



LAB NEWS

VOL. 31, NO. 13

JUNE 29, 1979



ON THE RANGE — Dave Bennett (4414) on the site of Albuquerque's Shooting Range State Park. He served as chairman of an advisory committee

which helped prepare master plan for the new range. Site is west of volcanoes, close to Rio Puerco escarpment. See article on page six.

Wind Turbine's New Blades Give More Power

Efficiency and electrical output of Sandia's large vertical axis wind turbine (VAWT) have been increased by using new blades constructed of extruded aluminum. The blades, fabricated by Alcoa, are expected to help make such turbines competitive sources of energy in many areas of high winds.

The 55-foot-diameter, eggbeater-shaped research turbine has been used for development testing at Sandia since March 1977. Its electrical system feeds 60-cycle alternating current directly into a power line.

Key element of the VAWT is its blades, which are shaped like the cross section of an airplane wing. Aerodynamic lift from the blades provides driving torque regardless of wind direction. The VAWT regulates automatically at high wind speeds, so no feathering device is needed to keep the turbine from producing more power than the rated capacity of its generator.

With its new 24-inch-wide blades, the Sandia VAWT produces 60 kilowatts of electricity at 50 rpm in a 30 mph wind, compared to 50 kilowatts with the original 21-inch-wide blades. The new blades also have an improved airfoil shape, and their construction eliminates the need for the two struts used to support the earlier segmented blades.

The new blades are not only more efficient, but are much less expensive to produce than the original blades, which had aluminum leading and trailing edges separated by paper honeycomb, wrapped with fiberglass.

The new blades are extruded from a hot (800° F.) aluminum billet. The finished blades are 80 feet long and have a quarter-inch-thick skin supported by four internal ribs integrally formed during the extrusion process.

Sandia engineers believe that the 1400-pound blades can be mass produced for less than \$2 per pound. Given this lower cost and the improved efficiency of the blades, it is anticipated that VAWT's may ultimately feed electricity into the country's grid system at a cost of about four cents per kilowatt hour in areas with high prevailing winds.

"The VAWT program now has demonstrated that low cost-high efficiency blades are available, says Emil Kadlec (4715), VAWT project engineer.

Ultimate goal of the Sandia program is the design of long-life, low-cost wind machines which can be produced and marketed by the power industry. The work is funded by DOE's Wind Systems Branch.

After evaluation of the VAWT with two of the new blades, a third blade will be added, and testing will be performed in a three bladed configuration.

While turbines might be used to provide electricity or pump water in remote locations, their greatest potential lies in feeding electricity into the power grid, thus eliminating the need to store output for later use.

Cost-saving features of the VAWT include location of generating equipment at ground level, thus reducing tower structural costs, and absence of mechanisms needed to turn the turbine into the wind and to control blade rotation in high winds.

The Sandia program is conducted in Advanced Energy Projects Division 4715, headed by Dick Braasch.



NEW BLADES have increased the efficiency and electrical output of Sandia's vertical axis wind turbine. Sheila Guynes and Bill Sullivan (both 4715) examine a cross section of the new blade. The new blades are fabricated by an economical extrusion process.

VICTOR SCHMIDT (ARA Food Service Co.) is the new manager of Sandia's cafeteria, Bldg. 861.



New Food Service Starts Here July 1

Victor Schmidt of ARA Food Service Co. is the new manager of Sandia's Cafeteria Bldg. 861. The contract with ARA goes into effect Sunday.

Victor comes to Sandia from Kingsville, Texas, near Corpus Christi, where he has headed food service at Texas A&I University. He has worked for ARA almost two years, formerly working as a food supervisor for Holiday Inns in California.

There will be several changes in food service at Sandia, Victor indicates, primarily in offering a greater selection of entrees at breakfast and lunch.

ARA also provides a "rainbow nutrition program" planned by a dietician which offers a variety of foods at various caloric levels — according to your body weight, you can plan an appropriate caloric consumption or take advantage of a nutritionally balanced weight-

loss diet. There will also be a new salad bar available at lunch.

ARA, with more than 100,000 employees, is the largest food service organization in the US. Headquarters are in Philadelphia. In New Mexico, ARA services all of the major higher education institutions.

Before joining the Holiday Inns organization, Victor was a high school teacher in Detroit. He holds degrees from Wayne State University in secondary science education and zoology.

In addition to the new food service contract, a new contractor takes over operation of the vending machines in the area. The contract has been awarded to the New Mexico Department of Education's Division of Vocational Rehabilitation Service for the Blind, which has subcontracted the Sandia service to Servomation, Inc.

Events Calendar

June 29-July 1, 5-8, 12-15 — "Our Town," Corrales Adobe Theater, 898-3323.

June 30 — Santa Fe Opera: Opening, "La Grande-Duchesse de Gerolstein," 9 p.m., Tickets - 982-3851.

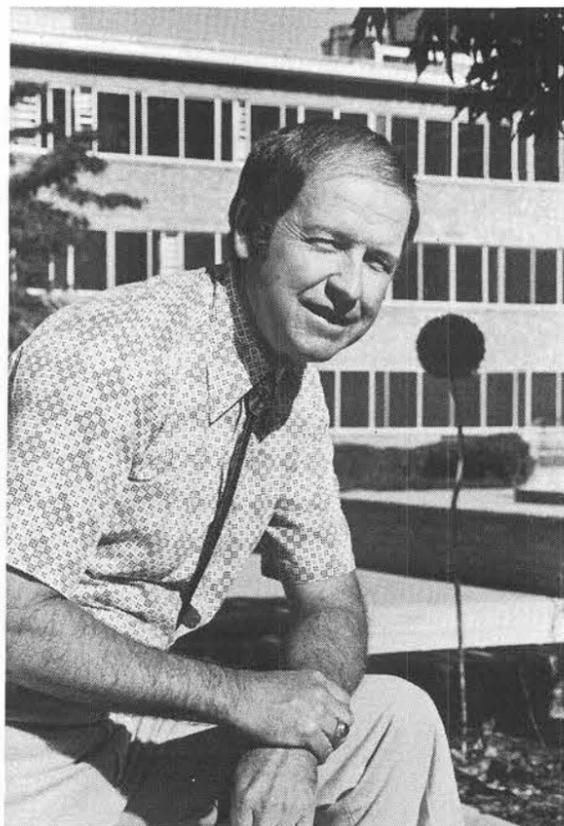
June 30-July 1 — Albuquerque Children's Theater: "Peter and the Wolf," ballet; and "Bracko, the Prince Frog," play. 1:30 and 3:30 p.m., Popejoy.

June 30-July 4 — 2nd Annual All Indian Arts & Crafts Fair, 8 a.m.-6 p.m. with dances at noon, 2 and 4 p.m., plus craft demonstrations. Indian Pueblo Cultural Center, 12th and Menaul, NW.

July 5-Aug. 5 — Rodey Summer Theater Season: "Once In A Lifetime," and "Optical Illusions," UNM Theater Dept., tickets at Ticketmaster.

July 9 — Lecture Under The Stars: "A Woman's Perspective on Washington," Marjorie Chambers, President's Advisory Committee for Women; 8 p.m., Central Mall.

Supervisory Appointment



JIM KAISER to supervisor of Security Logistics and Support Division 3425 (newly created), effective June 16. In July 1968 Jim transferred to Sandia from Bell Labs where he had been a security supervisor. He joined Sandia's Security Standards Division and, in 1975, after completing a six-month-assignment on an NRC Safeguards study, Jim transferred to Transportation Systems Division 1716. Later, he worked with Facilities Protection Department 1760 on the Pantex Perimeter Intrusion Detection and Assessment System in Amarillo, Texas. He then returned to Org. 1716 to help develop training techniques for DOE couriers, notably use of laser-equipped M-16's (MILES) for realistic conflict exercises.

Responsibilities in Jim's new job include equipping and training security people as well as conducting studies relating to the security of nuclear systems and facilities.

Jim earned a BS from Michigan State in industrial security administration. Off the job, he enjoys golfing. Jim and his wife Nancy have three children; they live in the NE heights.

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REPRESENTATIVES from the Pueblos and the Jicarilla Apache tribe met at Sandia to discuss job opportunities at the Labs for Native Americans. Seventeen representatives attended and, following talks, separated into groups to visit various facilities. Here a group listens as Jim Reck of Electronic Apprentice Section 1474-1 explains electronic assembly.

Retiring



Betty Dietrich (8411)

Take Note

Three security inspectors (Sentry Security) assigned at SLL took trophies for marksmanship at the eighth annual DOE Pistol Tournament held recently at Oakland's Chabot Gun Club. Competing in the 1500 point national match pistol course, Stephen Richardson placed first in the marksman classification, and Wesley Thomson and David Claire placed second and third in the sharpshooter classification. The DOE/SAN-sponsored meet is open to persons authorized by DOE to carry a firearm.

* * *

The Happy Hookers again finished first in the bowling league's winter competition after a roll-off with the Hanging in There team. Winning team members are captain Jim Rego (8424), Chris Imler (8265), Dick Silva (8257), Gil Esquibel (8463), Ray Gott (8424) and Jerry Moore (8424). Individual awards went to Jan Inzerilla (8334) and Dick Silva for high scratch series, Mary O'Shea (8266) and Ray Gott for high scratch game, Barbara Sundahl (wife of Dick, 8466) and Linn Derickson (8152) high handicap series and Jeanne O'Brion (wife of Pat, 8256), Karl Granzow (husband of Darla, 8273), Fernando Uribe (8424) and Mark Mickelson (8271) high handicap game.

* * *

Mechanical draftsman Larry Hoffa (8271) took first place and a \$50 prize in the recent Valley Life Color Photography Contest sponsored by the Livermore Times newspaper. His winning picture reflected a Valley scene of two friends soaking up the sun on Del Valle Reservoir. Larry took up photography as a hobby about two years ago when he purchased a Canon AE-1 camera and the 100-200 millimeter zoom lens with which he shot the photo. Previously, he won first prize in last fall's Livermore Cultural Arts photo contest.

Sympathy

To Rob Rinne (8201) on the death of his father in Oakland, June 1.

To Bill (8252) and Jim Rego (8424) on the death of their sister in Livermore, June 1.

To Val Black (8441) on the death of his father in American Fork, Utah, June 13.

Congratulations

Dan Hartley (8350) and Linda Bowling, married in San Francisco, March 3.

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CHEMKIN TEAM — Physical chemist Jim Miller (8351) points out data in the new computer code to mathematicians Tom Jefferson (8332), Donna Mitchell, and Bob Kee (both 8331).

Combustion Research Tool

Chemical Kinetics Problems? Try CHEMKIN

Taking place in a fraction of a second inside a combustion chamber is a complex series of chemical kinetics phenomena. SLL's new computer code, CHEMKIN, is cutting days from the time required to find answers to problems involving such chemical kinetics.

The new code was developed over the past year by Bob Kee of Applied Mathematics Division 8331. Assisting in the task were Jim Miller of Combustion Physics Division 8351 and applied mathematicians Tom Jefferson (8332) and Donna Mitchell (8331). Bob explains the difference between CHEMKIN and other chemical kinetics codes: "The others were written to solve a particular problem or class of problems. With CHEMKIN, we've tried to create an environment from which *any* chemical kinetics problem may be formulated and solved."

Combustion research depends on mathematical models, and modelers need all the help they can get. Even simple combustion models can involve a dozen chemical species — fuel, oxidizer products, and several radical species — and at least that many elementary chemical reactions. A modeler starting from scratch would have to compile volumes of thermodynamic and equation-of-state data for each species, express the data in computationally efficient form, program expressions for each term in each chemical rate equation, and then solve these equations accurately and efficiently. Lots of work — and lots of room for error.

CHEMKIN eases this problem by providing thermodynamic and equation-of-state data for many species of interest in a basic data file. Users merely identify the species involved and the chemical reactions they wish to model. CHEMKIN checks to make sure the reaction equations are balanced, then provides subroutines — about 100 of them — to retrieve the required data and compute the dozens of mathematical building blocks needed to construct the equations. Included are routines which calculate

the thermodynamic state of the gas, derivatives of the thermodynamic variables, chemical production rates, derivatives of these rates, and sensitivity coefficients.

"Since CHEMKIN isn't designed to solve a specific problem, the user must write some code," Bob points out. "But the programming involved should be minimal. User programs usually just call CHEMKIN subroutines and combine the results to define the specific problem."

The authors optimized the code for combustion problems in several important ways. First of all, it's in Fortran, which makes it readable and easy of access for most researchers. And those elements of Fortran that tend to vary from computer to computer — character lengths, encoding and decoding protocols, and the like — were standardized to permit portability. Finally, the calculations themselves were optimized to speed execution time; since chemical kinetics problems can require hours of calculation even on large computers, such optimization is valuable.

The code package also contains a special numerical integration routine that modelers can use to solve their equations. The equations of chemical kinetics are "stiff;" that is, different reactions proceed at vastly different rates. For this reason, standard numerical integration routines don't work well. The algorithm used in CHEMKIN, devised by C.W. Gear of the University of Illinois and tailored by Alan Hindmarsh of LLL, does a good job on problems with varying rates.

"We think CHEMKIN has the potential for wide use," Bob concludes. "Certainly it has streamlined the modeling of chemical kinetics at SLL. We intend to add more data as needed to keep the code current with combustion research."

A report describing the code is now being prepared and will be made available through DOE's Technical Information Center and Computer Code Distribution Center when it is completed.

Magma Energy Research To Be Discussed at International Meet

A special session on magma energy research chaired by John Colp (4731), is part of the mid-July Symposium on Intraplate Volcanism sponsored by the International Association of Volcanology and Chemistry of the Earth's Interior.

Research from Iceland, West Germany, Japan, and Russia, as well as the U.S., will be reported during the special session.

Sandia's magma energy research program, assessing the scientific feasibility of using magma energy, has been underway since 1974. The project is funded by DOE's Division of Basic Energy Sciences. Based on work performed for this project, a number of Sandians will present papers during the special session. These include:

"Thermal Techniques for Locating and Characterizing Buried Magma Bodies" by Harry Hardee and Dave Larson (both 5512); "Heat Extraction from Magma Bodies" also by Harry Hardee; "Summary of Geophysical Sensing Experiments on Kilauea Iki Lava Lake" by John Colp and Jack Hermance and Don Forsyth of Brown University; and "Water Jet Drilling into Liquid Lava" by Jim Dunn and Paul Montoya (both 5512).

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Q. Are there any health and sanitation implications in the no-hot-water edict?

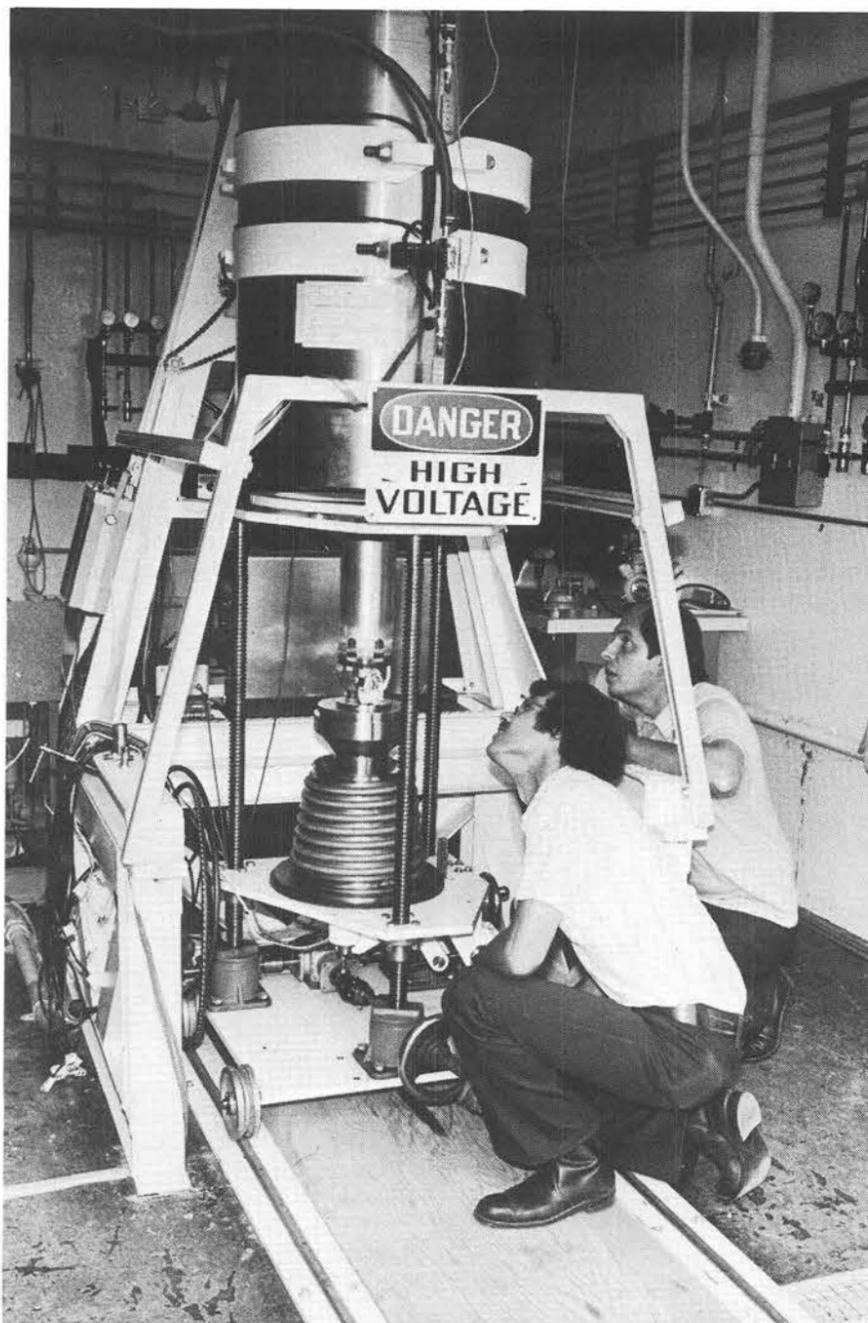
A. We've received several Feedbacks about turning off the hot water. Most are concerned about the impact on sanitation and health. Our Medical Department checked with the N.M. State Health Department who, in turn, checked with the U.S. Communicable Disease Center in Atlanta. Medical also checked with a local dermatologist. All agree that there is no health or sanitation problem associated with the use of cold water for hand washing. The U.S. Communicable Disease Center did recommend "running" water. The powdered soap available in most restrooms performs well in cold water and the cold water isn't all that cold. I have checked it twice in Bldg. 860 after the water heater had been off for several days and it was 71° and 73° F.

We didn't turn the water heaters off to make things unpleasant. We really do have a problem. President Carter recently directed a 5% reduction in the use of electricity, natural gas and fuel oil and a 10% reduction in gasoline. At Sandia we had already done the easy and economical things to conserve energy. The additional energy conservation actions will be more expensive and/or unpleasant. We are operating the ventilation systems fewer hours each day. We are turning off a significant number of light fixtures and are trying to operate all building systems more efficiently. We need your help. Our electricity consumption went up over 10½% in April compared with April 1978. Natural gas use was up nearly 15%. A 5% reduction may not be possible but we have no option but to try, and every little bit can help. If you have some suggestions, please call me on 4-8025 or the Telecon Desk on 4-4571.

R.W. Hunnicutt - 3600



Inflation update: one picture is now worth 10,000 words.



Magma Simulation

High Temperature, High Pressure Facility Now Operating

A "magma simulation facility," able to melt rock at temperatures up to 1600°C under pressures up to 60,000 psi, has become operational in Area Y, an explosives testing area south of Area III.

"The facility is unique," says Nick Magnani, supervisor of Chemical Metallurgy Division 5831, "because it can handle samples up to one-half liter in volume. Normally, when you talk about materials testing at these high temperatures and pressures, you're speaking of a volume about the size of a thimble."

The system was designed and built to Sandia specifications by Autoclave Engineers. It incorporates a molybdenum resistance furnace which heats a cylindrical chamber 10 cm (four inches) in diameter by 10 cm in length. There is less than 5° variation in temperature within the hot zone when the furnace is at 1400°C and 30,000 psi.

The high-strength steel pressure vessel with its stainless steel liner is pressurized with argon using a two stage compressor. Various ports allow access for thermocouples, pressure measurement instrumentation and other sensors.

The system is controlled by a computer which also digitizes data and provides for graphic and hardcopy output. The facility is housed in a concrete blast cell monitored by an acoustic safety system and closed circuit television.

The facility was designed to support the Magma Energy Research Program, whose goal is the tapping of molten magma beneath

HOT STUFF — New facility in Area Y melts rock to produce magma at temperatures up to 1600°C under pressures up to 60,000 psi. Charlie Greenholt and Bob Wemple (both 5831) prepare to insert molybdenum furnace (at bottom) into the steel pressure vessel. The facility supports the Magma Energy Research Project and other materials research projects.

the earth's surface to extract heat for energy generation. This program is centered in Advanced Development Division 4731 under Dick Traeger.

Of particular scientific interest are the corrosive characteristics of magma as it reacts with the surfaces of various heat exchangers inserted into the magma. Other unknowns relating to magma will also be explored.

Pete Modreski of Pyrometallurgy Division 5836 has planned an experimental program to characterize the properties of molten rock at atmospheric and elevated pressures. Terry Gerlach (5831) is contributing computer programs to support investigations of the phase relations of gases contained in magma; theoretical projections will then be compared with empirical data. Magma phase equilibria, viscosity and electrical conductivity will be studied, and a number of other materials studies are planned.

The facility was assembled, tested and brought on line by Bob Wemple and Charlie Greenholt (both 5831). Bob is facility operator.



In terms of potential, most of us feel TV is still in swaddling clothes. Not Forrest Chisman. At an Aspen Institute program on communication, he advanced the thesis that TV is "a fully mature art form which has reached its maximum potential." A dyed-in-the-wool fan? Hardly. "Since that potential is abysmal," he went on, "we must consider whether any attempts to reform television are worthwhile. Even if it could do all the things its critics demand, such as bringing education and culture, these things can be done in other ways."

Medicare and Equitable Work Together

Sandia's retirees and those employees approaching retirement should be aware of the advantage of continuing their Equitable health care coverage, as well as enrolling in Medicare when they become eligible. Don't assume that only one of the plans is necessary for adequate medical coverage.

A few basics about Equitable: If you retire with at least 15 years service, or 10 years service at age 65, and had joined Equitable's plan before retirement, the premium is paid by Sandia. Retirees with less than 15 years service or 10 years at age 65, can continue the plan by paying the premium. Up until age 65, benefits are determined exactly as if you were an active employee.

At age 65, if you are eligible and have applied for social security benefits, you are automatically enrolled in the hospital benefits portion of Medicare. Once covered by Medicare, Equitable benefits are then determined under the non-duplication of benefits provision with Medicare benefits considered primary, i.e., Medicare pays first, Equitable pays second.

The hospital insurance portion of Medicare is called "Part A" and is financed by social security taxes. At the time you are automatically enrolled in Part A, you have the option of enrolling in Medicare Part B which is medical coverage, financed by individual premiums and supplemented by Federal money. Effective July 1, 1979, the Part B premium is \$8.70 per month. Failure to enroll in Part B at that time will result in waiting for the next general enrollment period and paying higher premiums. But, more important to Sandians, if you do not elect Part B at this first opportunity, Equitable benefits will be reduced by the amount Medicare Part B would have paid if you had been enrolled.

People who have never worked or were not covered by social security may enroll in Medicare by paying the full cost of coverage: July 1, 1979, Part A, \$69 per month; Part B, \$8.70 per month. However, Sandia employees and their dependents should never have to pay for Part A Medicare coverage. For example: Say the wife of an active employee, who has Equitable coverage, is older than her husband and has never worked. Normally, when she reaches age 65, she would have to pay the Part A premium. Under Equitable, as long as her husband remains an active employee, her coverage will continue until her husband applies for social security benefits.

Obviously, the advantage of two policies is more complete coverage. For instance, Medicare Part B does not pay for prescription drugs but, after meeting Equitable's deductible, that plan pays 80% of your drug bill. Medicare also has a deductible: Part A, \$160; and Part B, \$60. Once these are satisfied and Medicare has determined benefits for your total charges, Equitable will determine benefits for any unpaid portion, including your out-of-pocket deductible costs. It's possible you may have 100% coverage under both plans.

Since each Equitable claim submitted requires separate handling, you might prefer to accumulate medical receipts and bills and file claims once or twice a year. Remember, charges not over two years old from the date incurred will be honored. All Equitable claims for retired employees or their dependents are handled in the SLA office.

The above is not intended to be a complete explanation of Medicare or Equitable Health Care insurance. For more information contact your Equitable representative or the Social Security Administration.

Take Note

The American Cancer Society is currently presenting a series of educational programs aimed at understanding and reducing fear of cancer. The schedule for the balance of the series includes: July 17, "Radiation," Morton Kligerman, M.D.; Aug. 21, "Surgery," Daniel Smith, M.D.; Sept. 18, "Chemotherapy," Keith Lanier, M.D.; Oct. 16, "Support," Dan Dansak, M.D. Open to the public at no charge, the programs are held at 7 p.m., at the Albuquerque Public Schools Credit Union, 1401 San Pedro Drive NE. A question and answer period and refreshments will follow each program. If you need more information, please call the American Cancer Society at 268-4501.

* * *

John Gardner (3140) returns to the stage tomorrow in the Albuquerque Children's Theater production of "Bracko the Prince Frog." John plays King Ludwig the Cheap in the show. It's the first time he's been on stage in about six years. John usually directs Shakespeare-type productions for the Classics Theater and Corrales Adobe Theatre. He's directed 30 local shows. "Bracko" is teamed with a ballet, "Peter and the Wolf," and plays at Popejoy Hall tomorrow and Sunday at 1:30 and 3:30 each day. For ticket information call 268-6561.

* * *

The Albuquerque Municipal Band is seeking "people of note." Anyone who plays concert band instruments is welcome to join the group at rehearsal Monday evenings between 7 and 9 at La Mesa United Presbyterian Church, 7401 Copper NE (basement). For more information call 296-3254 or 242-3681.

* * *

Sandia alumnus Klaus Bowers, a VP while here, has been named a vice president of Bell Labs. He had been executive director of Bell's Pennsylvania Laboratories in Allentown. Bowers is now VP of Electronics Technology and will have responsibility for directing the design and development of electronic components and associated technologies. He left Sandia in 1975.

* * *

Visitors to Sandia last week included executives from the Electric Power Research Institute of Palo Alto, Calif., who were here in Albuquerque with utility managers for a three-day meeting. Bill Snyder (4400) described the Labs for the group and discussed Sandia's nuclear energy and waste management and transportation programs. Tours were then conducted of various Labs facilities.

* * *

Benny Benson of Aircraft & Compatibility Division 4323 recently accepted a medallion on behalf of Sandia Labs from a contingent of Italian Navy and Air Force people who were here on a training mission. Benny and others at the Labs had worked closely with the Italians over a period of two weeks performing aircraft evaluation, and the group of 40 presented the medallion to show their appreciation.

* * *

WISE (Women in Science and Engineering) are meeting at the Coronado Club at 4:30 this afternoon for a social hour. Dale Zurawski (2523) invited all interested Sandia women to join the group.

THE FOURTH OF JULY is a flag waving day! Floyd Elder (3653) heads an Elks Lodge committee which was instrumental in arranging this display of 263 American flags lining both sides of the entrance drive into the Veterans Hospital. Twenty-eight volunteer organizations helped in the effort. The Fourth of July, other holidays and most weekends find Floyd and other volunteers at the VA hospital providing services and friendship to the patients.



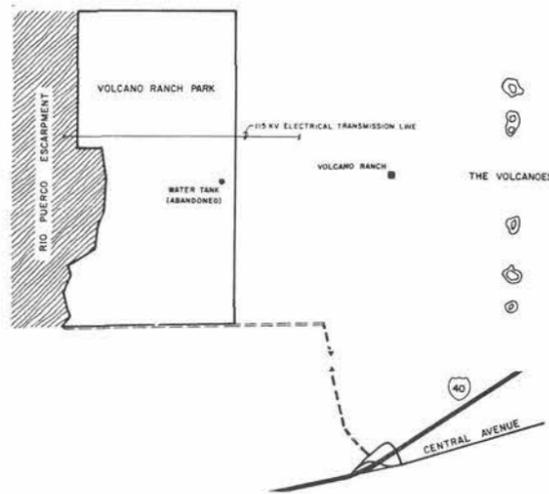
Dave Bennett Likes To Shoot

When you and I look at the site, it's one more expanse of your typical west mesa landscape — arid, with a scattering of grass, shrubs and cacti. And an abundance of sand patiently waiting to entrap the incautious driver. For Dave Bennett, though, a chemist in Nuclear Facility Analysis Division 4414, the site — Volcano Ranch Park, 4600 acres of undeveloped land — supports one of the Southwest's most extensive facilities of its kind: Shooting Range State Park.

Dave is chairman of the city's Shooting Range Advisory Committee and, together with other committee members and planners from both the city and state, he has helped develop the *Shooting Range State Park Master Plan*, a detailed layout and construction plan for the following:

- a sighting-in range for hunters and casual shooters
 - a hunter safety course
 - a target archery range as well as one for field archery
 - a muzzleloading range
 - an indoor range complex
 - trap and skeet fields
 - several pistol ranges which can also be used for rifle shooting
 - three high power rifle ranges
- and more, plus camping, picnic and playground areas, various range buildings, a home for the full-time range custodian, and a network of paved and gravel roads for ease of access. The Park's primary function is as a shooting range, but other recreational facilities are included so that persons who do not wish to use the ranges can enjoy the Park.

For Albuquerqueans, Volcano Ranch Park will be easy to reach (note map). Present plans are to provide access from I-40 at its in-



VOLCANO RANCH PARK is site of the new shooting range.

tersection with West Central north across six miles of private land to the Park. Dave introduces a cautionary note here: "Access to the Park is the sole remaining hangup. The possible west mesa airport and its possible entry roads and our possible use of them are matters as yet unresolved. I just hope we don't have to wait until the whole airport issue is resolved before we can go ahead..."

Scanlon & Associates is the engineering firm which performed the site survey and prepared details of range layout. Funding for the Park, already approved, comes from the U.S. Department of Interior, the State of New Mexico, and the City of Albuquerque. A total of \$799,000 is now available to build shooting and recreational facilities in the first of a number of construction phases. Final completion is some years off, but Albuquerque's gun buffs and hunters should be able to enjoy safe shooting at the Park six to eight months after construction begins. • js

Fun & Games

Tennis — One of the more active recreational groups operated under C-Club sponsorship is the Sandia Tennis Association, which now has nearly 300 members. Ladder play has been underway this spring in all categories — men's and women's singles and doubles, and mixed doubles. (If you're new to the game, a "ladder" is a group of players more-or-less arranged in a skill hierarchy, the good at the top and the not-so-good at the bottom. The idea is to challenge the players one or two steps above you and thereby win your way to that heady level at the top.)

STA offers more than mere play. Last week, following all the ladder activity, a drawing was held to give away a Head Pro racket and Skip McGee (2652) was the winner. And, coming up in July, STA vice chairman Bernie Steinfeld (4722) reports that the association is holding its Annual Big Tennis Ball Giveaway. (They give away cans of balls — ok?)

If this all leaves you panting to play, here are STA people to contact:

- Men's singles - Dan Blazek - 4-4079
- Women's singles - Kathie Hiebert - 4-9854
- Women's doubles - Chris Morgan - 4-9854
- Men's, mixed doubles - Gene Venturini - 4-7055

* * *

Horseshoes — Bob Schuch (4232) reports that the C-Club's annual 4th of July Doubles Tournament will again be held, with play starting at 1 p.m. at the Club's courts. Choose your own partner (ladies are welcome) or

draw for one. It's for adults only. Entries & details: Bob on 4-2676, or sign up at the C-Club pool office.

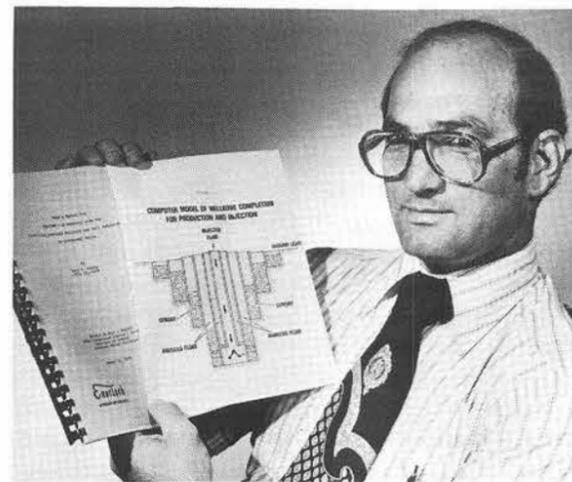
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Biking — After last issue's article on the pleasures and profits of biking to work, we learned of two biking accidents which have since occurred. In the first, a Sandia biker was leaving after work and proceeding through the intersection just north of Medical. An airman who was racing another airman (in separate cars) clobbered our Sandian, who found himself up on the hood and smack against the windshield (which he broke). The victim now has a pretty sore back and ribs but is up and around. The airman was cited for "inattentive driving."

We have less information on the second accident but understand that it did involve a Sandia biker leaving via the Gibson Gate and being hit by a van. The military report of the accident states that damage to biker and bike was minor.

* * *

Running — I recently weighed myself before and after a slow five-miler on a warm afternoon. Loss was three pounds, which translates to a fluid loss of a quart-and-a-half. Running in hot weather is not exactly fun-filled, but you can acclimate to a degree. Perhaps most important is to replace the fluid loss — a policy of not drinking in order to maintain the weight loss would produce debilitating effects.



Sam Varnado and report.

Geothermal Drilling

Computer Model Gives Downhole Drilling Data

A computer model that predicts temperature of drilling fluids, cements and casing strings in geothermal wells has been developed for Sandia by Energetech Engineering and Research Company of Houston.

A report which describes the model, and which includes a program listing and users manual, is being published by Sandia Drilling Technology Division 4735 this month.

Model development is part of DOE's Geothermal Drilling Program managed by Sandia. Program goal is development of the technology required to reduce geothermal well costs by 25 percent by 1982 and 50 percent by 1986.

The model, which has been correlated with field data, can compute temperatures in and near a well bore for single phase fluid flow during drilling, circulation, injection, and production. It utilizes a finite difference technique for determining temperatures, offers resolution of approximately 200 feet in vertical depth, and simulates temperature distribution in real time.

"The model (GEOTEMP) should improve well designs by providing a better understanding of downhole temperatures," says Sam Varnado, supervisor of the Drilling Technology Division. "It should be especially valuable for determining proper chemical formulations of drilling muds and casing design criteria. Such knowledge will allow us to keep the muds fluid and to avoid premature cement hardening," he says.

GEOTEMP also is capable of computing temperature distributions in well casings after a well has become operational; such data is needed in designing casings to tolerate thermal stress. Data it provides should also help to prevent equipment failures, reduce corrosion and establish a better basis for selection of geothermal drill bit materials.

Sympathy

To Pat Anderson (1522) on the death of her father in Albuquerque, June 11.

To Earl (3432) and Dorothy Noel (3152) on the death of his father in Roswell, May 29.

To Jay Terrell (1472) on the death of his father-in-law in Albuquerque, June 9.

To Gregory Goodson (1472) on the death of his grandfather in Mt. Pleasant, Texas, June 8.

To Carl Bailey (2644) on the death of his father in Albuquerque, June 22.

New Membership Rule

by Clarence Sandy, Vice President

The National Credit Union Administration has issued a new interpretation covering the field of membership of our Credit Union. Under this interpretation, all members of the immediate family are permitted to join the Credit Union as full-fledged members. The "immediate family" is defined in the bylaws of the Federal Credit Union Act to include "... grandparents, parents, husband, wife, children, grandchildren, brothers and sisters living under the same roof and in the same household" (italics added). Students who are living away from home for the purpose of attending school are also within the field of membership. Further, these members of the immediate family may join the Credit Union even if the primary member (the Sandia employee) elects not to join. For internal operational control, we have defined the San-

dia employee as a "primary member" and members of the immediate family as "family members." However, the rights, privileges and responsibilities are the same for both categories of membership, including insurance coverage on deposits.

Please note the italicized conditions above. When a member of the immediate family ceases to live in the same household, he or she leaves the field of membership and must close his or her account.

Our method of handling special accounts will now change because of this new interpretation:

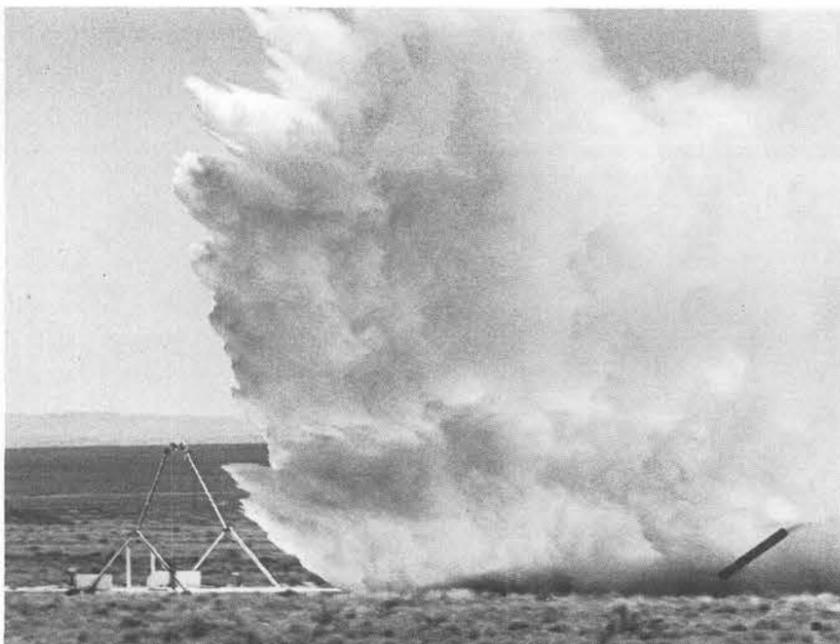
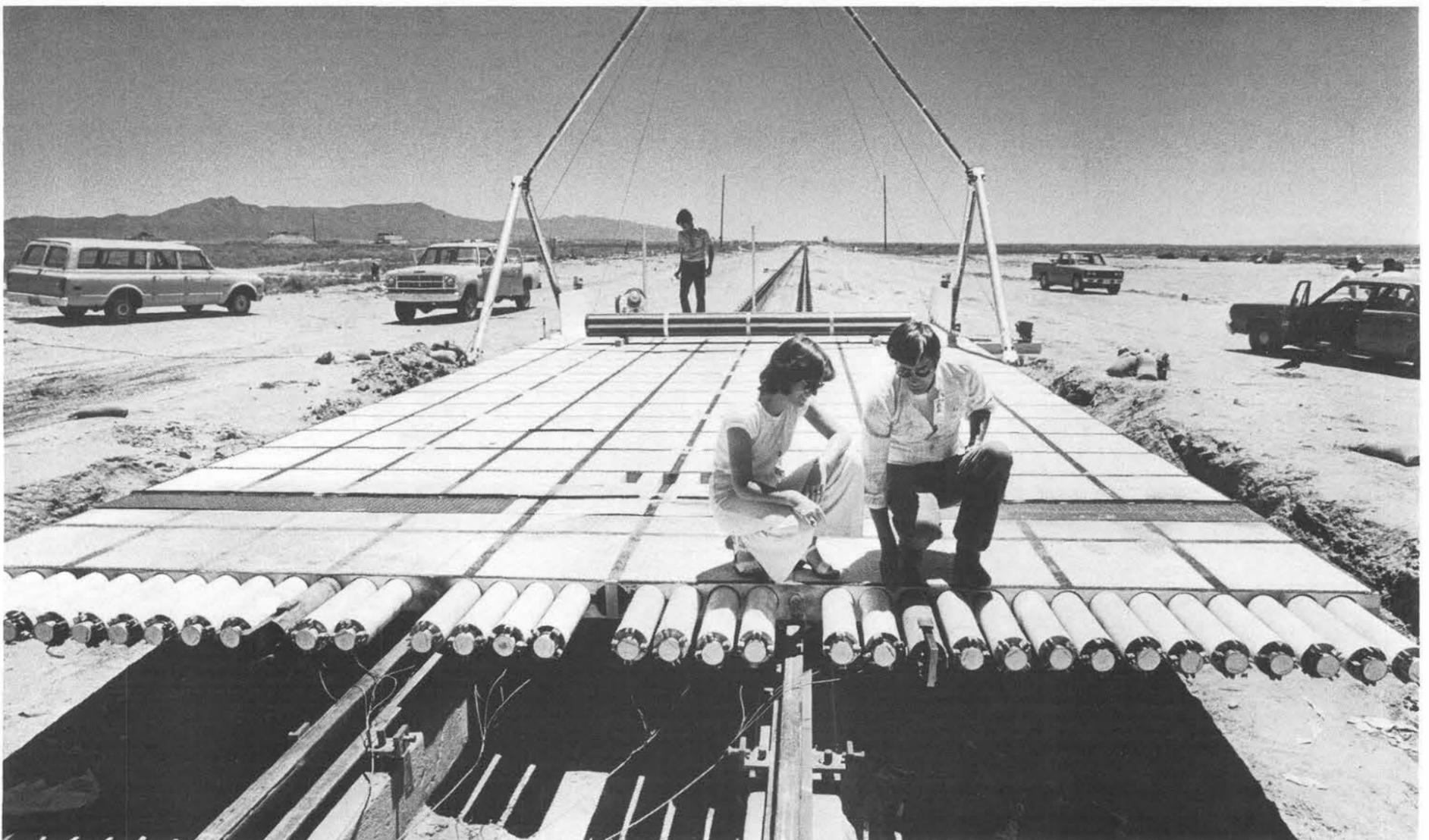
Custodial Accounts will continue as in the past since they are defined under the New Mexico or California Uniform Gifts to Minors Act.

Dependent Accounts may continue if the member desires. However, no new accounts in this category will be opened

since the dependent is now in the field of membership.

Young Adult Accounts will automatically be transferred to a family member account.

Because of the increase in persons eligible for Credit Union services, and because of recent changes in federal law, a number of the Credit Union's operating policies and practices are altered. The Credit Union has now joined the Credit Bureau so that complete credit information can be obtained for each loan applicant. With this information, credit decisions can be made on an individual basis as required by law. The necessary changes will most likely cause loan services to be slowed somewhat and loan processing expenses to increase. We request your patience and cooperation while these changes are being implemented.



TORNADO SIMULATION is the objective of a test series in Area III conducted for EPRI (Electrical Power Research Institute). The question: what happens to a length of steel pipe laying on the ground in 300 mph tornado winds? The answer: as predicted, it rolls then tumbles around but doesn't fly. Test engineer Kathleen McCaughey and rocketeer Bob Lucas (both 1535) here check sled before final arming. The large steel sled, weighing 12,650 lbs., was propelled by 34 Zuni rockets. The 740-lb., 12-in. diameter, 14-ft. long steel pipe, at front of sled, was secured by cables and released at 300 mph velocity, where data is taken during a one-second coast period before water braking. Test data will be used by EPRI for further analysis and to verify mathematical models of tornado effects. Next, an automobile will be subjected to the same kind of test. Project engineer is Bill Leisher (4552); Harold Rarrick (1535) is test project manager.

MILEPOSTS

LAB NEWS

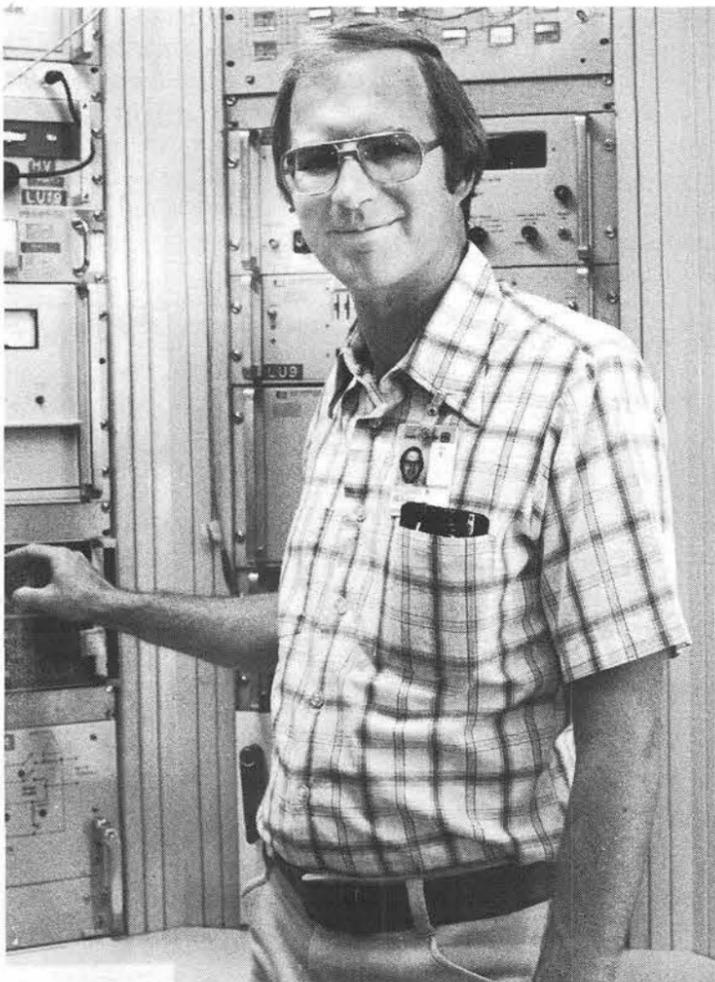
JUNE 1979



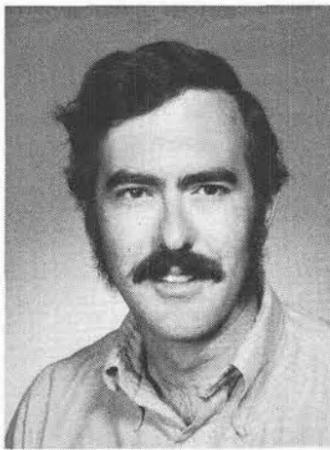
Karl Waibel - 2632 20



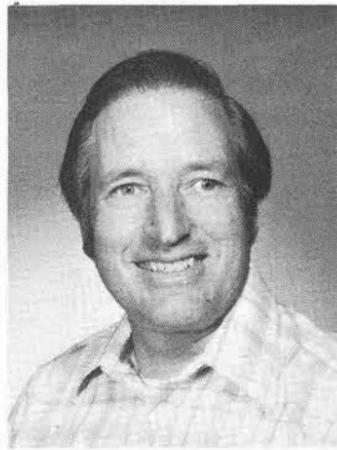
Morgan Kramm - 4540 25



Richard Beegle - 1543 15



Doug McGovern - 1754 10



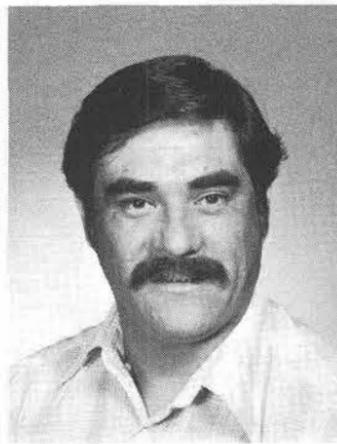
Duane Arlowe - 1765 20



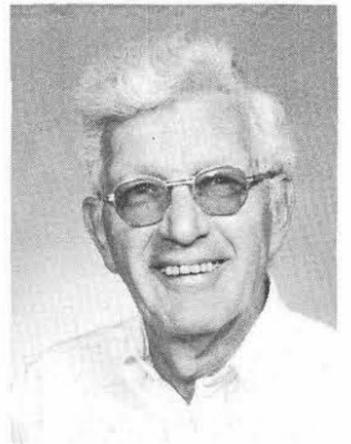
Helen Phillips - 4323 15



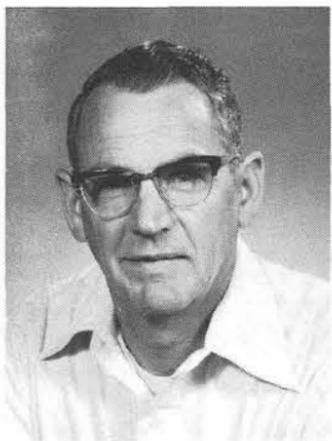
Dan Daniel - 8424 20



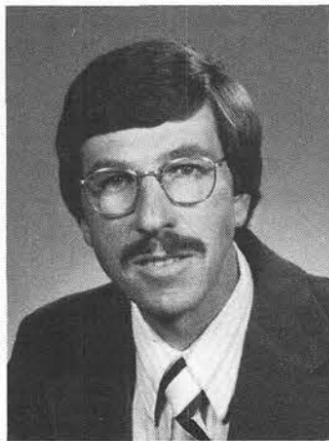
Ben Tafoya - 2452 10



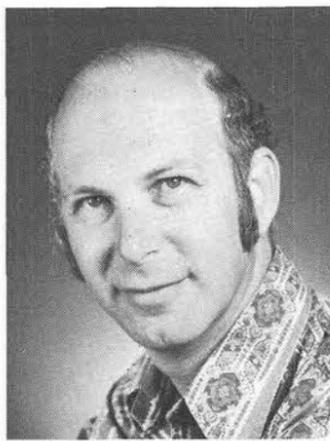
Bill Poole - 1734 25



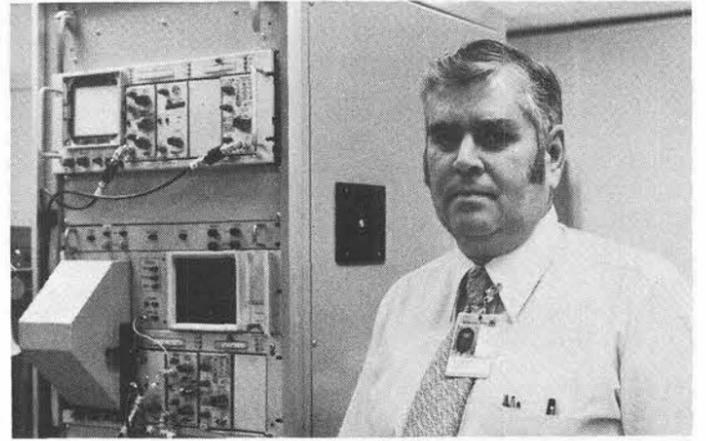
Leon Parrish - 4734 20



Robert Croll - 5634 15



Dave Abrahams - 8413 20



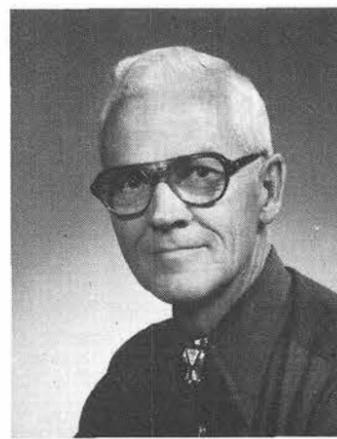
Thomas Starr - 1426 25



Joe Apodaca - 3417 30



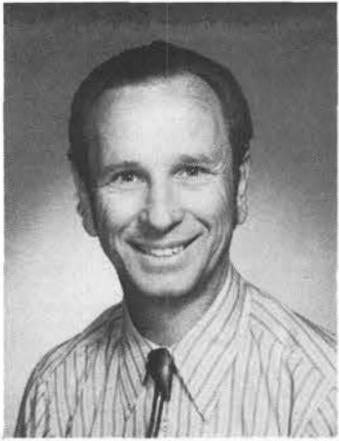
Pete Dean - 8265 15



Sidney Thomas - 1130 25



Dan Folk - 8347 15



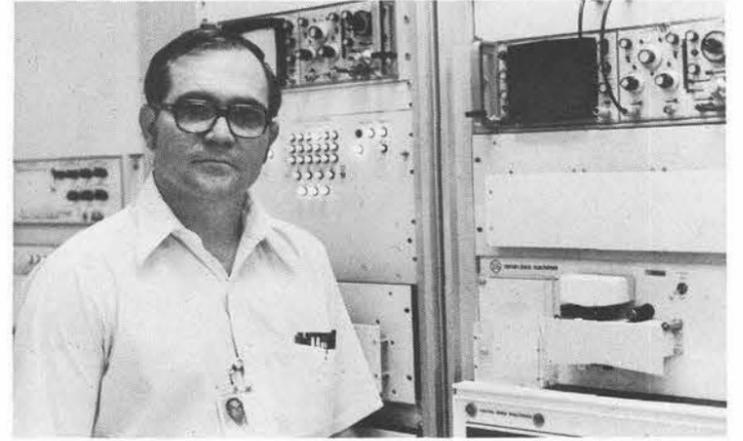
Ray Peabody - 1132 20



Marv Becktell - 4004 20



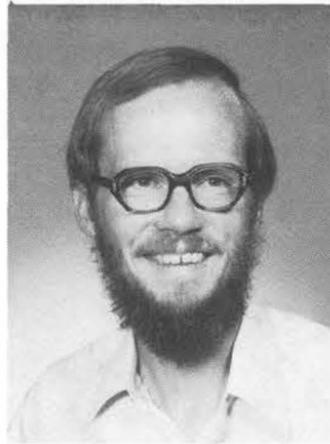
Chris Imler - 8261 10



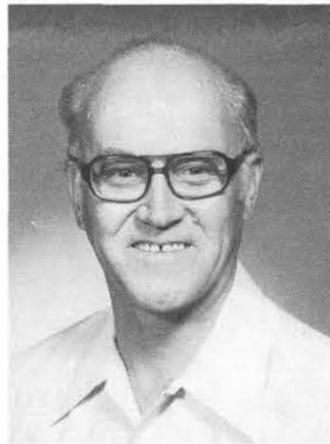
Garth Fahrback - 2326 20



Raymond Jones - 1242 15



Henry Dodd -4716 10



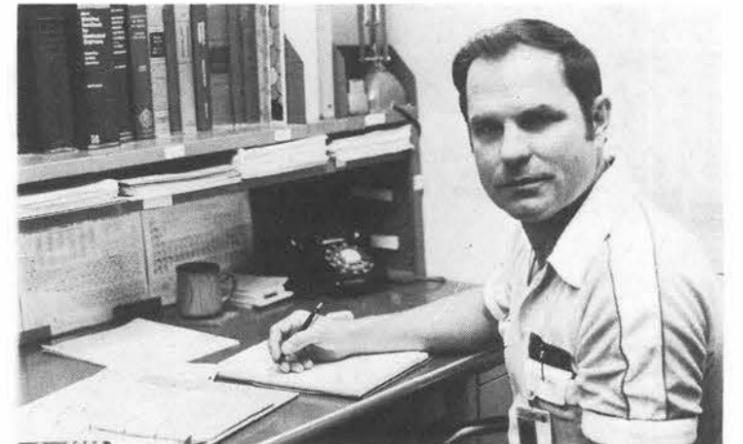
Ray Alls - 2341 25



Dwayne Mozey - 1714 25



Walt Bauer - 8340 10



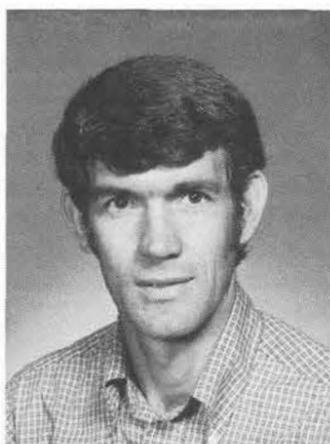
Bob Klett - 4536 20



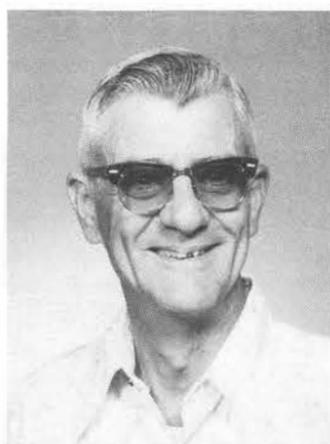
Burl Donaldson - 4737 10



Bill Fenning - 1761 15



Tommy Guess - 5844 15



Walt Wyant - 1244 20



Dan Pegan - 8162 20



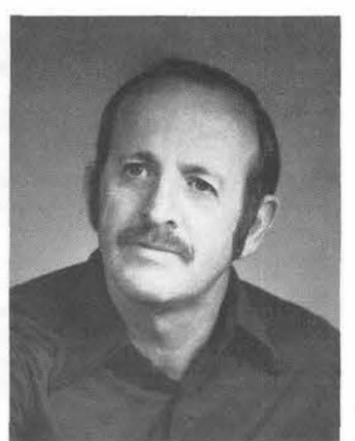
Roy Fitzgerald - 5614 20



Gary Miller -5534 10



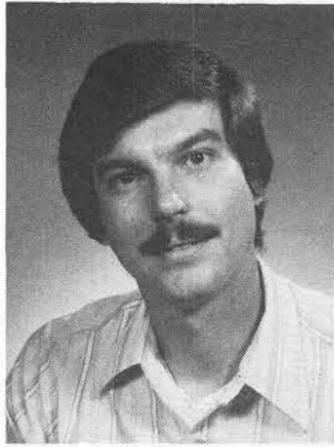
Les Anderson - 1247 20



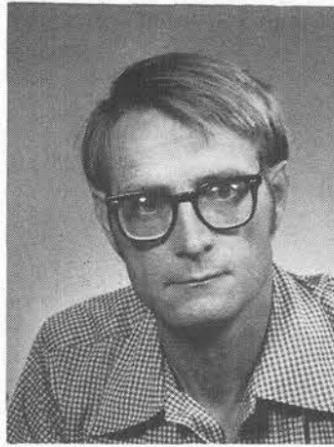
J.D. Porter - 8461 20



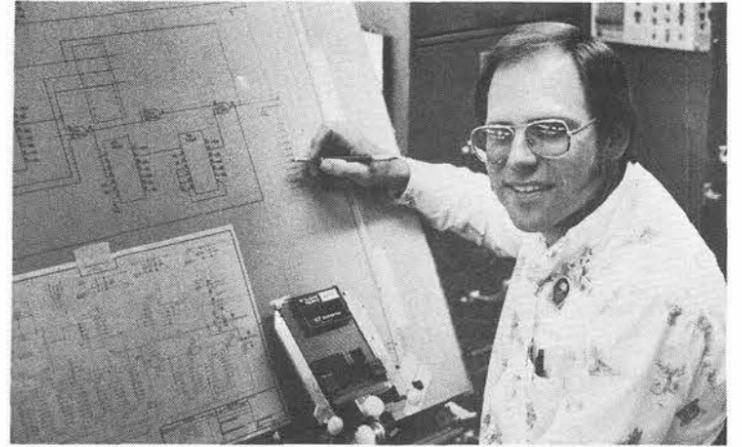
Herman Von Steeg-8423 20



Steven Richards-1757 10



Gerald Quinlan-2647 10



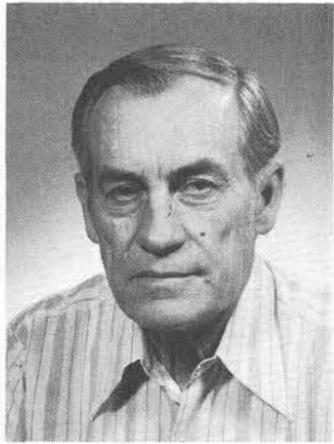
Robert Arnot - 2457

15



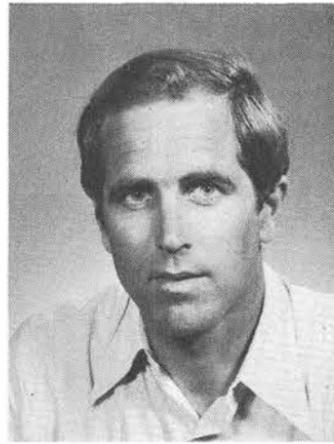
Bill Peay - 2453

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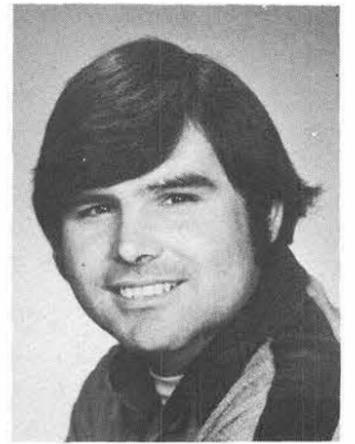


Carl Frantz-1422

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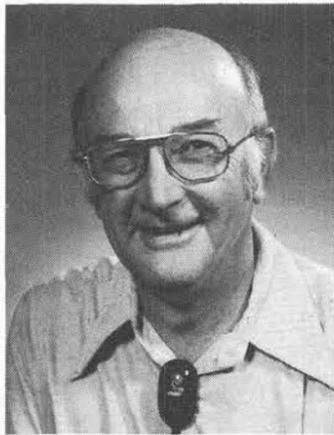


Dennis Reynolds-1757 10



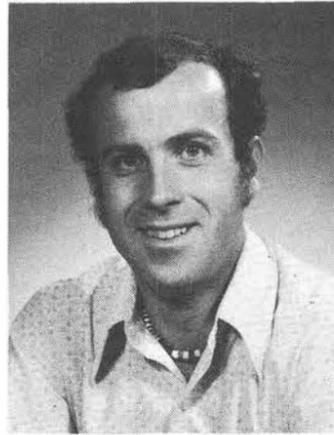
Peter Royval-8314

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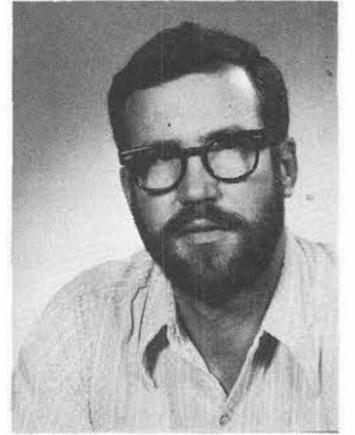


Ken Weidner-2436

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Robert Bradley-1757 10



John Webb-2345

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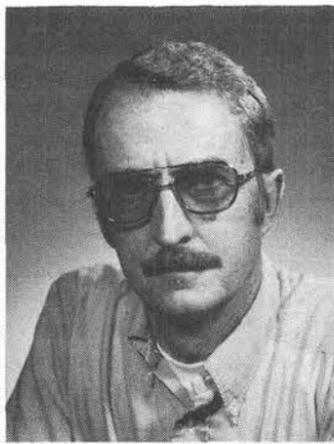
Tom Hoover-1716

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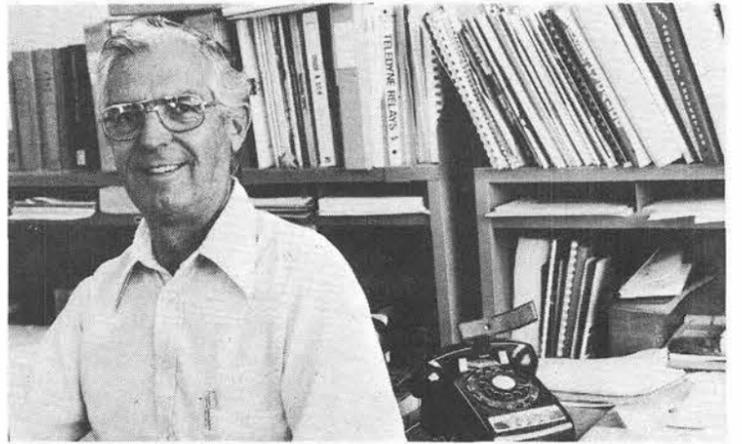
Jay Anderson-3312

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Ken Ludwick-3614

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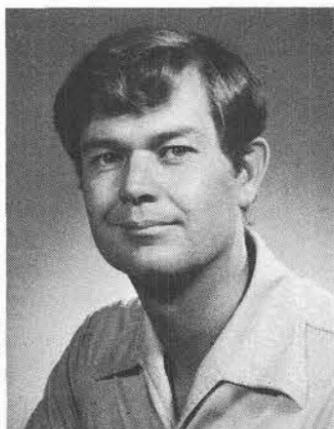
Calvin Cox -1127

30



Richard Beasley - 4734

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Ed Bernal-2335

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Jace Nunziato-5131

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Elsie Wickham-3542

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Our Town

All Indian Arts and Crafts Fair Opens Tomorrow

The Indian Pueblo Cultural Center is hosting its 2nd Annual All Indian Arts and Crafts Fair, June 30 through July 4. Native American craftspeople from the Southwest will man the 200 booths lined up in the driveway in front of the Center. Open each day from 8 a.m. until 6 p.m., the fair will offer pottery, paintings, rugs, jewelry, sand-paintings, kachinas, and Indian food to the public. Pueblo dances and craft demonstrations will be held in the Center's patio.

A drawing will be held each day; tickets are \$1 each and are available up to the time of the drawing. Prizes for the five days include a large Acoma bowl, a Two Grey Hills rug, a strand of Navajo hand-stamped silver beads, a set of four framed prints, and a Hopi Dawa (a decorative piece depicting the sun symbol with a kachina face in the center).

Cash prizes will be awarded to the 10 top artisans and their work will be on display. The Center is located at 2401 12th St. NW.



SEEMS like only yesterday that you could have gotten pretty good odds that a scene like this one at Sandia Labs would ever be realized. A delegation from the People's Republic of China here listens to Bob Stromberg of Solar Technical Liaison Division 4714 as he explains Sandia's solar facilities. Bob's Chinese is a little shakey, so an interpreter assisted. The delegation was made up of scientific people with interests in the solar and geothermal energy areas.

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 (814/6).

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. Include name and organization.
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

24' STARCRAFT trailer, self-contained, awning, Reese hitch, etc., \$3850. Smith, 299-1981.

CAMPER, 8' Mitchell deluxe Fishing Hut, refrig., stove, heater, jacks, porta-potti, other items, lwb. Temperly, 296-7279.

SEARS apt.-size washer & dryer: purchased new in April, adapts to bathroom sink, \$450 for set. Alvarado, 292-4826.

RUG, green shag, 17'1" x 11'4" w/attached foam cushion, \$75. Madden, 296-1082.

STEREO EQUIP: DBX-124 Noise reduction unit, \$175; super scope Integ. amp 20w/chan., \$85; audio pulse digital time delay, \$395; Kenwood Integ. amp 40w/chan., \$125. Allen, 299-9075.

HUMMEL plates & bells. Fitzgerald, 265-3055.

AREA RUG, 9'x12', gold plush, used 3 mos. Rodacy, 293-2668.

STEEL, ROUND 5-gal. cans, \$3; Texico diesel engine oil, 20 or 30 wt., 5 gal. cans, \$11; 6 gals. qt. cans, 20 wt., \$12.50. Stuart, 299-9190.

BALDWIN ORGAN, Interlude w/Fun Machine, \$1500; Noritake china, 90 pieces, \$300. Hines, 299-1314.

FREEZER, 30.4 cu. ft. Sears, frost-free, 3 yrs. old, maintenance policy included. McGuinness, 281-3860.

REFRIGERATOR/FREEZER, side-by-side, Tappan, avocado, frostless w/ice maker, 21.77 cu. ft., 274-lb. freezer capacity, as is, \$100. Luetters, 296-3759.

STEREO superscope quadruphase receiver w/built-in 8-track tape deck, Garrard 440M turntable, 2 Cerwin Vega HED speakers, \$325. Clark, 293-7598.

BAR, 53" wide, black leather arm rest, port. type, approx. 44" high, no stools, \$30. Marchi, 299-3653.

DOOR, 8' sliding glass w/screen. Schmitt, 884-7882.

COLOR TV, 23" Quasar console, 1971 model, \$175. McGuckin, 299-1342.

'71 APACHE Ramada, solid state, sleeps 8, new upholstery, 2 gas tanks, elec. brakes, \$1700. Bailey, 268-9583.

BALDWIN Orga-Sonic concert organ w/Leslie speaker, walnut cabinet & bench, asking \$750, consider offer. Lyon, 299-9423 or 884-8515.

160,000 BTU forced air furnace, updraft, Sears, \$100; 6-light Mexico light fixture, \$50; new 3x3 Fiberglass shower base, \$20. Starkey, 877-7515.

REFRIGERATOR, Wards side-by-side w/auto. ice maker, harvest gold. Rayner, 821-5534.

TABLE LAMP, 29" tall, white base & shade w/yellow trim, \$7. Moyer, 881-3879.

DIAMOND RING, pear cut, .36 ct., white gold setting, recent written appraisal \$1145, will sell for \$800. Mech, 266-9910 or 881-9212.

20" APT. gas stove, used, \$60. Ronquillo, 842-8833.

SEARS 10" radial arm saw, metal stand, dado blades, plywood blade, moulding set, drill chuck, \$225. Vogel, 256-0975.

2 TIRES: GR 78-14, Goodyear custom polysteel steel belted radials, whitewall, \$20. Daut, 255-2529.

RANCH OAK loveseat, blonde finish, 46" w, 30" h, 31" d, \$140. Gerlach, 299-9084 after 6.

PUPPIES: German Shepherd mother, father probably 1/2 German Shepherd, 1/2 St. Bernard, 5 wks. old. Souder, 281-3121.

WASHER & DRYER, elec., Kenmore, white, \$140/pr. Clement, 299-1501.

EVAPORATIVE cooler motors: 1/4 HP, \$5; 1/3 HP, \$7.50; single speed; one 7.50x16 8-ply Firestone truck tire, snow tread, \$10. Freyermuth, 299-2053.

BATHROOM SINK w/all hardware, plus counter top, \$40. Henning, 299-0318.

FREE to good home, 1 yr. old spayed female Shepherd cross. Mowrer, 281-5595.

92" ORLON COUCH, makes into queen-size bed. Costello, 299-0563.

DINETTE SET, heavy gauge tubular steel, chrome plated, 4 chairs, 36x47 formica table extends to 36x70 inches, \$75. Shieler, 881-8723.

LINED, open weave, green custom drapes: 42x42", \$20; 75x84", \$45; 100x84", \$60; Kirsch brass traverse rods, 40-80", 83-150", \$7/\$8. Petruno, 265-1826.

SEARS power tools w/accessories: 12" table saw, \$350; 12" band saw, \$150; router, \$75. Hobart, 281-5331 after 4.

REGRIGERATOR, \$150; rural type mail box, \$7; 2-hr. Betaformat video cassette tapes, \$14. Falacy, 293-2517.

'69 1500cc(?) VW engine. Randle, Placitas, 867-2668.

1/3 HP elec. house pump w/40-gal.

tank & check valve, \$140. Padilla, 877-2116.

CRAFTSMAN 10" table saw, commercial drill press, Sears best. Schroeder, 344-1011.

REMINGTON Mod. 870 TC, vent rib, 30" full choke, 150th Anniversary model, sells new, \$470, asking \$275. Hawbaker, 881-7046.

CAR TOP CARRIER, enclosed, \$40. Esterly, 881-1973.

LAWN MOWER, 22", self propelled, Sears Craftsman, bent crank shaft, make offer. Colgan, 344-3776.

30° ELBOWS for 8" triple wall chimney pipe; 2 Chevy truck wheels; 3' screen door; 45" room divider; 4-gal. suntemp solar collector fluid. Edenburn, 869-2911.

HITCH, Class III equalizing receiver; deep dish chrome Ford rims; stereo & stereo equipment. French, 821-6144.

BEDROOM SET, lg. dresser, chest, dbl.-bed headboard, limed oak, all wood. Kennedy, 298-0704.

TRANSPORTATION

'76 VEGA hatchback, 18,000 miles, Craig AM/FM w/cassette, \$2000 or best offer, engine warranty good. Cox, 255-5624.

'76 DODGE Aspen, 6-cyl., PB, PS, AC, AT, low mileage, below book. Winblad, 898-9762.

'66 MUSTANG, 6-cyl., AT, PS. Jefferson, 293-3529.

'77 SUZUKI, street & trail, Enduro, less than 700 miles, asking \$950. Gajewski, 292-2857.

'73 FORD Gran Torino wagon, R&H, AC, AT, 351 engine, all power, \$1400. Bailey, 268-9583.

'74 CHEV. 3/4 ton camper special, AT, AC, PS, PB, new tires-brakes, paint & overhaul, \$3000. Kerr, 299-7527.

'73 MOBILE TRAVELLER RV, 29K miles, new everything, 2 tanks hold 40 gals. reg. gas, 19' long, on Dodge chassis, \$1695. Melville, 296-3378.

'71 PONTIAC Trans-Am, 400V8, 4-spd., new upholstery, orig. paint, AM/FM stereo, \$2000. Daut, 255-2529.

'64 FORD 4-dr., small V8, low mileage, new tires, recent paint job. Schamaun, 298-5192.

'76 FORD pickup, 3/4 ton, 4-spd., PS, PB, 3:54 axle ratio, consider trade-in, \$3495. Bauder, 281-5327.

'74 DATSUN pickup, cabover camper, jacks, AM-FM, cassette, reg. gas. Nielson, 296-7076.

'69 DODGE 3/4 ton camper special, std. trans., \$995. Myers, 821-8318.

'78 VW Dasher, loaded, sell at payoff — \$5700. Gallegos, 255-5102 after 5.

'68 FORD Torino GT, 302, V8, PS, AC, AT, Sears SB radials, 1 owner, full service record, manual, \$1100. Novotny, 296-7167.

'77 FORD LTD II, V8, 400cc, AC, PB, PS, 58,000 miles, full roll cage in

frame, HD rear end, radiator, etc., \$2500. Lundy, 877-9669.

'65 CHEVY str. wgn., 327 engine, \$300. Fuller, 294-3089.

BICYCLES: ladies' 10-spd., \$70; ladies' 3-spd., \$50; mens' 3-spd., \$50; take both 3-spds. for \$85. Joseph, 299-6989.

BICYCLE: girl's 20" w/basket. Simpson, 298-4749.

'76 CAPRICE Classic, 4-dr., HT, power, AM-FM stereo, Cruise-Control, tilt-wheel, white w/blue interior, 29,500 miles, \$3500. Beeson, 299-6132.

22' MOTOR HOME; 14' boat w/trailer & motor. L'Esperance, 898-3802.

'72 VW Super Beetle, new brakes, MacPhersons, etc. Hock, 881-1318.

'74 JEEP Cherokee, Quadra-trac, low range, AC, extra 20-gal. gas tank, spoke wheels, automatic, PS, 401 cu. in. engine, 70,000 miles, \$3300. Cox, 293-5518.

WANTED

BACKPACKING EQUIPMENT. Boverie, 255-1071.

NEED loving homes, 2 small dogs, silver poodle-terrier; white terrier, both good w/kids. Schmaltz, 265-7061.

SET of World Book Encyclopedia. Ross, 296-9794.

PASSENGERS to share expenses of 4-5 hour weekend/holiday flights to Austin/Houston area in Cessna-182, dates negotiable. Schkade, 265-5473.

WWII German daggers, must be in good condition. Smiel, 865-9081.

BAND SAW, must be in good condition & reasonable. Stuart, 299-9190.

USED SHOPSMITH, 9" or 10" blade. Jenkins, 242-4802.

POLE for mounting basketball goal, backboard, goal & pole-mounting bracket. Kerschen, 821-2848.

RIDE to work from vicinity Juan Tabo & Menaul; will consider car pooling; use Gates 1, 2, 4 or 6. Scales, 296-9295.

WORK WANTED

PART-TIME odd jobs: college student, house painting, interior or exterior, has own tools, call Richard. Schamaun, 298-5192.

ADVANCED guitar student wishes to teach guitar, \$3.50 for 1/2 hr. lesson. Chavez, 881-2711.

PAINTING, hauling, Peter Shunny, 265-1620.

REAL ESTATE

MOUNTAIN HOME, 3-bdr., passive solar on 5.3 acres, 23 mins. away, priced under cost plus housing inflation. McCampbell, 821-7996.

TWO adjoining lots, Deer Lake Estates, 10 miles east of Cuba in Santa Fe National Forest. Benson, 268-3586.

ONE ACRE, \$2800, 7 miles east Moriarty, elec. avail. Hale, 294-0212.

'71 GREENBRIAR, 2-bdr., 1 1/2 baths, AC, appliances, skirting, patio

cover, set up within Labs walking distance, furnished, \$7200. McFadden, 299-8236.

NORTH VALLEY home, 3-bdr., 1 1/2 bath, FR, dbl. garage, lg. cov. patio, landscaped, lg. side yard, \$52,500. Marquez, 344-8583.

4-BDR., 1 1/2 baths, den w/kiva fp, near Lomas & Tramway, \$64,900. Baca, 293-8710.

SOLITAIRE mobile home, 14x68', 2 yrs. old, 2 bath, 2-bdr., shed, patio, gas grill, adult park NE hts., \$23,000. Mueller, 821-6391 or 821-0206.

3-BDR., 1 1/2 baths, near Juan Tabo & Copper, 16x32 in-ground pool, \$55,500, CTL or refinance, Maxam, 296-9394.

3-BDR., 1 1/2 baths, den w/kiva fp, near Wyo. & Indian School Rd., \$55,000, Malmstrom, 298-9640.

2300 SQ. FT., 4-bdr., 2 1/2 bath, 2-story; schools, golf course, tennis courts close; \$78,500, 9 3/4% financing, assume 9 1/2% cti \$44,500. McDaniel, 821-7028.

FOR RENT

CABIN in Taos Ski Valley, 3-bdr., modern, sleeps 8, fully equipped kitchen, quiet, scenic view, \$28-34/night. Marion, 294-8256.

NEW TOWNHOUSE, unfurnished, 1 & 2-bdr., available in Aug., \$210 & \$240, no children or pets, 2 miles Wyo. gate. Gallegos, 255-5264.

NEW 2-bdr. apt., 116 Dallas SE, near KAFB, \$225/mo. plus gas & elec., children allowed. Rivera, 266-3184.

MASTER BEDROOM FOR RENT in 3-bdr. house, 2 1/2 miles east of Labs, all privileges, \$150/mo. + 1/2 elec. bill. Randour, 298-5684.

RENT/LEASE: lg. new 2-bdr. unfurnished apartments, woodburning fp, carpets, drapes, all major kitchen appliances, \$285/\$300 month plus gas & elec., \$150 DD. Taylor, 292-0496.

2-BDR. APT., near Wyo. & Central, \$200 + utilities, no pets, unfurnished, W-D hookup. Chu, 296-4008.

CABIN on Hondo River near Taos Ski Valley, deluxe accommodations, fully equipped kitchen, sleeps 8. Peet, 294-1250.

LARGE, new 2-bdr. units w/fp, balcony, walk-in closet; near Labs, 12,600 Dunes, no pets, \$290. Thalhammer, 298-8521.

3-BDR., 2 baths, carpet, lg. garage, avail. July 15, see at 4308 Boone NE, \$425/mo., first, last, DD. Haushalter, 821-2933.

LOST AND FOUND

LOST — Keys on sunflower key chain, brown pipe.

FOUND — Gold filigree earring for pierced ear, raincoat in zippered case, bicycle lock, ankle bracelet. LOST AND FOUND, Bldg. 832, 264-1657.

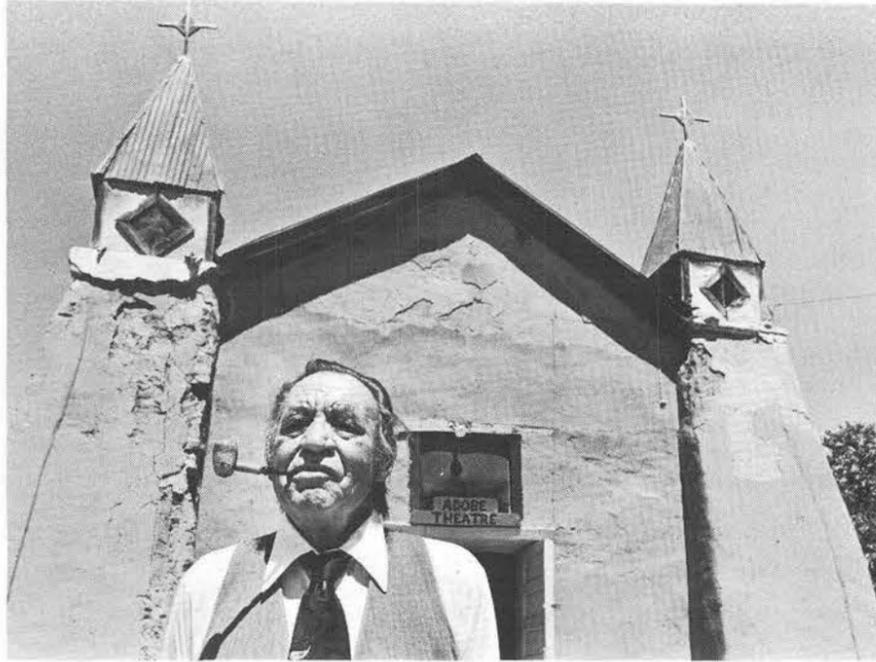
Celebrate the 4th At the Club

YOLANDA AND LA ULTIMA, one of the more danceable and entertaining groups in the city, appear at the Club tonight from 7:30 to 11:30. The buffet, served from 6 to 8, features veal cordon bleu. Special Happy Hour prices start at 4:30, are in effect all evening. The snack bar and patio area are open until 9. It's payday. Blow a couple of bucks.

TOMORROW AND SUNDAY the Coronado Club Aquatic group has a competitive swim meet in the mornings. The triple pools open for recreational swimming at noon.

CELEBRATE THE FOURTH OF JULY at the Club — fun, games entertainment for everyone starting at 11 a.m. The kids can compete for prizes, by age groups, in sack races, balloon tossing, pole climbing and more all afternoon while the snack bar serves a 4th of July special — two hot dogs, beans and chips for \$1.25 — and the Albuquerque Municipal Band plays a concert from 12-2.

The Tommy Dorsey orchestra makes a special appearance from 9 until 1. Buddy Morrow now fronts the 16-piece group and they play all the old favorites. Reservations are required — call 265-6791 — *right now*. Tickets cost \$5 for members, \$7.50 for guests.



THE STAGE MANAGER, central character in Thornton Wilder's "Our Town," is played by retiree Bill Carstens in the Corrales Adobe Theater production which opened last night. This show marks some 40 productions Bill has appeared in locally. With curtain time at 8:30, "Our Town" plays tonight, Saturday and Sunday; repeats July 5-8 and 12-15. For reservations, call 898-3323.

HAPPY HOUR next Friday, July 6, sees the western band of Elton Travis playing for dancing; fancy Italian food — spaghetti, lasagna, ravioli, spinach salad — spread on the buffet. Cost is \$3.50 for adults, \$2 for kids; it's an all-you-can-eat deal. Call the Club office, 265-6791, by mid-week to reserve buffet tickets.

SINGLES MINGLE, summertime style, starting right after work next Friday (July 6) at the Annex Pool. The publicity blurb says "refreshments, dancing, swimming, ETC." Why did they capitalize "etc.?"

VARIETY NIGHT on Saturday, July 7, features "The Story of Robin Hood" on the silver screen at 7 p.m. and a selection of super sandwiches available at 6. Bring the kids; admission is free to members.

TRAVEL — Coronado Club package tours include Hawaii, Europe and Mexico. A seven day package at the Playa Mazatlan either starting Nov. 5 or Nov. 12 costs \$259. Another tour to Ixtapa starting Sept. 15 costs \$409. The Club also offers excursions on the Cumbres and Toltec scenic railroad. See travel director Ed Neidel in the Club lobby tonight between 6 and 7 for the full scoop, packages of literature. Ed is also planning a Caribbean cruise in January, a Disneyland trip during October teacher's convention.

THE WOLFPACK offers season discount tickets to UNM football games at \$21 each. Pick them up at the Club office by July 6. For more info. call Pro Padilla, 4-3462.

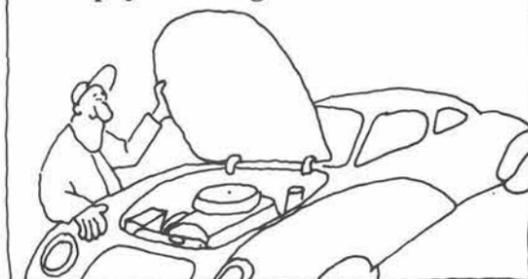
TEENAGERS do their thing at a disco Thursday, July 12. Member parents must pick up tickets for their youngsters.

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Obey the 55 mph speed limit.



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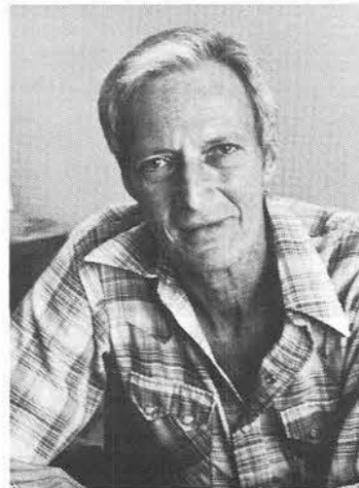
ENERGY.
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U.S. Department of Energy

Retiring



Irene Mesecher (3152)



Jack Merillat (3530)



Eileen Fitzmorris (3252)



Richard Carpenter (4242)



James Wheeler (2552)



Margaret Martin (2632)