½ miles long and we surmise the minimarathon is an out-and-back run). PDN begins, as do the opening events, at its Tucker Ave. entrance, which is sort of west of the westernmost BCMC Hospital parking lot, just off Lomas. A number of Sandians helped deliver this newest bikeway, and their persistence has paid off—PDN is a super bike path.

\* \* \*

**Table tennis**—The Table Tennis Association has scheduled a tournament for Saturday, Feb. 14, from 1-6 p.m. at Monroe Gym (Louisiana & Indian School). Entry fee is \$4 and trophies will be awarded in all four categories: Championship, A, B, and Novice. Call Jarvis Bumgarner, 4-1058, or Dave Sealey, 4-4475, for more information on this and future activities.



NEW SUPERVISORS—Chris Christopher (3417), Patte MacPherson (3418-2), Marv Beckett (4041) and Patsy Mahan (3426-3).

## Supervisory Appointments

**PATTE MACPHERSON** to supervisor of Administrative Section 3418-2, effective Jan. 16.

Joining Sandia in September 1955, Patte worked in Personnel's central files and, later, with the stock records group. Since 1965 she has been in the property control organization, working primarily with surplus material. Her new responsibilities include administering the disposal of surplus property through other federal agencies, DOE contractors, and universities.

Patte enjoys swimming, bowling and tennis. She lives in SE Albuquerque.

\* \* \*

**PATSY MAHAN** to supervisor of Custodial Section III 3426-3, effective Jan. 16.

Patsy has been a custodian on the 1-9:30 p.m. shift since coming to the Labs in October 1978. Since early 1979, she has been a lead custodian. Before joining Sandia, Patsy was an assistant housekeeper for a local motor hotel for 18 years.

Her favorite leisure time activity is fishing. Patsy lives in the SE heights.

\* \* \*

**MARV BECKETT** to supervisor of Project Management Support Division 4041 (newly created), effective Jan. 1.

Marv joined Sandia at Livermore in 1959 as a project engineer with a weapons design group. Transferring to SLA in 1969, he continued to work in weapons design as well as in weapons project management. Since 1974 Marv has worked on fusion projects development and, currently, his work has expanded to cover all non-weapon, energy-related projects in the 4000 organization.

Marv earned a BS in ME at the

University of Colorado. He was a design and test engineer at Rocky Flats before coming to Sandia. An active member of ASME, Marv has held all the offices in the NM Section and has been chairman of many regional and national committees. He is a member of the Medical Aids Research Foundation and served on the original staff of officers in the NM Engineering Society. He enjoys photography, music, camping and woodworking. Marv and his wife Phoebe have two children.

\* \* \*

**JOHN CHRISTOPHER** to supervisor of Shipping and Receiving Division 3417, effective Feb. 1.

Thirty-three years ago Chris joined Sandia as a warehouseman in the shipping and receiving group he now supervises. He was promoted to section supervisor of the organization in 1949. He transferred to the reclamation organization in 1960 as a section supervisor and, in 1966, moved into the administrative staff area where his assignments have included job evaluation, being a personnel representative and, most recently, working in EO&AA Dept.

Off the job, his interests include woodcutting and church activities. Chris and his wife Polly have four children; they live in the NE heights.

### Congratulations

Karen (2225) and Lewis Marlman, a son, Matthew Lewis, Jan. 19.

Gil (4441) and Marilyn Weigand, a daughter, Dianne Teresa, Jan. 13.

Mr. and Mrs. Steven Davis (1473), a daughter, Ashley Mone, Jan. 21.

Melinda Markey (2653) and Jake Chavez, married Jan. 3.

## Area III Getting Fiberoptic Transmission Lines

The new technology of fiber optics makes communication faster and cheaper. One of its first applications at Sandia is to interconnect the principal computers, some 15 in number, in Area III. "Fiber optics bring all the computers to the engineer's fingertips," reports Jack Mortley, head of Digital Systems Development Division 1521. "Our optical fibers are glass strands less than one-thirty-second inch in diameter, and the 10-fiber cable we're using is about one-half the size of an equivalent coaxial cable."

Smaller size isn't the only advantage of fiber optics. The main consideration in their selection is speed. A coaxial cable of equivalent length and loss transmits 50-100 kilobits a second, whereas individual fiber optic strands have a transmission capability of 20 megabits a second. Actually, they're capable of 200, but 20 better matches the Area III computer's memory speed. Fiber optics are also immune to interference, says Rich Meyer, Division 1521's Area III project leader. "For instance," radiation and pulses from transmitters, two-way radios, aircraft, lightning, and other electromagnetic sources interfere with data transmission in coaxial cables. Fiber optics are non-conductive and therefore immune to electromagnetic interference.

"In a location like Area III we get a lot of lightning strikes," he continued. "Since a lightning bolt's energy travels through the ground, we sustain thousands of dollars in damage to underground cables. Fiber optics, on the other hand, aren't affected by lightning."

Jack Mortley described another hazard: "Rodents seem to like the insulation in coaxial cables—they dig down to it, have a feast, and cause a lot of damage. These



FIBEROPTICS IN AREA III—Rich Meyer (1521) displays a single fiber optic strand taken from the cable in his left hand. Similar cable is being installed in Area III to handle data transmissions. Fiber optic transmission lines handle high volume of traffic over relatively small cables.

new fiber optic cables have a rodent-proof outer covering."

Installation is scheduled for one kilometer of prototype fiber optic cable, which will connect the Area III central computer with the computer in the Complex Wave Vibration Facility. About one-half—1200 feet—of this leg will constitute around 10 percent of the total core network. "We're in the process of evaluating the cable's aging characteristics, transmission rates, mechanical qualities, tensile strength—everything that can affect the cable's degradation," says Jack. "Area III's six main test facilities will be interconnected in 1981. There are plans to connect the 2600 computer in Area I with the Area III computers around 1983. Then we'll be able to send experimental results for analysis."

Two kilometers is the maximum economic distance for use of fiber optics Area III application. Beyond that, either laser-driven fibers (which are too expensive) or

microwave transmission can be used. "For the installation of Phase II of the Area III network in 1982, we'll use a combination of fiber optics and microwave transmission," Jack says. "Cost studies show that for short distances—two kilometers or less—fiber optics appear to be cheaper than radio. This, of course, depends on the number of fibers in the cable."

"The cables are fragile—they can be easily damaged during installation, especially while being pulled or bent. Tiny cracks result in photon leakage and reflection. If installed properly, fiber optic cables should last at least 20 years, which is what our tests are determining right now."

Fiber optics technology is about three years old. Only within the last year have ready-made fiber optic systems been available. AT&T is the biggest user, transmitting high-density telephone communications economically for distances up to 50 kilometers with 144-fiber cables.

## Wood/Coal Furnace Replaces Propane

[Ed. Note—This is another in a series of articles about employees' home energy-saving systems. If you have an operating system, give us a call on 4-1053.]

So what do you do if you live in Cedar Crest and your propane-burning furnace is costing you \$200 a month to heat your home?

Larry Weirick (5841) solved the problem by ordering a wood/coal furnace from the factory in Indiana and installing it himself. The furnace cost \$800. Freight charges, additional ducts, flue and chimney cost another \$650. Still, with the recent increase in the price of propane, Larry figures that he would have spent \$800 this winter for home heat. The capital cost of the new furnace, installed last November, should be recovered by the end of next winter.

Larry is a handy man with tools (woodworking is his hobby), so installation of the 650-lb. furnace unit was not a particular problem. Chiseling a hole in a concrete-filled cinder block wall for the chimney did take nine hours, but the careful cutting resulted in a clean, tight fit.

New duct work bypassing the propane furnace (which was left in place) fitted the new furnace into the existing forced air

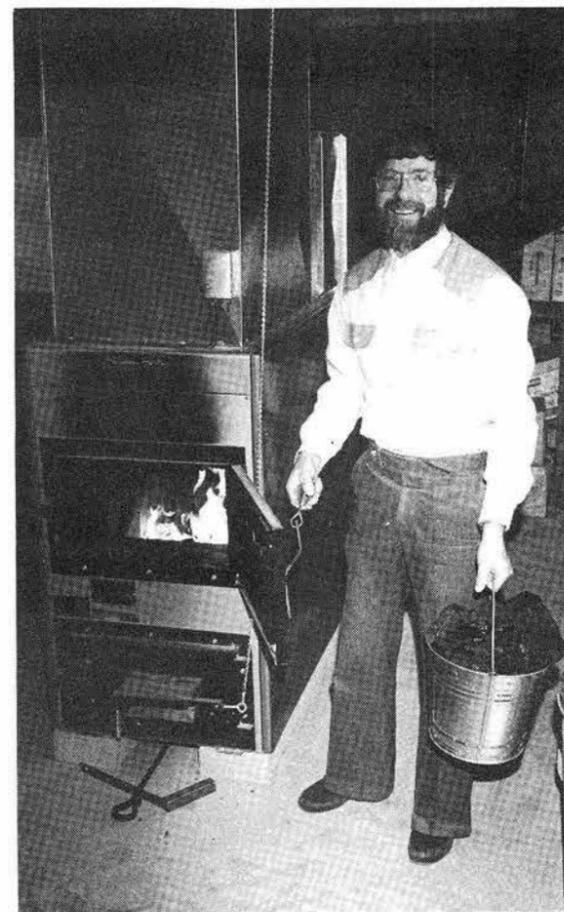
central heating system.

Larry's house contains 3400 sq. ft. on two levels—four bedrooms, kitchen and utility room, large living room and dining area, den, and recreation room for his three young ones (ages 4, 6 and 8) plus a basement workshop which also houses the furnace installation.

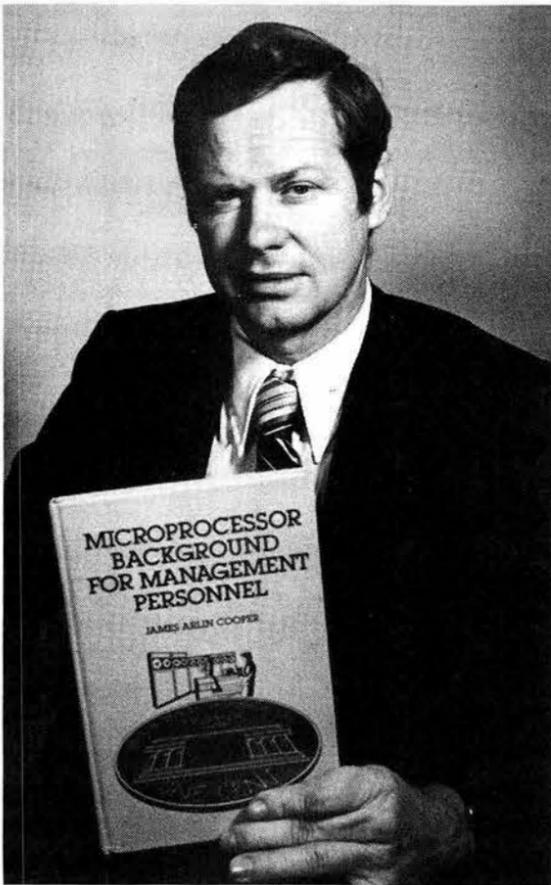
"I fired up the new unit and it worked very well," Larry says. "The thermostat upstairs controls the furnace air inlet and chimney flue to regulate the rate of fuel burn and use of the forced-air fan motor. In the beginning I burned wood. I cut and hauled it myself from Clines Corners and Manzano, but the cost of gasoline and everything ran about \$25 a cord, and I burned a cord every two weeks. It was a lot of work and I seemed to be continually feeding the fire."

"So last month I borrowed a trailer, hitched it to the pickup and drove to Gallup where I bought four tons of coal. Including the gas, it cost about \$25 a ton."

"Here's the good part. It appears that a ton of coal will last me a month and I load the furnace only twice a day—maybe three times during a long, cold weekend. And it's a lot easier carrying a bucket of coal than chopping a load of wood."



LARRY WEIRICK (5841) installed this wood-coal furnace in his basement workshop, bypassed the old propane furnace, and fitted the new unit into the existing forced-air heating system. Now he burns coal from Gallup and saves about \$175 a month in home heating costs.



ARLIN COOPER (2612) is shown with his new book *Microprocessor Background for Management Personnel* (Prentice-Hall, 1981). In 1979 Arlin presented an INTEC course on microprocessors to Sandia managers; the idea for the book took hold then. Arlin reports that he received many suggestions and ideas for the book from Sandians.

## Take Note

Colloquia coming up: Feb. 11, "The Los Alamos program for observing a solar eclipse from high altitude aircraft," by Charles Keller of Los Alamos and, on Feb. 16, "Integrated optics and optoelectronics," by Cal Tech's Prof. Amnon Yariv.

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IRS has set up a NE Heights office on the lower level at Coronado Shopping Center. It's open Monday to Friday between 10:30 and 12 noon and 1 to 6 p.m., and its purpose is to answer taxpayers questions. (Ed. note: before you lean on an IRS expert, you might recall last year's *Washington Post* examination of IRS advice—something like a third of stock questions put to the IRS consultants were answered incorrectly. Under their heads-I-win, tails-you-lose approach, the ill-advised taxpayers still had to pay up . . .)

\* \* \*

The Sanado Woman's Club offers social, welfare and educational activities, including interest groups in art, gourmet cooking, bridge, golf, quilting, tennis, investing and crafts. New interests groups are formed whenever enough members request one. Sanado also provides an opportunity to do something in the community, for example, working with girls in the welfare home. Regular meetings are held the second Tuesday of the month and include a luncheon program featuring topics and events of local and national interest. Membership is open to women associated with Sandia or DOE, either by employment or by marriage to an employee. Helen Neilson, 821-5477, is membership chairman and may be contacted for further information.

## Visit and Enjoy Mexico, But Take Care

One of the attractions of living in the Southwest is its accessibility to Mexico, and many Sandians—both from Albuquerque and Livermore—travel often to our southern neighbor. Some Americans, however, are hesitant to visit Mexico because of "horror" stories they've heard—usually about crime or run-ins with the authorities.

Crime, of course, is an international problem (some has even been known to occur in the United States!), and Mexico has no more or less of it than most other countries. But every year over three million Americans visit all parts of Mexico and of these the number who suffer serious mishaps is minuscule. Besides, if you take the same common-sense precautions in Mexico that you do in the United States, nothing untoward should befall you.

Probably more Americans encounter difficulties in Mexico because of unfamiliarity with that country's legal procedures. For instance, you should not take your car into Mexico without first checking with your insurance company. Many U.S. policies are valid in Mexico, with some restrictions. Unfortunately, in the event of an accident, the Mexican authorities do not recognize U.S. policies and, to avoid impoundment of your car, you really should buy Mexican auto insurance. This isn't exactly a secret—all travel guides emphasize it and along the border there are advertisements galore for Mexican insurance. It can also be easily purchased at any auto club office in the U.S. Yet a number of Americans will blithely drive into Mexico without bothering to take this simple precaution. Then if they're involved in even a "fender-bender," they are shocked when the Mexican police impound their car until the accident investigation is completed. This is probably the origin of some of the horror stories—failure to comply with Mexican laws compounded by an understandable apprehension when in difficulty in a foreign country without understanding the laws or the language.

To avoid such problems, it is worth your time to inform yourself of all legal

requirements you must comply with before entering Mexico in your car, boat, or plane—or if you plan to take firearms, CB radios, or pets there. The simplest way is to visit the nearest Mexican consulate (Albuquerque, 247-2139; San Francisco, 392-5554) or Mexican Government Tourism Office (San Francisco, 986-0992).

Resorts like Mazatlan are very popular with Sandians—some like it so much that they'll buy condominiums there. An acquaintance of ours, who recently visited Mazatlan, was so taken by it that he bought a condo on a time-sharing basis. He boasted that it was ". . . a 100% American operation and the Mexicans had nothing to do with it." Well, the truth is that the Mexicans have quite a bit to do with it—not surprisingly, since the condo is in their country. The Mexican constitution forbids direct ownership of property by foreigners less than 31 miles from the coast or 62.5 miles from any border. Non-Mexicans, however, can buy on a trust or *fideicomiso* basis where a bank (Mexican, of course) is the trustee, or owner, of the real estate. Our friend who "bought" the condo is not the owner but the beneficiary although he has all the rights to use, enjoy, and sell the property. The trust is established for 10 years and may be extended for two additional 10-year periods. After 30 years, the beneficiary will have to sell. As to our acquaintance's belief that he was dealing with an "American" firm, he failed to notice that his purchase agreement clearly states it was issued by a Mexican corporation; every non-Mexican firm has to set itself up this way if it wishes to do business in that country.

So go to Mexico—or any other country—and have fun, but learn something about the place first. You just might avoid some headaches and enjoy your trip that much more. A handy reference is a little paperback—*A Layman's Guide to Mexican Law* by Alberto Mayagoitia, a Mexican lawyer. It was published in 1976 by UNM Press.

"Back Pain: Avoid When Possible, Treat When Necessary," is the topic of Medical's next program in the "Go For Health" series. The program will be on Tuesday, Feb. 10, from 12-12:30 p.m. in Bldg. 815 (outside the Tech Area). Ann Partridge, licensed physical therapist, will be the speaker. Topics to be covered include: exercise to relieve common backaches, correct working postures, and proper lifting techniques.

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If you'd like to see the Ballet Folklórico de Albuquerque, the on-Base Que Pasa Recreation Center offers a performance on Friday, Feb. 13, at 8 p.m. at their west-side facility. Tickets are available at \$2 at Que Pasa East (Bldg. 20155, 4-5420). The Ballet Folklórico performs traditional Mexican folk dances, southwest Spanish colonial dances, as well as Indian dances of Mexico.

If there's one hobby that more Sandians follow than any other, we'd guess that it would be photography. So all you photographers, present and would-be, should check out the photo exhibit in the Tech Library foyer. It represents the works of a group from Micro- & Reprographics Division 2432, namely, Louis Archuleta, Yolanda Gallegos, Donna Hodges, Don Honeycutt, and Theresa Lovato. The photos are in black-and-white and color.

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A release from the Air Force on Base describes a need for volunteer judges at three regional and one state science and engineering fairs to be held in 1981. A Mr. deBoer on 4-9351 appears to be coordinating matters, and a meeting for judges is set for Feb. 12 in Bldg. 497, room 2, at 1 p.m.

## Take Note

Sandia Livermore will celebrate its 25th anniversary Saturday, March 7, and a steering committee has been named with Elveta Patrick-Roblyer (8215) as coordinator for Family Day.

Assistant coordinator is Denise Clay (8216), security representative Jim Spirup (8261), safety representative Jack Izzo (8275), and classification advisor Frank Halasz (8215). These are department representatives: Bob Miller (8110), Len Napolitano (8120), Rodger Page (8150), John Martin (8160), Barry Schrader (8210), George Mincks (8250), Pete Dean (8260), Fred Eichert (8270), John Smugersky (8310), Gerry Strandin (8320), Gary Drummond (8330), Wil Gauster (8340), Lisa Parker (8350), Bob Hargreaves (8410), Jim Pergrossi (8420), Alec Willis (8440), Jim Bartel (8450), and Tony Lucero (8460).

The anniversary week will also mark the formal opening of the Combustion Research Facility, to be dedicated on Friday, March 6.

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Sandia Livermore's technical library moved to new quarters in January, and some 15,000 volumes went across the site from MO-3 to Bldg. 921 and into the space previously occupied by the Combustion Sciences Department. Features of the new quarters include carpeting and more open space in the stacks and reading rooms.

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Marlin Pound (8214) has again been named chairman of the Livermore Area Recreation and Park District board of directors for a year.

He has served on the board since 1968 and has won election four times. Marlin served twice before as board chairman—in 1973 and 1977. The Sandian has also represented California on the board of the National Park and Recreation Associations and, four years ago, received a state award for his contributions to parks and recreation in California. A 23-year Sandian, Marlin and his wife have four children and reside in Livermore.

### Fitness Day Coming Up

Sandians are invited to take part in the first annual Livermore Fitness Day on Saturday, Feb. 21, which includes a 10-mile bike ride plus three- and ten-kilometer fun runs.

Events begin at the Livermore Civic Center park on South Livermore Avenue at 10 a.m. Other attractions are an aerobic dance demonstration at The Barn, food booths and a T-shirt stencil booth where physical fitness buffs can have their shirts emblazoned with a Fitness Day logo. There will also be ribbons and refreshments for all participants. There is no registration fee.

Sandians wanting more information can contact Dave Bray (8461) at extension 2-2528.

## Unusual Vacations

### A Different Way To See England

"We'd tried most every type of vacation, so an article on the restored inland waterways of England really intrigued us," says Ray Sheppard (8424) who recently spent two weeks cruising Britain's rivers and old canals. All over this water network—built beginning in the 1600s as trade routes—disused canal arms and basins have been dredged and marinas rebuilt.

Ray and wife Mille first flew to London for several days of sightseeing, then drove to Evesham where they picked up their 31-foot, narrow canal boat (20 h.p. diesel engine), previously reserved.

"We were amazed at how simple the boat was to operate," Ray says. "After learning how to use the kitchen appliances, space heater, bath facilities, throttle and tiller, I was instructed in turning around in the river. In all, this took no more than 30 minutes.

"Of course, it took longer to get really acquainted with the boat, but as we went through a couple of locks, we became experienced very fast. Of the 35 locks we passed through, only four were manned; the others we operated ourselves."

From Evesham, the Sheppards essentially made two jaunts and covered about 150 miles. The first was up the Avon River to Stratford-on-Avon where they attended the Royal Shakespearean Theater, then up the Stratford Canal to Wootton Wawen. This seven-mile stretch of canal included 17 locks that alone took over five hours of really hard work on a windy, rainy day.

Retracing back to Evesham, they continued to Pershore and Tewkesbury, then up the Severn River to Worcester and the Royal Worcester Porcelain Factory, famous for hand-painted bone china.

Beginning to relax now as their navigational confidence increased, they went back down the Severn to Tewkesbury from where they slowly cruised back up the Avon to their starting point at Evesham.

Both were surprised by how many boats there were on the waterways. "This was a real plus," says Ray, "because the more traffic, the more hands available, making it easier and faster to get through the locks.

"There is a cardinal rule with respect to the locks," notes Ray. "All 'paddles,' actually a valve that lets water in and out, must be closed when leaving the lock. Should someone forget, the water keeps gushing through and this can drain the whole canal."

Ray reports the countryside to be very green and pastoral, with something of interest for everyone in the old canals, especially the engineering feats of the locks, aqueducts and tunnels. They found a wealth of birds, sheep, cattle, and flowers along the banks, and the canalside buildings in the small villages—pubs, stables and lock cottages—were quaint and charming.

"As we tied up along the way," he says, "we found we did have to gear our activities to their hours. For instance, restaurants didn't open till around seven in

# LIVERMORE NEWS

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LIVERMORE LABORATORIES

FEBRUARY 6, 1981



OVERVIEW of the Sheppard boat. Ray's wife Mille steadies the boat as water fills the lock. The couple voyaged for two weeks over the canal network.

the evening, and pubs close between lunch and dinner hours. This didn't cause us any problems, however, because we were pretty relaxed by then."

Another surprise was the number of fishermen on the rivers, especially on a 16-mile stretch between Tewkesbury and Worcester where three-foot-square fishing platforms have been built out into the water about every 30 feet. Many anglers are members of fishing clubs and actually look like golfers, using a golf-cart-looking contraption on wheels that holds several rods, creel, net and a big umbrella for sun or rain.

"A great vacation," concludes Ray. "We saw and experienced what would have been impossible by car or tour bus. In fact, going through the Stratford-on-Avon lock, we were the attraction as tourists gathered around.

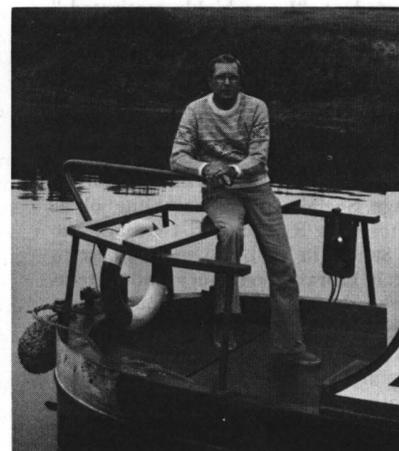
"But it is a physical vacation," he warns. "There's a lot of manual work involved, mostly in moving in and out of the locks because those heavy paddles do tend to stick."

Cost of the boat was \$785, including tax and fuel (it's more during July and August). All meals can be prepared onboard at a cost of less than \$15 a day for two people. Food shopping in the villages along the waterways was, in itself, an interesting experience. For additional information, contact the British Tourist Authority's toll free number in Los Angeles or your local travel agent. • lcs

### Sympathy

To Marv Glaze (8260) on the death of his mother-in-law in Silver City, N.M., Jan. 14.

To Sylvester Grisby (8411) on the death of his sister-in-law in Oakland, Jan. 17.



ON AVON RIVER in England, Ray Sheppard (8424) operates tiller on compact canal boat. Boat width, 6'10", is just narrow enough to pass through the seven-foot canal locks.



CLOSING the "paddle" (valve) of a lock gate.

# feed Ribback

*Q. When I heard about a Sandia friend needing a coronary bypass surgery, I was reminded of how my wife, after a coronary, went to a Lovelace Post-Coronary Cardio-Vascular Exercise Program and made significant improvements in her stress EKG after nine months. If these programs make significant improvements, wouldn't it be a really good investment for the Labs to organize and staff a 4:30-5:15 p.m. program?*

A. The logistics would be very difficult if Sandia established and operated a post-coronary cardio-vascular exercise program. The present program at Jefferson Junior High is run by a local cardio-vascular group and has been in existence for over six years. They have 50 to 60 people regularly signed up for participation. At each session, at least 40 people take part, and they are supported by a cardiologist, an exercise physiologist, one physical education major and two nurses. These are the minimum medical personnel present during each session, and full life-support equipment is always present. One cardiac arrest occurred a few years ago and was revived at the scene.

It would be very difficult for us to match the combined talents of this group, especially as we probably would not have anywhere near the size of their enrollment. In addition, these programs are becoming more and more technically sophisticated. I firmly believe in the concept, but I don't believe it is feasible for us at this time.

Paul B. Mossman, M.D. — 3300

*Q. Frequently, when ordering items from the Stationery Catalog, it is difficult to locate the item because the nomenclature isn't known. For example, Memorandum of Call is listed under Pad, Memorandum of Call. It is suggested that a cross-reference index be compiled for catalog items.*

A. Names of items in our catalogs are usually taken from the official company specifications and, in a few cases, we have added common-use names in the table of contents in the catalog. However, we are in general agreement with you that it is sometimes difficult to locate our catalog information.

On our list of things to improve, we plan to make our cataloging system more efficient—now a cut-and-paste operation—by utilizing the computer. This will give us more up-to-date information, in one large volume, with a cross-reference system. We have studied catalogs of similar operations in other laboratories and we know that an automated system is possible.

As we cannot commit immediate attention to this, may I suggest that you call the individuals in our stock control listed at the beginning of each catalog under MR instructions if you need assistance with our existing catalogs.

J. C. Strassel — 3700

*Q. A major source of aggravation to myself and many other electronics people at Sandia is a severe shortage of components nationwide. This shortage causes projects to be delayed and new designs to go untested. Would it be possible to advertise a specific need in the Weekly Bulletin? Not infrequently, someone else at the Labs will have the desired part and is not using it.*

A. Your suggestion makes good sense. We will be glad to publish such items in the Weekly Bulletin.

K. A. Smith — 3100

*Q. What's the reasoning behind the policy of effective dates of pay raises in SLI 4402? I have been adversely affected due to a non-job incurred injury I received the last week of September. In addition, I understand the policy has a history of inconsistency—on again, off again. Your comments will be appreciated.*

A. Your request for the rationale behind Sandia's policy of effective dates of salary increases is understandable. Some changes have been made in the past in this area of policy, however; there is a continuing and compelling need for Sandia to parallel Western Electric business practice inasmuch as it is a stipulation in the operating agreement between the Department of Energy and Western Electric. Because of this requirement, all benefits including sickness absence require that compensation be paid at the rate effective on the first day that sickness absence begins. Therefore, all salary increases must coincide with this policy. Sandia Laboratories presently parallels the Western Electric policy on this matter.

C. R. Barncord — 3200

*Q. Why were the annual rental fees on Credit Union safe deposit boxes increased 20% to 50%?*

A. The policy in setting fees for Credit Union services is to make each service pay its own way. The original cost of the safe deposit boxes and the vault are being amortized by the rental fees but, in the past, only a portion of personnel costs to service customers has been covered. In January 1980, we purchased 430 new boxes (giving us 2232, the maximum that can be placed in our present vault). The annual depreciation (40-year straight line) on the facility is \$3,500 but the loaded salary for a full-time employee assigned to the safe deposit box desk is approximately \$25,000 (salary load is about 204%). Total rental fees in 1980 were \$20,500 and, with the increase, will be \$23,500 in 1981. Incidentally, all boxes at Albuquerque are currently rented and there is a list of 350 people for any that are given up.

Marvin E. Daniel — 2113  
President, SLFCU Board of Directors

## **Native Russian Speaker Aids Language Class**

*From the Sandia out-of-hours course catalog:*

"... While the intent of the course is to teach the Russian language so that successful students can read, write, speak and understand it, occasional supplementary topics from Russian history, customs and literature in addition to absolutely terrible jokes from the teacher keep the class from being a total bore."

Pat Newman (3144), Sandia's scientific translator, instructs the out-of-hours Russian courses and admits that she's responsible for the "terrible jokes."

"So much of learning a foreign language is sheer, unrelenting memorization—vocabulary, grammar and pronunciation," Pat says. "Then there are hours of drill—construct sentences, use the vocabulary, practice the pronunciation. Sandia students are motivated and capable but if classes are dull, interest quickly fades. That's why I attempt a little humor and that's why Katharina Zawadzkas assists me in teaching the class. Her pronunciation is perfect and she brings cultural insights to the class."

Katharina, wife of Jerry Zawadzkas (4233), is a native Russian speaker. Born in Germany during WWII, Katharina's parents were Russian, and that was the language of the home. She attended German schools in Stuttgart and spoke German in all activities outside the home—a truly bilingual arrangement. When she was seven years old, the family immigrated to Caracas, Venezuela, and Katharina learned Spanish "early and easily." When it came time to attend high school, Katharina's father felt that the English schools on the island of Barbados were superior so she attended a boarding school there. She was thrust into an English-speaking world without preparation and had "a very difficult time." Still, she mastered the language and was fully prepared at 16 to enter the University of Pittsburgh when her parents immigrated to the US in 1960. She earned her BA in Russian language and literature and followed this with an MA in Russian and a masters in library science from Columbia University in New York. She spent 1969 as an exchange student studying in Leningrad.

"My year in Leningrad was thoroughly enjoyable," Katharina says with enthusiasm. "I had many Russian student friends. I traveled to the Baltic countries, spent a month in Moscow and cross-country skied on the frozen Finnish Gulf. A really great experience was reading original manuscripts by Tolstoy and Dostoevski in the Pushkinski Dom Library."

Katharina brings her enthusiasm and cultural knowledge—plus the Russian idiom—to the out-of-hours course.

Pat organizes the class material and concentrates on the basics.



INSTRUCTORS Pat Newman (right) and Katharina Zawadzkas bring diverse backgrounds to the study of the Russian language.

Both women agree that the great majority of Americans who do not speak, or at least read, a second language are missing a vast "other package" of knowledge and experience.

"As a nation, America is monolingual," Pat says, "and this is becoming a national handicap. We are continually embarrassed by State Department officials who don't speak the language of the country in which they are stationed. American businessmen are losing sales in foreign countries because the competition—Japan, Russia and the industrialized European nations—makes a point of speaking the customer's language. At international technical conferences, most American scientists can talk only to each other."

Pat is fluent in Russian, German, Spanish and French in addition to her native English. She learned the languages "the hard way"—by rote and isolated in an English-speaking country. She started studying Russian and German at the same time, which she feels was a serious mistake.

"I sounded like a scrambled tape recorder," she says. "Answers to questions kept coming out in the wrong language."

Pat had earned her BS in EE at UNM in

1959, worked as a summer hire at Sandia, had married and was rearing four small children when she became a serious language student. "I was highly motivated," she says. "I was aiming at freelance technical translating—something I could do at home, be with my kids and still make enough money to hire a housekeeper. I hate housework."

Pat was successful in her pursuit of freelance translating after earning a BA in language. She also took a part-time job at UNM teaching Russian and German. She joined Sandia in 1971 and worked here in the Tech Library's reference and systems divisions (she is also a computer programmer) for eight years before becoming Sandia's full-time scientific translator. She is secretary of the American Translators Association.

Sandia's out-of-hours program offers each semester (depending on interest) several choices of beginning language courses—Spanish, French, German and Russian. The catalogs with full enrollment information are now in yellow baskets at the Tech Area gates. For more information, call Ruth Brooks (3521), out-of-hours coordinator, 4-6538.

## **Credit Union Reporter**

At the 33rd annual meeting, Jan. 29, these board members were elected: Red Turner (Credit Union manager), C. R. Barncord (3200), Frank Burns (5821), Joe Ruggles (2627) and Elsie Wilkins (1000). Patte MacPherson (3418) was elected to the Credit Committee.

In the drawing, first prize of \$500 went to John Pohl (8353). Second prize of \$300 went to George Gonzalez and third of \$200 to Martin Garcia, both family members.

On the following day the new board met and elected its officers and appointed

committees. Marvin Daniel (2113) remains as President, Elsie Wilkins as Vice-President, Red Turner as Treasurer, and Joe Maldonado (3613) as Secretary. John Aragon (4742) continues as Chairman of the Credit Committee.

New subject. Although the Credit Union closes at 3 p.m., the walk-up window is open from 7:30 a.m. to 5 p.m., Monday through Friday. Services include deposits and withdrawals, check and share-draft cashing, and dispensing bus passes.

# MILEPOSTS

## LAB NEWS

FEBRUARY 1981



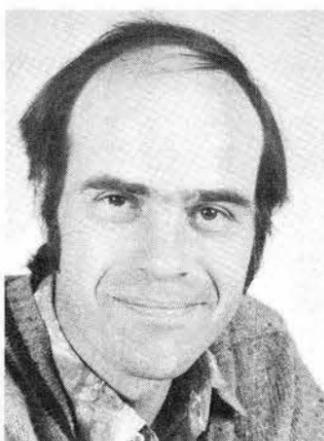
Hans Birnbaum - 8443 20



Marshall Tippy - 3441 30



Art Rodriguez - 1173 15



Chuck Hartwig - 8442 10



Dick Kidd - 5623 30



Ken Smith - 3741 30



Will Ouellette - 4422 25



Harry Kovaschetz - 1485 30



Bob Ferguson - 3155 25



Clarence Loveless - 8463 25



Frank Murar - 8322 30



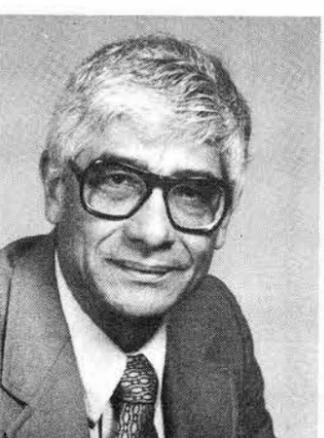
Marvin Guier - 3242 30



Kathryn Duvall - 2456 20



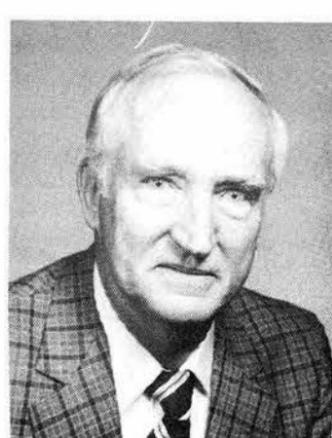
Johnny Chavez - 3423 25



Ramon Lamberson - 2611 30



Carl Scheiber - 4338 25



Charley Bild - 2400 30



Enid Morton - 3253 20



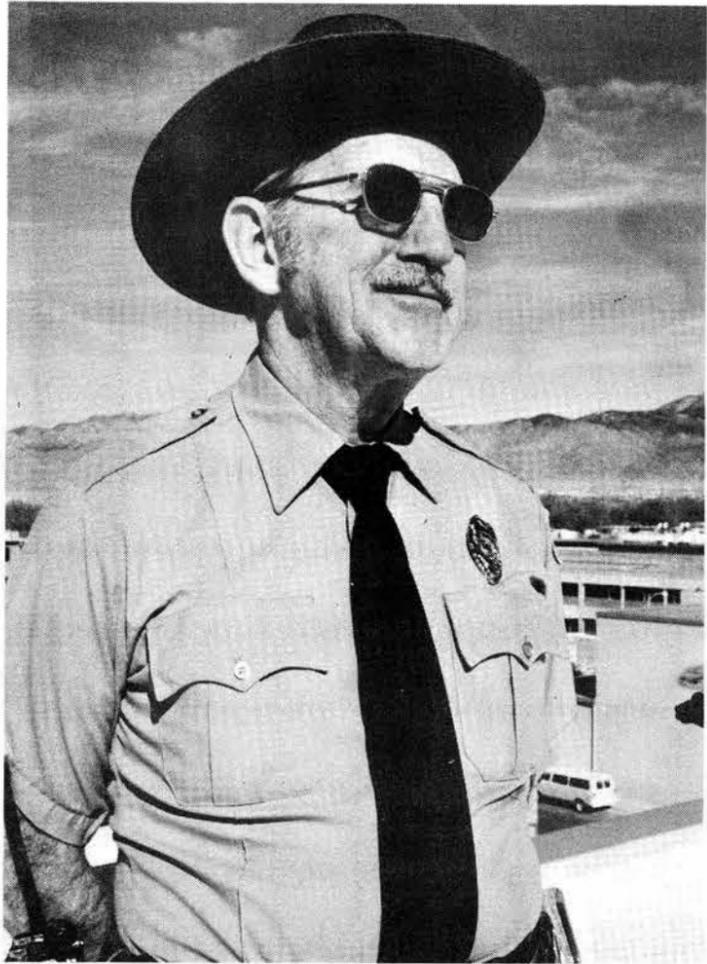
Levi Baca - 3612 30



Bill Short - 3652 30



Manuel Cordova - 1543 25



George Davies - 3432 30



Dan Sheldon - 1223 30



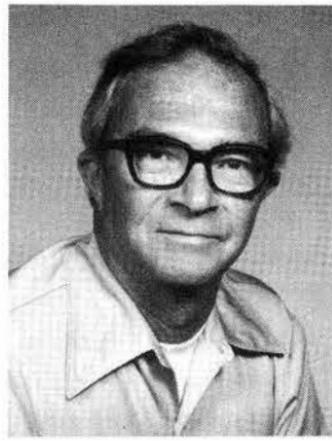
Neal Carpenter - 2524 30



Wes Pfarrer - 1241 20



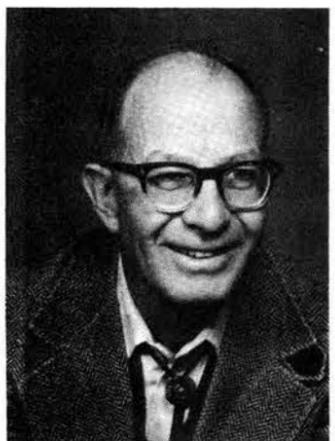
Willard Flowers - 1485 30



Albert Marrs - 1731 30



Cecil Land - 5133 25



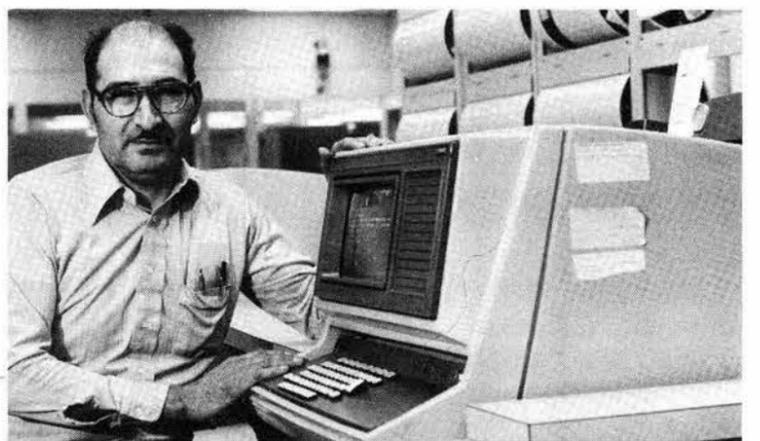
Bill Huff - 2551 30



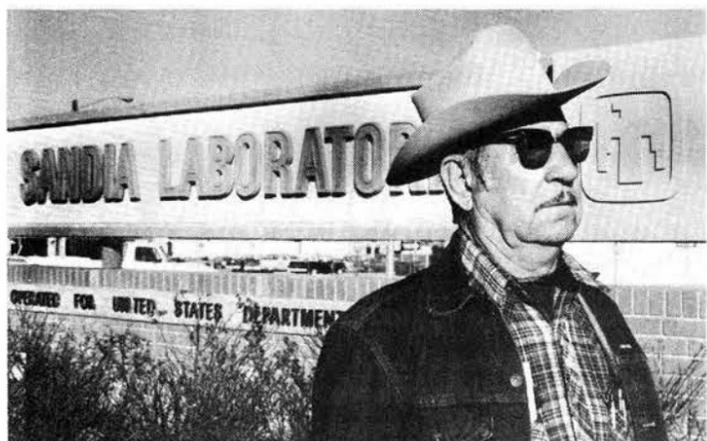
Jack Wiesen - 1220 30



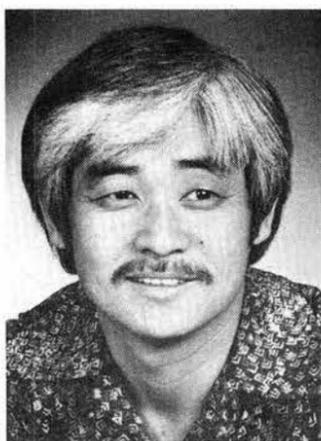
Ken Eckelmeyer - 5822 10



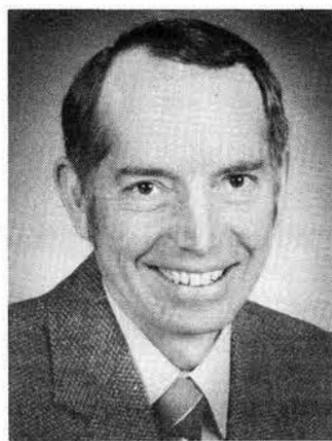
Eloy Montoya - 2631 15



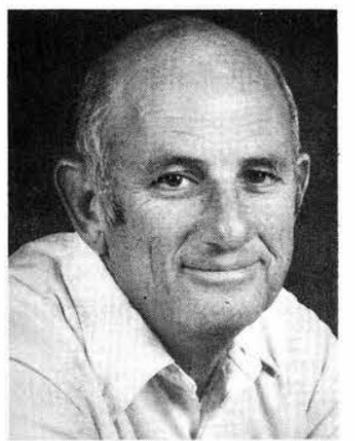
Liliardo Padilla - 3612 30



Tabo Hisaoka - 8271 20



Len Dighton - 8153 20



Sy Mayer - 8412 20

# RETI RING

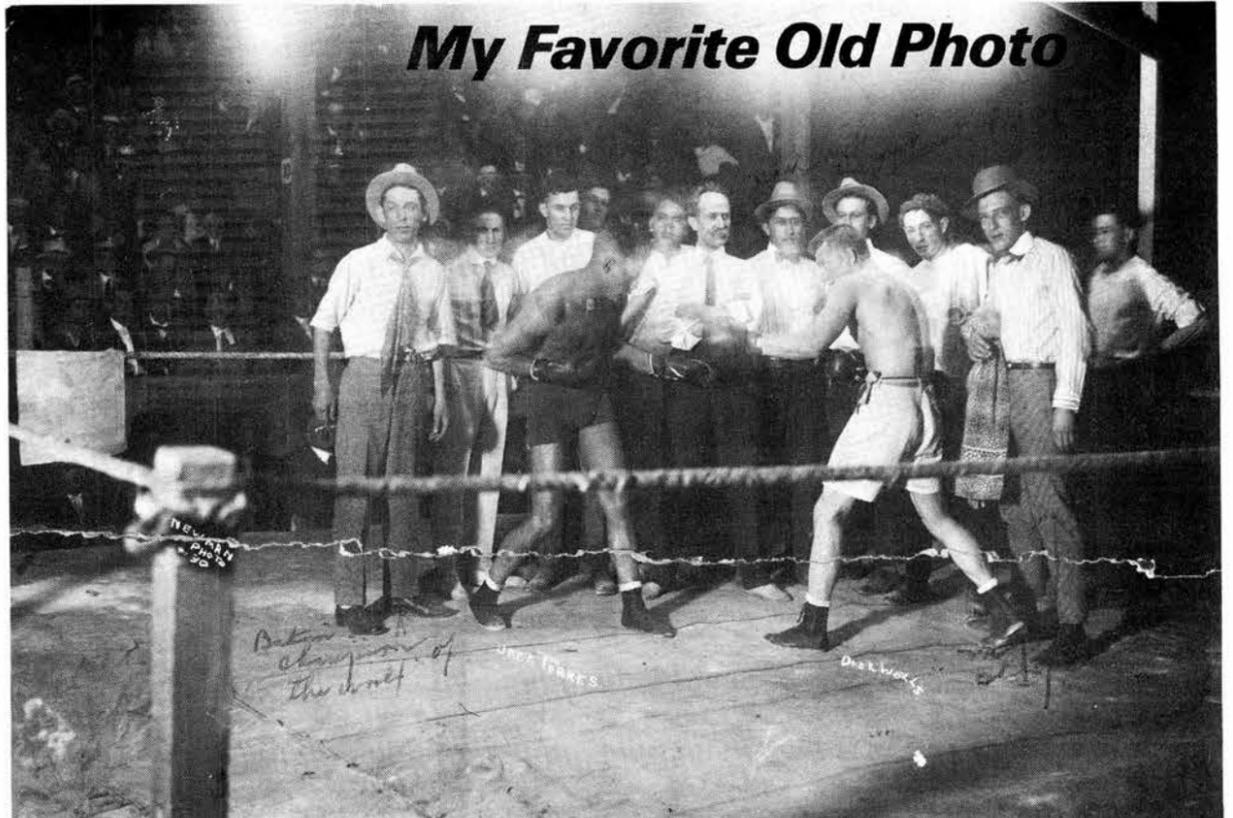


Max Lopez (3423)



By some, punning is called an art form; by others, a mental sickness. *Stedman's Medical Dictionary* lists an ailment known as *Witzelsucht*—literally, "wit-seeking"—which is characterized by a "morbid tendency to pun and tell pointless stories while being inordinately entertained thereby." No indication of the cause and treatment is given, nor is it stated whether a cure is even possible.

—Verbatim



## My Favorite Old Photo

IF BOXING had a golden age, it was in the early years of this century. It was as popular then as pro football is today. My Dad, Nick Cordova, and his partner, Vincent Montoya, promoted this match between middleweights Jack Torres and Dick Wells in Las Vegas, New Mexico, on July 4, 1916. Dad says they had over 5000 in attendance—pretty good for a small town. Earlier, in 1912, they sponsored the heavyweight championship fight between Jack Johnson and Jim Flynn. Dad's in this photo—near the middle wearing a hat and bow tie. (Art Cordova—2351)

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

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#### 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

- 12" B&W Philco port. TV, solid state, orange cabinet, 3 yrs. old, \$45. Mech, 266-0339.
- FRANCISCAN Jamoca stoneware, 4 place settings, new current store price \$135, sell for \$75. Riley, 821-6431.
- FRENCH lop-eared rabbits. Bauer, 268-9735, after 5.
- TWO bar stools (need upholstery), \$7.50 ea.; boy's 26" bike w/speedometer (needs tire repair), \$10. Carter, 296-8709.
- CHILDREN'S X-C ski boots, size 4; 71 mm bindings, \$15 both. Robertson, 299-7561.
- STURDY OAK trundle-bunk-twin beds, complete, \$150; deluxe Ironrite ironer, instructions, \$75; Allen organ, full size, \$950. Mills, 299-2130.
- POOL TABLE, 44"x82" non-slate, accessories, \$100; Wollensack T1500 recorder plus accessories, offer. Krahling, 268-8126.
- POOL TABLE, 4x8, \$100; metal detector, \$50; 1 pr. 200 skis & 8 1/2 ski boots, \$40. Jennings, 255-5950.
- ANTIQUA German wall clock, 24" high, \$100. Coalson, 298-0061.
- SIX interior slab doors, one 2'6" x 7'8", five 2'0" x 7'8" with partial wood & closet door hardware, \$60 takes all. Martin, 265-2721 after 5.
- UNIVERSAL motorcycle bumper rack, \$15; 7mm rifle, 3x8 scope, Montecarlo stock. Arana, 299-1214.
- 35 MM SLR MIRANDA, 1.9 bayonet lens, extras, \$70. Wilson, 296-5965.
- MG midget tonneau cover for summer use, allows you to keep top down; 2 sets golf clubs. Barnard, 831-4114.
- STORAGE case for slides w/8 trays, \$6; Davidson metal slide binders, \$2.50; Leitz cover glass, \$3. Henry, 266-6467.
- MR. COFFEE II, 8 cups; Lady Schick hair dryer. Chacon, 266-9032 after 5.

- WALNUT dining table w/4 chairs, \$160; 14.1 cu. ft. Whirlpool refrig./freezer, \$75; 8' sofa, \$40; upholstered chair/rocker, \$40; ottoman, \$3. James, 294-6837.
- REFRIGERATOR, Sears Coldspot, 19 cu. ft. w/freezer across top, older model, \$35. Detorie, 299-1868 after 5.
- WHEELS & TIRES, 2 Hurricane 9"x15" mag wheels w/L50-15 tires & 2 Hurricane 8"x15" mag wheels w/235/50-15 tires, new tread. Shannon, 821-6017.
- GERBIL EQUIPMENT: variety of cages, aquariums, tubes, etc., buy all or part. Oberst, 299-1224.
- YOUNG LADIES' French provincial 7-piece bedroom set, \$600, includes homemade bed-spread, shams, ruffles & coverlet. Pafford, 298-8913.
- PREMIUM GRADE PAINT, epoxy, & varnish remover, semi-paste, water rinsing, 3 qts. for \$5. Stamm, 255-2640.
- SEARS one-wheel trailer, \$125; 5-gal. steel cans, \$4.50; new Radio Shack tube-type FM-stereo tuner, \$25. Stuart, 299-9190.
- .308 CAL. match grade ammo, \$6/box. Wilson, 296-5965.
- HEAD 360 skis, 200cm, \$50; ceiling light fixture, black wrought iron style, clear bead roping, chandelier bulbs, \$30. Keeling, 296-9729.
- CHROME running boards & bumper push guard for '72 Ford F250 pickup. Erdman, 292-0258.
- COMPUTER TERMINAL, ADM-3, \$350; Technico TMS-9900 micro, \$600; ASC11 keyboard, \$75; case, \$50. Wampler, 281-1307.
- SERVICE MANUAL: '79 Dodge truck 100-400 Ram Charger, Plymouth Trailduster, \$10; 4 ea. 9.15x16.5, 8-hole on 6.5" circle wheels for '79 Chev., 3/4-ton pickup w/deluxe wheel covers, \$40. Fowler, 247-9305.
- SOLID WOOD CHEST (armoire), upper drawers behind doors plus 2 lg. bottom drawers, 2 yrs. old, was \$450, sell \$300. Kunz, 293-0225.
- REFRIG., 19 cu. ft., harvest gold, \$95. Mercer, 821-6449.
- TIRES, 700-15 6-ply, snow tread, \$10 ea.; Sears belt humidifier, 10 gal., \$30. Martin, 869-2049.
- OVEN BROILER, Toastmaster deluxe continuous cleaning, bake, broil or toast, 1200 W, all offers considered. Liguori, 255-7551.
- RICKENBACKER electric guitar, deluxe, two pickups, stereo output, \$400, w/ deluxe case. Cooper, 247-9713.
- SADDLE, western pleasure, Circle Y brand, 15 1/2", \$375; camper shell for swb import, aluminum over tube steel, \$325. Fleming, 869-3681.
- COLT Python .357 magnum, 6", blue, new in box w/valid manufacturer's warranty, \$410. Haaker, 293-1077 after 6.
- HUMIDIFIER-air conditioner, portable, Sears solid state model #565.61921, serial #0013411, \$50. Dancy, 299-8223.

- SONY 11" B&W TV, \$35; Compucolor microprocessor, 32K RAM, 8K basic rom, 2 disc drives, 35% off list. Bertram, 294-8350.
- ACOUSTIC GUITAR, M-340 Ibanez, blonde, still under warranty, \$275. Smiel, 294-2811.
- ASSORTED sizes of drapes, curtains, children's spreads, water skis & packing boxes. Sherman, 292-3297.
- MARTIN GUITAR, fancy model D-41 steel string, includes heavy Martin case. Goens, 281-5419.
- NEW 5-hole Ford wheel, center hole 2 1/4", \$10. Hall, 298-8617.
- TAPE DECK, Electrobrand, black face, separate EQ/Bias, almost new, \$50. Coppage, 298-0039.
- EXECUTIVE double pedestal desk w/chair, \$180. Conklin, 298-8217.
- 10-SPEED WHEELS, Milremo alloy clincher rims, Normandy comp quick-release hubs, 14-24 freewheel, heavy-duty spokes, 4-cross, \$50. Kovacic, 281-1754.
- AQUARIUMS: 30w x 16h x 13d & 36w x 16h x 10d, lights, artificial plants, rocks, pumps, valves, tubing, heaters, gadgets, plus fish, all for \$80. Cover, 881-3860.
- HAM ANTENNA, \$50, 4-element triband (10-15-20 meters) hy-gain TH4-190 thunderbird. Fitzpatrick, 294-4758.
- GE REFRIG., 13.5 cu. ft., harvest gold, \$160. Tyler, 294-2310.
- FIBERGLASS CAMPER SHELL, fits Datsun, Ford Luv, short bed, sliding window, carpet-lined, curtains, wired 120v-12v, \$300. Foster, Mercury, Nev., 986-2489.
- COLOR TV, Zenith console w/25" screen, remote control, fully reconditioned, \$150. Perea, 898-8328.
- MICROWAVE OVEN, needs xformer, first \$25 or best offer. Linnerooth, 884-8615.
- DRAFTING TABLE, Stacor w/magnetic linoleum-covered board; four 7 1/2"x15 1/2" hole Chevy wheels. Warren, 294-5250.
- SOFA, beige, reversible back & seat cushions, \$150; green loveseat reversible back & seat cushions, \$75. Hobbs, 268-6461.
- HP-97 programmable calculator, factory rebuilt Jan. '81, \$550; HP-41C programmable calculator, \$225; card reader, \$190; printer, \$350; wand, \$115; memory modules, \$25 ea.—four for \$95. Burgeson, 898-5859.

### TRANSPORTATION

- '75 NOVA 6, 2-dr., std., \$1200; 21' Chriscraft inboard, trailer, \$600; '49 Jeepster, 4-wd, 4-cyl., \$600. Andrews, 281-5480.
- '74 YAMAHA 100, 1000 miles. Hymer, 293-6029 after 5.
- '70 DATSUN stn. wgn., \$940. Farnsworth, 865-6160.
- '57 CHEVY, one owner, 6-cyl., 4-dr.

- 210 sedan, \$2100. McCleery, 243-6385.
- '69 CHEVELLE Malibu, AC, AT, 307 cu. in., \$750. Clements, 293-5618.
- '75 JEEP Wagoneer, 4-wd., boat rack, below Blue book at \$3000. Crooks, 296-6182.
- '69 COUGAR XR-7 parts car, PS, AC, 351 V8 Auto., runs, first \$150. Longefellow, 299-7062.
- '74 MGB, 4-spd., plus OD, new tires, radio, recently tuned, reg. gas, \$3995. Traver, 294-2138.
- '69 FORD, 390 eng., LWB w/8' self-contained Crown camper. Hill, 842-9162.
- YAMAHA YL1 100cc twin, \$250. Hesch, 881-9874.
- '75 HARLEY XLCH Sportster, 20,000 miles, \$2500. Hart, 293-6396 after 5:30.
- '79 COBRA Mustang, 19,000 miles, 5.0 liter, V8, 4-spd., AC, AM-FM stereo tape, sunshade, PB, PS, hatchback, 10 mos. on extended warranty, best offer over \$6500. Strassel, 298-3816.
- '74 DATSUN 260-Z 2+2, AC, 4-spd., one owner, 63,000 miles. Finger, 345-8865.
- '75 HONDA CL-360, 500 miles, never ridden off city sts., luggage rack & box. Mitchell, 299-0188.
- '78 SUBARU 4x4 wagon, AC, 4-spd., reg. gas, 30,000 miles, \$4000 (below book). Katz, 821-8061 after 5.
- '76 FIAT, 5-spd., 4-dr., 44,000 miles, new brakes & rear shocks, \$2250. Lackey, 898-6638.
- '78 XLCH Sportster, polished & balanced, S&S street stroker kit, belt-drive, Sifton cams, heads worked, much more, \$4000 or best offer. Shaffer, 836-1610.
- '69 MERCURY Cougar, 351, 2V, PS, PB, AC, 8-track, CB, \$1795. Kersch, 881-7461, or 292-8451.
- '74 DODGE Colt, low mileage. Kruse, 821-7748 after 5.
- '69 MUSTANG convert., 351 Cleveland, 4-spd., \$4000. Cooper, 869-2198.
- '78 FORD Fairmont 4-dr. sedan, 6-cyl., AT, PS, AC, 43,000 miles, \$3600. McGovern, 294-1791.
- '80 KAWASAKI KZ440, 1600 miles, \$1400. Foster, 265-0069 after 5.

### REAL ESTATE

- 3-BDR., den, 1 1/2 bath, 8 1/2% assumable loan, \$213/mo., cash to loan or REC. Corradini, 292-2688.
- 5 ACRES wooded land, fenced, w/14x65 MH in Edgewood area, 45 mins. from Eubank gate, 2 mi. from paved road. Vigil, 832-6345.
- 4-BDR., 3 bath, house on 10.7 acres of tall pines bordering on Nat. Forest, 30 min. commute, energy efficient, good water, horse set-up. Manteuffel, 281-5992.
- CONDO NE HEIGHTS, 3 bdr., 7% assumable loan, many extras. Mane, 298-0948.

- SE HEIGHTS, near base, hospitals, 3-bdr., 1 1/2 bath, LR, DR, study, pitched tile roof, fp, 1500 sq. ft., \$62,500. Olson, 268-2227.
- '78 WINDSOR mobile home, in park near base, 2-bdr., 1 1/2 baths, utility rm. Pigg, 865-6463.
- CLEAN 3-b, 2-bath house, large yard & den w/FP, 1740 sq. ft. near Rio Rancho Elementary, \$390/mo. Warren, 294-5250.

### FOR RENT

- CONDOMINIUM on Maui, Hawaii, completely furnished, \$215/week. Parker, 821-5999.
- 4-BDR. HOUSE, 2 baths, large den, garage, 1 1/2 miles from Sandia, \$450/mo. Korish, 265-0152.

### WANTED

- PLAYPEN. Birong, 265-9381.
- LEATHER-WORKING supplies, stamping & carving tools, dyes, etc. Crooks, 296-6182.
- THE World Science Fiction convention will be held in Sept. in Denver; anyone interested in going, please call Barbera, 299-6045.
- REAR TIRE carrier for Jeep Wagoneer or Cherokee. Baxter, 344-7601.
- METAL typewriter stand. Duvall, 293-7627.
- ENCYCLOPEDIA Britannica 3 at \$600 or less. Robertson, 299-7561.
- INDIVIDUAL OLD COINS, will pay top dollar, commemoratives most welcome. Barnard, 831-4114.
- POSTS, new or used poles, posts or railroad ties, any size. Burton, 869-2541.
- DATSUN 510, sedan or stn. wgn., from '69 to '72, preferably in good condition. Hoover, 821-0876.
- 1976-1978 Chev. Beauville van, 20 series, lwb. Fuller, 294-3089.
- OLD but serviceable or repairable scientific & engineering instruments: sextants, microscopes, transits, barometers, balances, theodolites. Hughes, 299-6674.
- CONDOMINIUM rental wanted at Purgatory or Taos ski areas during early March, 2-4 days. Randall, 298-6974.
- FOUR-DRAWER letter-size file cabinet. Hall, 298-8617.
- TO BORROW factory owners manual for '75 Chev. Luv. Dandini, 296-4975.

### WORK WANTED

- HOUSE PAINTING, interior, exterior, experience, free estimates, student Doug Ronan, 268-0726.

### LOST & FOUND

- IN Bldg. T12, key chain containing keys, pocket knife & coin holder. Cave 4-4383.

## The Clown Juggles Fire

**TONIGHT** at Happy Hour, chateaubriand leads the dinner menu while a new group called the Del-Fives holds the bandstand. Singer/guitarist O. J. Metzgar entertains in the main lounge. Happy Hours start right after work and run until midnight or so. Special prices (reasonable) are in effect all evening. Usually you can get a table and dinner but the best plan is to call the Club office, 265-6791, by mid-week for reservations. Admission is free to members but guests pay \$1.

**TOMORROW** is Variety Night at the Club which means supper selections available at 6 p.m., live entertainment at 7 and a movie at 7:30. Pyro the Clown entertains with a fire juggling act and the movie is a Walt Disney production called *The Ugly Dachshund*. Admission is free to members and families.

**FRIDAY** the thirteenth is Friday the thirteenth but will be ignored at Happy Hour. Shrimp Newburg is the dinner feature. Natural Persuasion plays for dancing. Luck is a matter of being there.

**VALENTINE'S DAY** is the big one this month on Feb. 14. Club PR man Charlie Clendenin (2611) says, "Everybody loves somebody sometime," and should show it by taking the loved one to the Club's festivities. Prime rib tops the dinner menu. A "progressive western band" called Lawyers, Guns & Money plays for dancing. Tickets (members \$7) should be picked up tomorrow.

**CORONADO GRANDSQUARES** meet Monday, Feb. 16, for the annual sweetheart dance starting at 8 p.m. Guest dancers are cordially invited to join the group for the event. Refreshments will be served.

**CORONADO SKI CLUB** meets Tuesday, Feb. 17, starting at 7 p.m. In addition to the usual trader's corner, films and door prizes, the program includes a talk by Jack and Gwenn Cyrus on "Ski Smart"—tips on body savvy and slope safety.

**THE SAGEBRUSH SHUFFLE** as taught in the C-Club's popular country western dance classes must be the greatest thing in life—the classes are full. Another one is scheduled to start around March 1. To avoid that left-out feeling, sign up now. Call the Club office for more details.

**TRAVEL DIRECTOR** Frank Biggs (4231) reports, "We will run a one-day bus tour to Chaco Canyon on Saturday, April 25, if we can fill the bus. The price—\$20 per person—includes snacks and refreshments."

After an airfare increase, the prices of the five-day Disneyland trip April 14-18 are: adults (quad. occ.) \$301; (triple) \$314; (double) \$332. For children (ages 5-12) the price is \$244 for the first child and \$240 for the second. For ages 2-4, the prices are \$226 and \$222. This tour includes airfare, lodging, Catalina Island cruise and the Sea World at San Diego.

Space remains on the four-day Las Vegas-Hoover Dam tour (May 24-27). The price is \$132 per person and includes bus



JACK (4715) and GWENN CYRUS, members of the Sandia Peak Ski Patrol, will discuss "Ski Smart" at a meeting of the Coronado Ski Club on Tuesday, Feb. 17.

fare, lodging at the Maxim, snacks, refreshments and a lunch on the bus.

You can spend a week on the beach at Puerto Vallarta (May 5-12) for \$399 or at Mazatlan (June 1-8) for \$354. Both trips include airfare, seven nights' lodging, transfers and taxes. The Mazatlan trip includes an extra cocktail party.

Frank will be in the lobby tonight between 6 and 7 with full details. Discuss your travel plans. Frank is still planning the coming year's tours.



SANDY HUDSON (4740) and husband Jim (a former Sandian) attended President Reagan's inauguration in Washington, D.C., last month. "It was an exciting time," Sandy says, "three days of galas, receptions, balls and no sleep. And besides the inauguration ceremony and parade, there was the added excitement and good news about the former hostages being sent home; whenever the President attended one of the social functions, he gave us an update on their flight from Iran."

**GET MORE SLEEP**

**GET IN A CAR POOL**

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