



LAB NEWS

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



GIL CORDOVA returns to Sandia but not to the Labs. He's been named manager of the Sandia Area Office of ALO. Since leaving Sandia, he's filled positions in Washington, at DOE/ALO, and at U of A. Details on page 2.



CONQUERING CONCERTINA WITH DETERMINED SHEARS. Two "aggressors" cut away at barbed tape entanglements with bolt cutters to establish how long it would take to breach such a barrier. *Barrier Technology Handbook*, just published by Org. 1711, contains data on this and wide variety of other barriers. See page 8 for story and photos.

'Convoy' Movie Premiere Will Be Held in City

The Albuquerque Association for Children with Learning Disabilities (AACLD) is a non-profit United Way funded agency concerned with children with learning disabilities, their parents, and the professionals who work with them. As a fund raising event, AACLD is sponsoring the opening night world premier of the movie "Convoy," which was filmed in Albuquerque. The premier will be held at the Coronado Four Theatres on Tuesday, June 27, at 8 p.m. The donation for a ticket is \$10 and tickets can be obtained by calling the AACLD office, 842-8713, or by sending a check to: AACLD, American Bank of Commerce, Suite 1119, 200 Lomas Blvd. NW, 87102. "Convoy" stars Ali McGraw, Kris Kristofferson and Ernest Borgnine.

A Matter of Degree

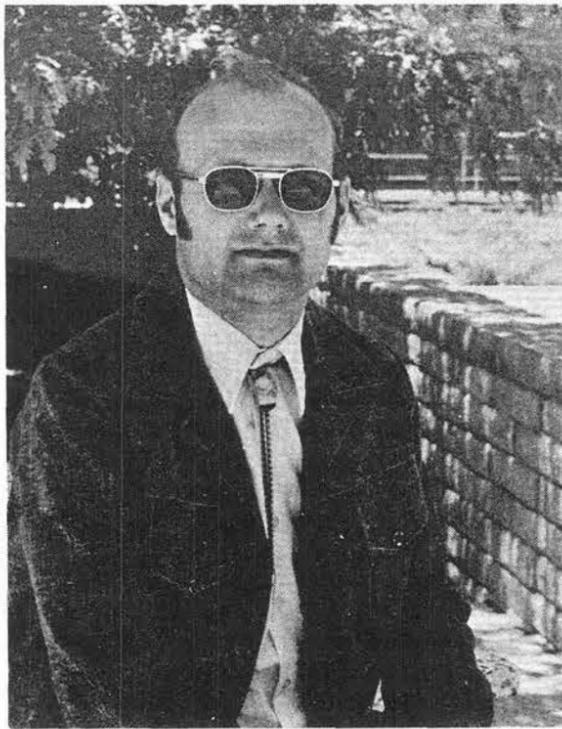
These Sandians have recently completed degree requirements under the Educational Aids Program:

NAME	SCHOOL	DEGREE
Daniel Brewer (4131)	NMHU	Masters
Amado Chavez (9354)	UofA	Bachelors
Barbara Champion (1710)	UofA	Bachelors
James Dalton (9658)	UofA	Bachelors
Jo Hanna (3212)	UofA	Bachelors
Dolores Hoffman (3431)	UNM	Masters
Maurice Karnowsky (5832)	NMIMT	PhD
Walter Myers (3715)	UofA	Bachelors
Kathy Pitts (3522)	UNM	Masters
William Poole (3521)	UNM	Bachelors
Stanley Quintana (2626)	UNM	Masters
Michael Robles (2632)	NMHU	Masters
Barbara Rush (3500)	UofA	Bachelors
Jose Sena (9572)	UofA	Bachelors
Jerry Soden (1222)	UNM	Masters
Bobbi Voelker (3151)	NMHU	Masters
Helen Walsh (5800)	UofA	Bachelors
Karl Wiegandt (9624)	UofA	Bachelors

Congratulations

To Marie Neff (9624) and Dick Wilson who were married in Albuquerque on June 10.

To Tom Hund (5845) and Pam Siegal (formerly 9571), married May 27 in Albuquerque.



Gil Cordova Heads Sandia Area Office

It's been a kind of homecoming for the new manager of DOE's Sandia Area Office. Gil Cordova began his career more than 20 years ago at Sandia Labs, coming here following service in the Navy. His first job: materials handler. Since that time, through a combination of work and schooling, Gil has filled jobs of ever increasing responsibility, including a stint as president of the University of Albuquerque.

"I wasn't able to attend school under the GI bill," Gil recalls. "With two kids we couldn't make it. Then I came to Sandia and was able to take advantage of the Labs' Educational Aids Program. Got my BBA from UNM and, later on, an MBA—all under EAP."

His career since the early days has been varied. Leaving Sandia, Gil worked with Peat, Marwick & Mitchell; with the AEC in Washington as Assistant to the General Manager; with the Peace Corps as Director of Latin American Operations; with the University of Albuquerque where he was elected president by the Board of Trustees; and, for the last year, with DOE/ALO where he was on the staff of the Asst. Manager for Logistics.

Gil is looking forward to his new assignment. "Sandia is one of my favorite places," he says. "I hope my old friends here will drop by to say hello."

The new Area Office manager succeeds Dick Malone, who retired earlier this year.

Supervisory Appointment

JOHN STICHMAN to supervisor of Advanced Subsystems Division 2167, effective June 1.

John joined the Labs in July 1972 and has spent his entire career in the Firing Subsystems Department. In his new assignment, he will oversee advanced and exploratory firing subsystems development as well as work on Phase I and Phase II systems.

An electrical engineer by training, John has three EE degrees (a BS, MS, and PhD), all from the University of Wisconsin. John is married with three children. His hobbies are fencing, wine making and camping.

R E T I R I N G



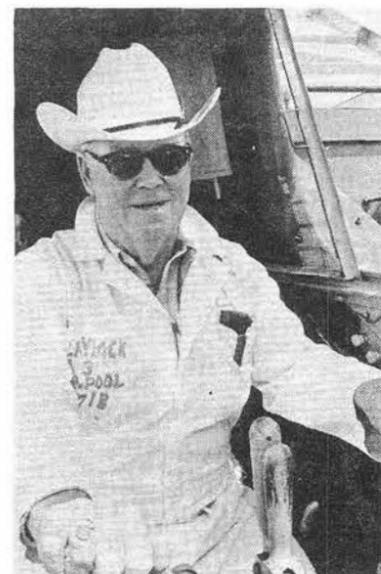
Ernest Mares (9582)



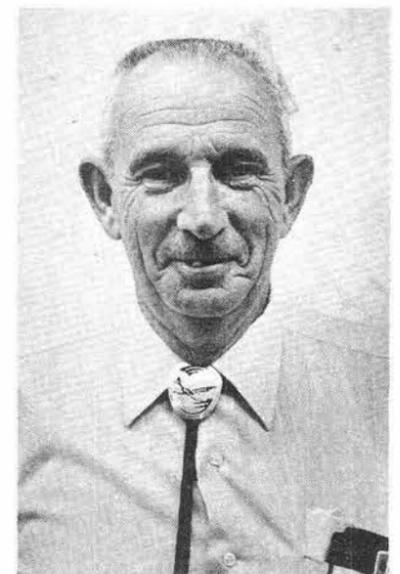
Frank Prange (4100)



Joyce Coffee (9581)



Sam Blaylock (9718)



Rudy Sadler (2327)

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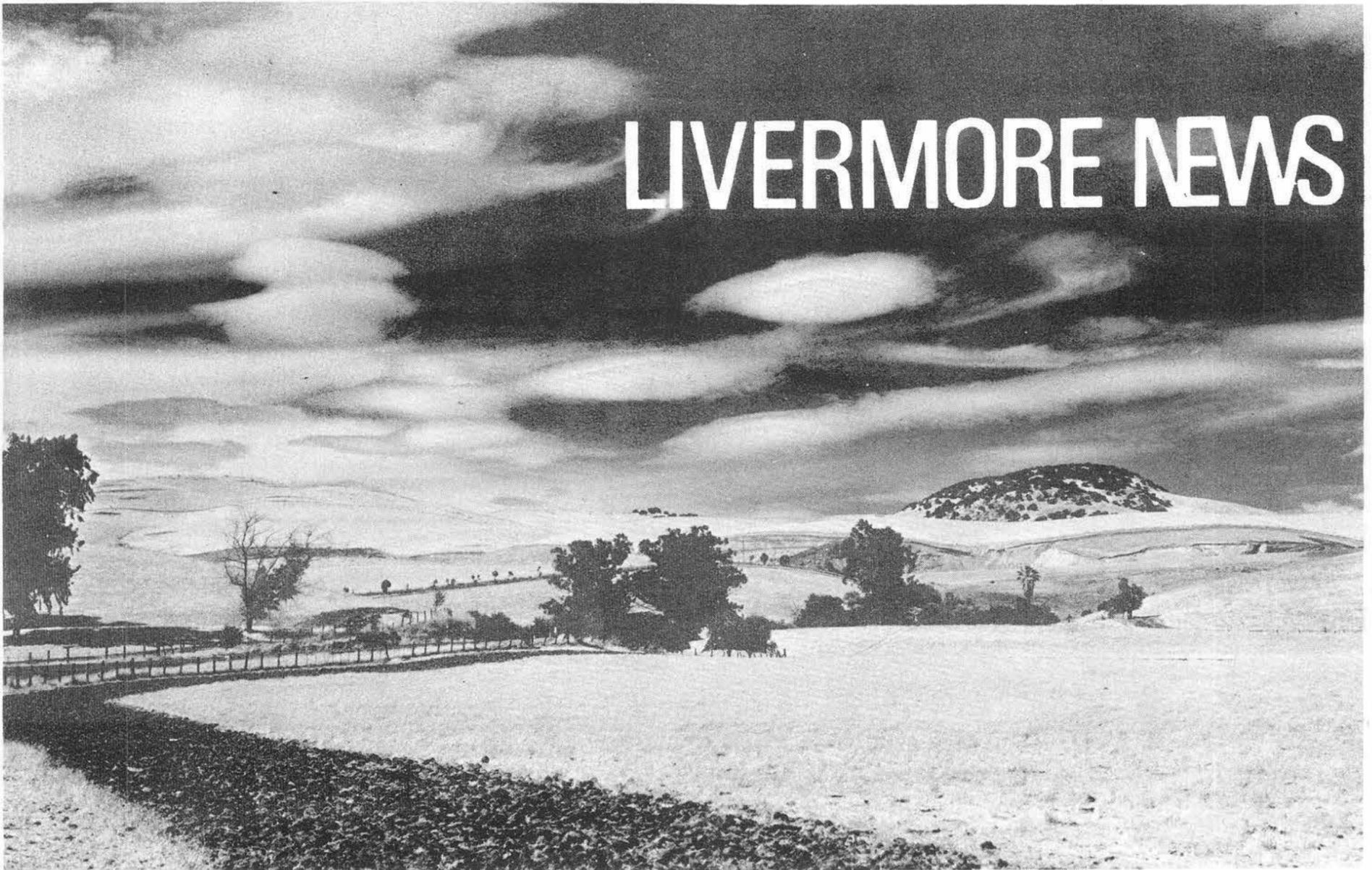
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so does russell smith

bruce hawkinson & lorena schneider report livermore

LIVERMORE NEWS



DON SPENCER (8265) is primarily a writer but his talents extend as well into photography, as evidenced by this Northern California landscape.

Role of Navy Tactical Nukes Studied

Garry Brown, Systems Studies Division 8234, is playing a key role in providing new decision-making capabilities to those heading the Navy's SM (Standard Missile) 2 program. The division is leading a DOE/DoD committee chartered to help define the requirements for the LASL/SLA W81 warhead. Sandia's contribution is to evaluate the relative effectiveness and cost of various design alternatives, including those pertaining to warhead yield and fuzing.

SM2, with both conventional and nuclear warheads, represents the newest generation of surface-to-air fleet defense missiles for use by a ship under attack by one or more anti-ship missiles. The need for such a fleet defense has been apparent since the days of the kamikaze. With the growing sophistication of anti-ship missiles, some of which may carry warheads powerful enough that even a wide miss can sink a carrier, an equally sophisticated defense becomes a necessity.

"What we—and the Navy—are learning from the study is that a nuclear warhead does not automatically solve all the problems of fleet defense," says Ed Woolery; he, Cory Coll, and Dick Basinger (all 8324) are the principals in the study. "Any weapon, nuclear or conventional, has limitations. Our study helps define these limitations with regard to the SM2 and the W81."

"We've developed two computer tools that support the study," says Cory. "The endgame model posits a one-on-one confrontation: one W81-equipped SM2 sent to intercept one attack missile. We then come

up with a kill probability based on the relative position of both the attack and defense missiles and on a number of other variables."

This one-on-one analysis, while useful, is not entirely consistent with the real defense world of multiple attack and defense missiles, so Cory and Dick, along with Juanita Nansfield (8325) developed a second model. Called SNARE (Sandia-Naval Attack Response Evaluator), it deals with the case of "Many-on-many," and poses these questions: how does the anti-ship missile detection process work? how about the tracking process? the defense missile launch process? how long does it take to load the defense missile? what are the effects of electronic jamming? How, in short, does a Navy task force defend itself? And is it better off for having a nuclear capability? Says Cory: "What we have here is a battle management plan, not a precise description of what would happen—but rather a broad outline."

"Our analysis suggests some program changes that could bring significant savings over the lifetime of the program," says Garry. "And our close working arrangement with the Navy on this tactical weapon should lead to a better understanding of their requirements for tactical nuclear weapons."

Key groups in the SM2 study are LASL, the Applied Physics Lab at Johns Hopkins, and the Naval Weapons Center at White Oak, Md. The Livermore study complements the W81 development efforts centered in Gene Ives' Systems Development Department 4330.

Retiring



Gunner Scholer (8442)



Scotty Romine (8252)

Congratulations

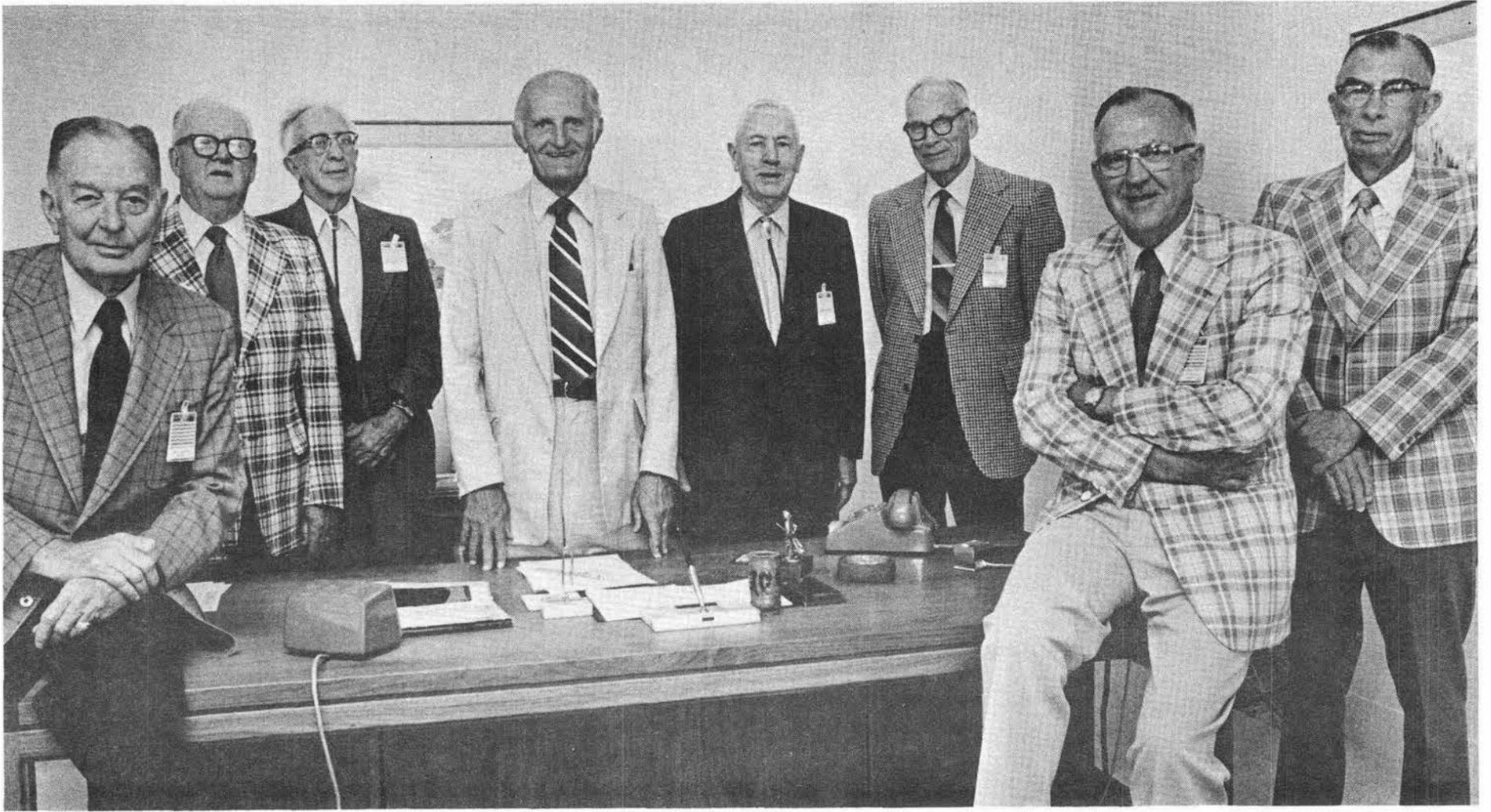
To Mr. and Mrs. Don Kasberg (8271), a daughter, Bree Jeannine, May 3.

To Mr. and Mrs. Art Hull (8466), a daughter, Kristi Elizabeth, March 17.

Sympathy

To Helen Bond (8412) on the death of her father-in-law in Salem, W. Va., May 22.

To Mary O'Shea (8261) on the death of her father in Livermore, May 24.



Retiree Picnic '78

Every year it's bigger, and this time RP '78 drew nearly 900. As a preliminary to the picnic, President Sparks chatted in his office with former President Monk Schwartz (at left), VP's Charley Campbell, Walter MacNair, Tim Shea, Burnie Biggs, Bob Henderson, and Dep.Mgr/ALO Jim McCraw. At the picnic, LAB NEWS photographer Bill Laskar snapped these two couples in mid-guffaw—Bill and Jean Carstens and Lee and Edie Parman—and Mike Michnovicz (9632) as he serenades a lady we weren't able to identify.



commuting
information
DIAL 4-RIDE



The IRS, never noted for the clarity of its prose, has finally outdone itself. We offer in evidence the opening of a recent news release: "A proposal to extend the expiration date of part of a prohibited transaction exemption dealing with certain securities transactions directed by a fiduciary of an employee benefit plan on its behalf was published Friday, May 5, 1978, in the Federal Register by the Internal Revenue Service and the Department of Labor..."

Fun & Games

Swimming—The indoor Olympic pool is open during the summer, Wednesday through Sunday, from 11 to 7 (lap swimming 11 to 12). The daily use fee has gone up to 50 cents; you can, however, get a season patch for \$3 at the Recreation Center, Bldg. 20226 (just across from the gym).

* * *

Running—A thousand participants are expected for the 4-mile Leroy Bearman Memorial Run on June 24. It starts at 9 a.m. in Kit Carson Park, follows a course around Tingley Beach and the zoo. There are 12 separate categories, and everyone gets a T-shirt. Entry blanks: LAB NEWS, 4-1053.

If you plan to run La Luz this year, you're probably planning some training runs up the trail. The problem with running up is that you have to get down; in previous years runners have set up a car pool arrangement, with one of the runners (or his/her spouse) meeting the runners on the Crest at the conclusion of the training run. If you're interested in such an arrangement, call LAB NEWS, 4-1053, so that a list of potential poolers can be compiled.

* * *

Women's exercise class—A summer fitness class for women is being offered by the C-Club to start June 13, running for eight weeks every Tuesday and Thursday. From 5 to 6 p.m. the class will perform various exercises and, at 6 p.m., will undertake a swim session in the C-Club pool. Cost is \$10. Call the pool office on 264-2641 to sign up. To take part in the swim phase you must be a C-Club member.

* * *

Summer volleyball—The C-Club is also organizing a summer volleyball league for both men and women. Play is scheduled to start June 20. Call Bob Giersberg on 4-8486 if you're interested.

* * *

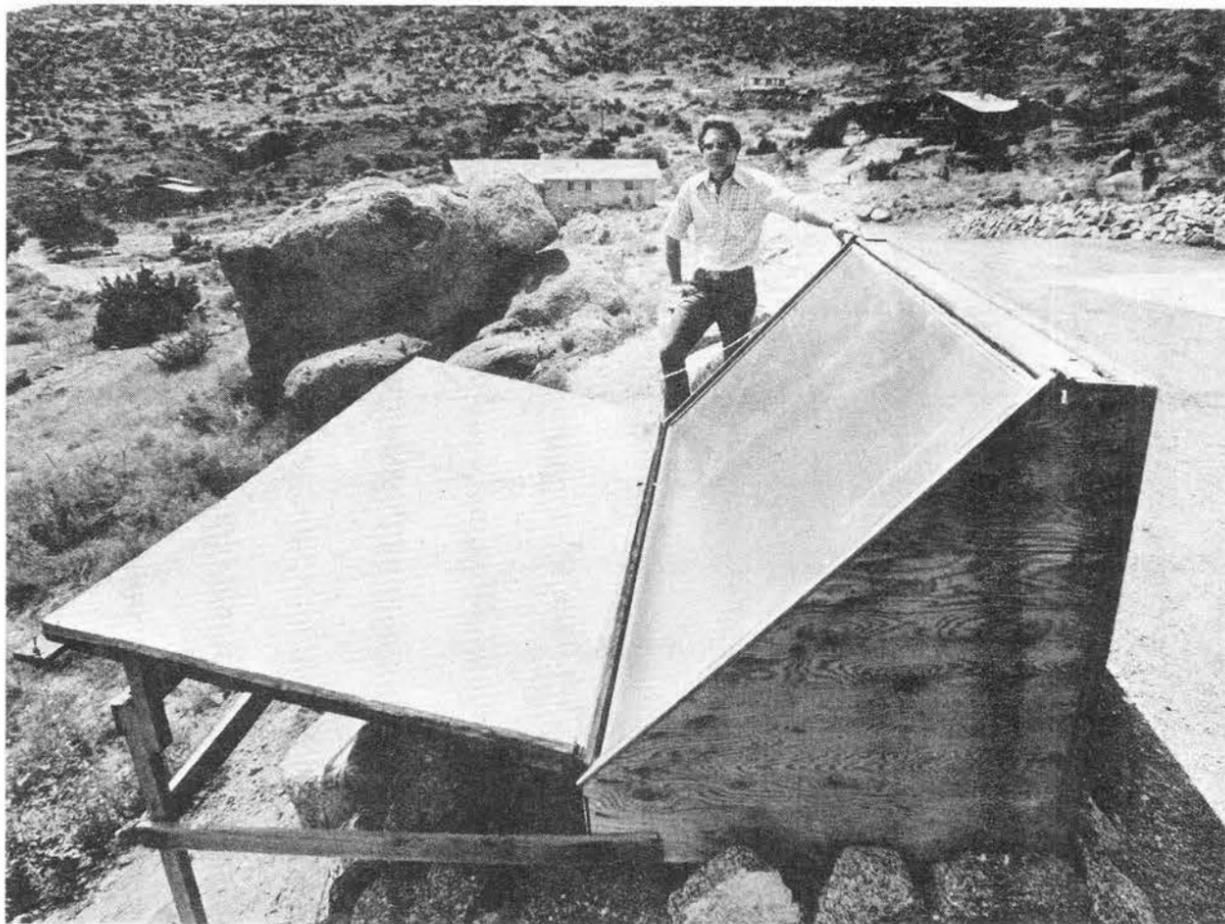
A wet T-shirt contest?—The C-Club is selling T-shirts emblazoned with the club motif at the pool office starting June 16. Cost is \$4.25.

* * *

Racketball—Bob Giersberg reports that the Grand Champion in the recent C-Club racketball tournament is Clancy Hatleberg, a naval officer assigned to Org. 4363. Clancy had a perfect series, 10-0. Second place went to John Taylor (1233) and third to Steve Martin (2627). Bob also reports that he has to shut down the arrangement with the Base gym under which Sandians could play on the courts between 6 and 8 a.m. He's been going in the money hole—seems that a number of players aren't paying up.



A good many readers of *The Chinese Nail Murders* must have suspected the author. The novel was published with two Page 121's, no Page 122 and a Page 123 which announced: "I now know who committed this foul crime. Pan Feng!" The publishers (Univ. of Chicago Press) are sending out Page 122's to curious readers with a note that reads: "We wish wish to apologize apologize for repeating repeating Page 121 121."



PASSIVE SOLAR WATER HEATING SYSTEM was built by Ron Husa (2322) at his new home in Echo Canyon. Inside the collector box are two 42-gallon water tanks. The insulated reflective lid at left covers the box at night, keeps heat inside. System provides Ron with 60% of his hot water needs.

Do-It-Yourself Solar, II

Passive Solar Water Heater Saves Dollars

[Ed. Note: *Gone solar? Give us a call, 4-1053. We'd like to continue this series on home-grown solar systems or devices that Sandians have come up with—just the ones that work, please. In our last issue, we described Bob Stromberg's roof-mounted parabolic collector system.*]

A year ago when Ron Husa (2322) was designing his new house in Echo Canyon, he incorporated a number of energy saving features including a simple but effective passive solar water heating system.

His records show that the system is providing 50 percent of his hot water needs, saving an estimated \$200 in utility costs annually.

Ron's system consists essentially of a 4'x8' plywood box lined with reflective foil-covered polyurethane foam. The "top," sitting at an angle, is constructed with double-paned plexiglass to provide the greenhouse effect, keeping heat trapped inside the box. Two 42-gallon glass-lined tanks painted flat black are positioned inside the box. Cold water gravity-flows into the bottom of one tank, is warmed up and goes out the top into the bottom of the second tank. After further warming, it too exits the tank at the top and goes into the hot water heater inside the house. Plumbing is underground.

A hinged cover for the box is also made of insulated reflecting material and projects more sunlight into the box. At night, the cover is closed to keep heat inside.

Sunlight strikes the reflecting surfaces inside the box and is absorbed as heat by the black tanks. Water temperature inside the warmer tank sometimes reaches 140° by the end of the day. Two tanks reduce the effect of cold water entering as hot water is drawn off.

Average daytime temperature in the tanks is 110 to 125°F, slightly lower in

winter, higher in summer. Only 8° of heat are lost during the winter night. Cost of the solar water heating system was about \$200.

"There are no pumps, no motors or antifreeze," Ron says. "All I have to do is close the lid at night during the winter."

Ron's record of system performance is based on water-heating costs of his electric water heater. Public Service Company provided a meter to check kilowatt/hours used by the appliance. It used twice as much energy on cloudy days as it did on bright days when his solar system was functioning at maximum. Ron estimates that the solar system is about 35% efficient.

Walls of Ron's house contain 1¼" polyurethane foam and 3½" of fiberglass insulation. The roof above a 3' crawl space contains 12" of fiberglass insulation. The floor has 6". Living area of the house sits on top of a double garage and workroom area. All windows are double paned.

Inside the house, a massive rock structure encloses a Franklin wood-burning stove. The overhang roof over the south-facing balcony is designed so that the winter sun falls on the rock. This, combined with the wood-burning stove, makes the rock a heat storage device. Sunlight in summer is blocked from the living room by the same overhang.

"There's no way to accurately measure the efficiency of all this," Ron says. "With an electric heat pump, the house sure is comfortable. During the coldest month last winter my heating bill was only \$30."



You might label this story: from Evel to Evil with Ideal. When Evel was jailed for assault, sales of Ideal Toy's Evel Knievel stuntcycles fell further than the bottom of the Snake River Canyon. So the toy company let Evel's contract lapse. Their new version of the stuntcycle will be ridden by Frankenstein characters. One will be called the Frankencycle, the other the Dracucycle. (We wonder if the new contracts were signed in blood.)

AS RARE AS A DAY IN MAY or the return of Haley's comet is finding all five of Sandia's cinematographers in town at the same time. Left to right: Gene Moore, Wayne Hancock, Elliot Harris, Bill Geck and Wayne Gravning (all of 3153).



Going Concern

GGHH&M Take Pictures

A "cinematographer," as most can figure out, is a motion picture cameraman, and Motion Picture Division 3153 under Bob Colgan has five of the species: Wayne Gravning, Bill Geck, Wayne Hancock, Elliot Harris and Gene Moore. Their film work for the Labs is an exercise in variety covering, for example, weapon safeguards, B-61 tests, barrier technology, railcar/cask burn tests, electron beam facilities, full-scale crash tests, the 5MW solar facility,

explosive tests, solar irrigation, photovoltaic generators, and radioactive cask decontamination.

Last year the group turned out 175 films on these and other subjects.

Sandia's cinematographers are cameramen first—and then they are editors, mixers of sound tracks, and conforming editors (an editor who integrates various film footage into a form from which final release prints are made). They work with

writer/directors on sound films and on their own silent films, taking their story cues (and schedules for their nearly constant travel) from technical consultants.

While filming Sandia's technical mission is their business, travel is their way of life. They keep moving. Much of the travel is predictable—to Tonopah Test Range, to the Nevada Test Site, to Oak Ridge, to White Sands. But there's more, and their ports of call read as if they were plotted by a schizoid travel agent: Amarillo, Hawaii, Thule (Greenland), Lake Mead, Pt. Barrow (Alaska), Big Piney (Wy.), Calgary, and Palestine (Texas, not Israel).

It's interesting but not all roses. Wayne Gravning: "We usually travel alone and have to tote maybe half-a-ton of gear—cameras, lights, battery packs, stands, and so on. So you end up, say, taking pictures inside a metal building in the Mojave Desert, temperature around 120. Or in a salt mine, or outside in a rain storm in the red mud of Alabama. Still, I'd rather be doing this than most any other job."

Despite the obstacles, satisfaction comes from producing a quality film that serves an important purpose. And there's additional satisfaction in the many awards conferred on their films by the industrial film makers' professional societies.

Next time you see one of Sandia's cinematographers, step up and say hello. But act on your first impulse—he's not likely to stay in one spot very long.



LEADERS from the Hispanic community recently visited Sandia for discussions about the Labs with President Sparks. Standing at left is Vicente Ximenes of the American GI Forum. Seated are Robert Barela of the Employment Security Commission and Lorraine Gutierrez, APS board member. Joe Cordova, director of the regional office of the Veterans Administration stands behind Ms. Gutierrez.



Two professors at the University of Iowa's School of Social Work have published a book they hope will improve the lives of those who work at improving the lives of others.

Their suggestions seem somehow universal: Don't standardize, individualize. Don't develop routine procedures, leave room for judgment. Decentralize decision making. Don't monitor, make yourself a model. In this way, they conclude: "Security can be turned into risk, submission into leadership, apathy into challenge, coldness into relationship and management into administration (which means to minister, to support)."

Speakers

L. D. Tyler, C. W. Smith and R. C. Bass (all 1111), "Residual Stresses Formed by Explosions in an In Situ Stress Field"; L. D. Tyler, "In Situ Hydraulic Fracture Studies," 19th U.S. Symposium on Rock Mechanics, May 1-3, Mackay School of Mines, University of Nevada, Reno.

C. K. Ford (5432), "Assessment of Nuclear Power Plant Siting Methodologies," New York City meeting, Operations Research Society, May 1-3.

B. Stiefeld (5715) and R. N. Tomlinson (9344), "A Minicomputer Based Data Acquisition and Analysis Systems for Vertical Axis Wind Turbine Testing"; D. M. Darsey (9344), "Master Control and Data System for the 5MW Solar Thermal Test Facility"; E. D. Thalhammer (9344), "Real Time Computer Control of 5 Megawatts of Solar Thermal Energy"; R. P. Reed (1116), "A Diagnostics-Oriented System for Thermocouple Thermometry"; R. P. Reed, "A Diagnostics-Oriented Temperature Measurement System"; B. D. Hansche (9352), "Laser Ray Trace Tester for Parabolic Trough Solar Collectors," 24th Annual ISA Instrumentation Symposium, May 1-4, Albuquerque.

A. M. Lindrose and T. R. Guess (both 5844), "Temperature Dependent Properties of Polyvinyl Butyral (PVB) and Their Effect on Focal Stability of Solar Reflections"; N. J. DeLollis (5813), "Activated Gas Reactions with Silicone and Epoxy Resins"; E. D. Reedy, Jr. (5844), "A Composite-Rim Flywheel Design," 23rd National SAMPE Symposium & Exhibition, May 2-4, Anaheim, Calif.

S. S. White, G. S. Snow, R. A. Cooper (all 2521), and J. R. Armijo (2523), "High Field Varistor Materials," invited paper, Graduate Seminar, Ohio State University, Department of Ceramic Engineering, May 4, Columbus.

R. L. Knight (5411), "An Implicit Close-In Coupling Algorithm," 1978 Nuclear EMP Meeting, May 6, Albuquerque.

G. S. Snow, S. S. White, J. R. Armijo and R. A. Cooper (all 2521), "High Field Varistors Based on ZnO/PbO/Bi₂O₃"; E. K. Beauchamp (5846) and J. C. Swearingen (5835), "Strength and Fracture Toughness of Glasses Containing Spherical Inclusions"; R. H. Marion (5846), "Thermal Stress Resistance of Graphite Matrix Fuels for Pulsed Reactors"; R. E. Loehman (5846), "Structural Transformations in Si₃N₄," "Influence of Second Phase on the Thermal Diffusivity of B₂O₃-SiAlON," "Oxynitride Glasses"; C. P. Ballard (5845), "Devitrification of a Li₂O-BaO-SiO₂ Glass Ceramic," "High Pressure Glass Ceramic Seals"; R. J. Eagan (5845), "Glass-Ceramic Molybdenum Seals"; S. S. White (2521), "Compatibility Analysis of a Thick Film Multi-layer System," 80th annual meeting of the American Ceramic Society, May 6-11, Detroit.

W. E. Stocum (3311), "Evaluation and Testing of Local Exhaust Ventilation Systems," American Industrial Hygiene Conference, May 7-12, Los Angeles.

J. E. Campbell, P. E. McGrath (both 5413) and M. C. Cullingford (NRC), "Development of Risk Assessment Methodology Applicable to Radioactive Waste Isolation"; R. Easterling (1223), "Probabilistic Analysis of 'Common Mode Failures'"; A. D. Swain and H. E. Guttmann (both 1223), "Human Reliability Analysis of Dependent Events"; D. C. Aldrich, P. E. McGrath, R. B. Jones (all 5413), and D. M. Ericson (5412), "Examination of Offsite Emergency Protective Measures for Core-Melt Accidents"; S. Daniel (5411) A. DuCharme, N. Finley, M. Tierney (all 5413), and J. Taylor (1233), "Risk Analysis Modeling of Transportation of Radioactive Material Through an Urban Environment"; J. W. Hickman, S. V. Asselin, D. D. Carlson (all 5412), and M. A. Taylor (NRC), "A Methodology for Determining Accident Sequence that Dominate Risk in LWR Power Plants"; J. L. Spring (5413), W. D. Brown (1353), H. W. Church (5443), P. E. McGrath, L. T. Ritchie (both 5413), A. J. Russo (1261), G. P. Steck (5121) and J. R. Wayland (1141), "Investigations of the Adequacy of the Meteorological Transport Model Developed for the Reactor Safety Study"; D. D. Carlson, J. W. Hickman (both 5412), and M. A. Taylor (NRC) "WASH-1400 Insights Utilized in Assessing Alternate Containment Designs"; R. B. Worrell (1758), "Using Variable Transformations to Perform Common Event Analysis"; S. V. Asselin, D. D. Carlson, J. W. Hickman (all 5412), and M. A. Fedele (EAI), "System Event Tree Analyses for Determining Accident Sequences that Dominate Risk in LWR Power Plants," Probabilistic Analysis of Nuclear Reactor Safety, ANS, May 8-10, Los Angeles.

E. D. Niper (1327), "A Sensitive Three-Axis Accelerometer System for Offshore Sediment Motion Studies"; E. W. Reece (5733) and D. E. Ryerson (1327), "Development of an Experimental Marine Sediment Instrumentation System," Offshore Technology Conference, May 8-11, Houston.

J. T. Cutchen and J. O. Harris (both 2524), "Design



NEW MEXICANS are always bragging on their weather, and herewith we submit pictorial proof of its high quality from a single weekend of great weather. At left Vicky Baca (Equitable) takes her ease among the remains of a patio table set up outside Bldg. 814. The table and the wind had a disagreement. Next is Mike Baremore, son of Jim (2322), who holds aloft not a marshmallow but a genuine golf-ball-sized hailstone, recovered outside Tucumcari. We understand a tornado was also sighted in the vicinity.

and Evolution of the EEU-2/P PLZT/TFPD Goggles to Meet USAF Life Support Requirements"; J. O. Harris, J. T. Cutchen (both 2524) and B. J. Proff (USAF), "Operational and Environmental Test Results of the PSZT EEU-2/P Thermal-Flash Protective Goggles," Aerospace Medical Association annual Scientific Meeting, May 8-11, New Orleans.

K. R. Prestwich, D. L. Cook (both 5246), and G. Yonas (5240), "Pulsed Power Technology for Inertial Confinement"; D. L. Cook, "Design of Compact Particle-Driven Inertial-Confinement Fusion Reactors," Third ANS Topical Meeting, May 9-11, Santa Fe.

H. S. Lauson (5162), "PLT3D: A Program for Plotting Surfaces with Hidden Line Removal," Albuquerque ACM SIGNUM Monthly Meeting, May 10.

R. G. Easterling (1223), "Let's Put An End To 'Common Mode Failures'," American Statistical Association, April 12, Santa Fe.

G. L. Cano (5423), "Energy—An Overview," faculty symposium on energy, April 5, WNMU.

N. J. DeLollis (5813), "Travel In Italy," Evening Optimist Club, April 6, and Adult Fellowship Group, First Presbyterian Church, April 9, Albuquerque.

H. R. Shelton (3521), "What Does Your Bumper Sticker Say?" Duke City Exchange Club, April 6, and Sandia Kiwanis Club, April 25, Albuquerque.

H. C. Monteith (5411), "UFOs and Their Mission to Earth," New Futures School social studies class, April 19; Manzano Sunrise Kiwanis Club, April 24; and Duke City Exchange Club, April 27, Albuquerque.

R. M. Jefferson (5430), "Options in Electrical Power," Duke City Exchange Club, April 20; "Transportation of Nuclear Material," Heights Optimist Club, April 26, Albuquerque.

E. C. Boes (5719), "Solar Energy Research," Sandia Civitan Club, April 21, Albuquerque.

G. C. McDonald (9636), "The Solar Assist Greenhouse," Forest Service Club, April 27, Albuquerque.

C. J. Northrup (5824) and T. M. Gerlach (5831), "Potential Fuel (Hydrogen) Production," invited lecture; Project of the Future: United Nations Institute for Training and Research, April 3, New York City.

W. R. Davey (5166), "Nuclear Explosion Height-of-Burst Study," LLL, April 28.

W. N. Sullivan (5715), "The Structural Performance of the DOE/Sandia 17-m Vertical Axis Wind Turbine"; E. G. Kadlec (5715), "DOE/Sandia Darrieus Program Status," SAMPE Conference, May 1, Los Angeles.

W. V. McLevege (5133), "Reliability Concerns and Life Test Procedures for Concentrator Solar Cells," Workshop on Stability of (Thin Film) Solar Cells and Materials," May 1-3, Gaithersburg, Md.

D. J. Sharp (5834), "Environmentally Stable Sputter-Deposited Thin Films," Varian Semiconductor Processing Seminar, May 2-4, Palo Alto.

G. A. Samara (5130), "The Role of High Pressure in the Study of Soft Mode Transitions in Solids," Research Colloquium, Montana State Univ., May 4, Bozeman.

Capt. B. D. Crane (AFWL/ALC), A. W. Johnson and L. Dishman (both 5216), "Current Progress in the Measurement of the 404 cm⁻¹F Atom Transition,"

Tri-Service Chemical Laser Symposium, May 4-5, Silver Springs, Md.

R. P. Clark (2523), invited paper, "Study of Heat Generating Reactions in Ca/CaCrO₄ Thermal Batteries," Mile High Symposium on Electrochemistry, Colorado State Univ., May 6, Fort Collins.

S. T. Picraux (5111), "Channeling Effect Studies of Deuterium Atom Location in Crystals," and "Application of Ion Channeling to Studies of Extended Defects by Dechanneling Analysis," U.S.-Japan Seminar on Fundamentals and Applications of Particle Channeling, May 8-13, Tokai-mura, Ibarakiken, Japan.

C. E. Land (5133), "Photoferroelectric Effects in Ferroelectric and Anti-ferroelectric Phases of PLZT," EE Graduate Seminar, Univ. of Illinois, May 11, Urbana.

H. D. Sivinski (5335), "Some Effects of Nitrogen Source on Anaerobic Growth of *Chromobacterium violaceum*"; R. Ward (5335), "Mechanism of Poliovirus Inactivation by Ammonia," Annual meeting of American Society for Microbiology, May 14-19, Las Vegas, Nev.

L. C. Beavis (2353), "Vacuum Gas Analysis," and "³He Desorption From Tritides and Some Thermodesorption Measurements," Material Colloquium, May 16, LLL.

J. A. Cooper (2331), "Techniques for Digital Data Transformation and Monitoring," NAECON, May 16, Dayton, Ohio.

D. L. Mangan (1754), "DOE-Sponsored Evaluations of Interior Intrusion Detection Systems," 1978 Carnahan Conference on Crime Countermeasures, Univ. of Kentucky, May 17-19, Lexington.

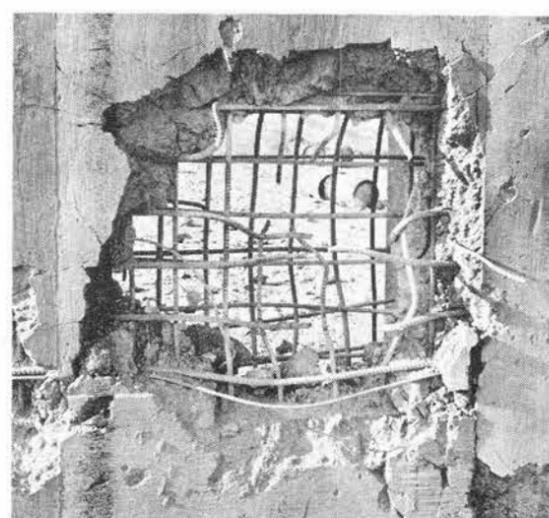
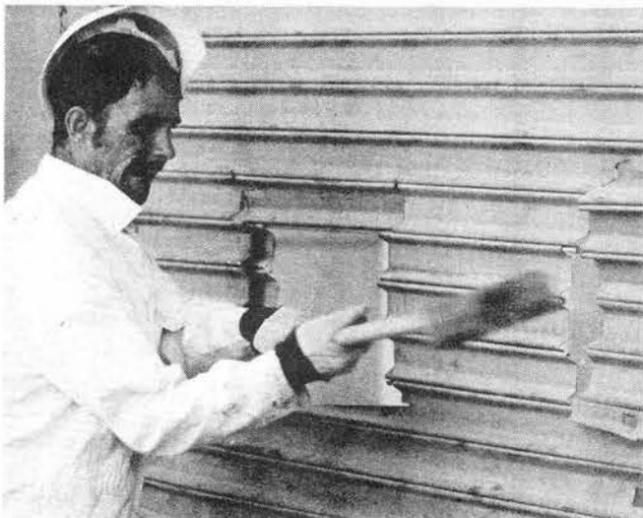
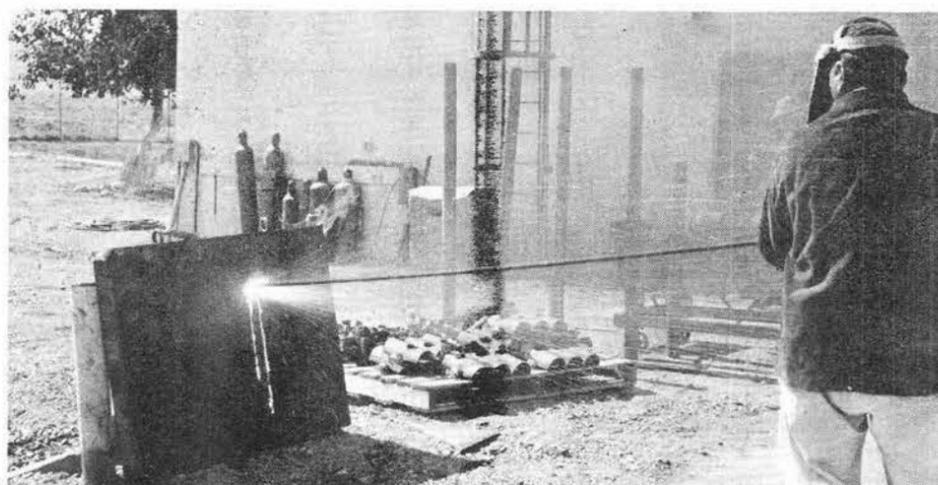
G. R. Case (2113), "The SALOGS Digital Logic Simulator," 1978 IEEE International Symposium on Circuits and Systems, May 17-19, New York City.

L. C. Bartel (5737), "Modeling of Three-Dimensional D.C. Electrical Problems Using Integral Equation Solutions," Workshop on "The Modeling of Electrical and Electromagnetic Methods," May 17-19, Lawrence Berkeley Laboratory.

D. H. Loesch, V. A. Wells and J. K. Maurin (all 2141), "CVD of SiO₂"; M. A. Butler (5154), "Aging Effects in Defect Doped Semiconducting Electrodes"; D. S. Ginley and M. A. Butler (both 5154), "Surface Chemistry and Flatband Potential for the CdS Photoanode"; M. L. Knotek (5155) and D. S. Ginley (5154), "Study of the Defect Chemistry of the TiO₂ Surface"; S. T. Picraux (5111), "Ion Channeling Analysis of the Crystalline Quality of Si-On-Sapphire"; W. A. Smyrl and S. L. Pohlman (both 5831), "Calculator Based Digital Signal Analysis in Corrosion Applications"; H. J. Stein (5112), V. A. Wells (2141) and R. E. Hampy (2151), "Properties of Plasma-Deposited Silicon Nitride"; W. H. Smyrl (5831), "Current and Potential Distributions in Circular Geometries," Electrochemical Society meeting, May 21-26, Seattle.

R. B. Pettit, J. M. Freese (both 5842), and D. E. Arvizu (5713), "Specular Reflectance Loss of Solar Mirrors Due to Dirt Accumulation," Testing Solar Energy Materials and Systems Seminar, May 22-24, Washington, D.C.

L. F. Shampine (5122), "Solving ODE's with Discrete Data in SPEAKEASY," Symposium on Recent Advances in Numerical Analysis, May 22-24, Madison, Wis.



INCREASING THREAT OF THEFT OR SABOTAGE of nuclear materials by terrorists prompted study of effectiveness of barriers used in industrial plant security systems. Results of studies were recently published by Org. 1711 in *Barrier Technology Handbook*. Data was compiled from Sandia tests as well as tests by several DoD agencies and deals with such topics as resistance of chain

link fences to vehicles (upper left), of laminated walls to fire tubes (upper right), of vehicle doors to sledge hammers (lower left), of pedestrian doors to power saws (center) and of thick reinforced concrete walls to explosives (lower right).

An Aid in Assessment

Barrier Technology Handbook Published

The growing threat of theft or sabotage of nuclear materials by terrorist groups has underscored the need to assess physical security at industrial plants. That task has been helped along by the recent publication of the *Barrier Technology Handbook*—a volume compiling the results of tests and evaluations of barriers by Milt Madsen's Barrier Technology Division 1711 and several DoD agencies.

"Before terrorism became a threat," Milt told us, "physical security at industrial facilities was designed to deter sporadic thievery. Traditional fences and locked doors and gates were considered adequate deterrents. But no more.

"Terrorists present a different problem. They could be heavily armed, highly trained, well equipped and determined. We assume they'd try to avoid detection or use false identification in an attempt to gain entrance—or even forcibly attack the site.

"Protection against threats of this kind takes more than a stronger lock or higher fences. It takes a physical security system—sensors that detect intruders, some rapid means of assessing the detection alarm (such as CCTV), communication, physical barriers and a response force. And all of the elements have to work together in a timely manner."

Under sponsorship of DOE's office of Safeguards and Security, Milt's group has constructed and then demolished walls, attacked barbed tape entanglements, strained at doors, armor, gates, locks and vaults. They have also looked at dispensable deterrents, earth covers and igloos. Their goals are twofold: (1) to provide data for evaluating the resistance

of existing barriers to a wide spectrum of tools and attacks, and (2) to help designers upgrade physical protection systems.

The *Barrier Technology Handbook* addresses both goals. Initial distribution exceeds 800 copies and it is being sent to safeguards and security people in DOE, NRC, DoD, other government agencies, private industry and some foreign countries. The handbook complements two handbooks previously published by 1700—the *Intrusion Detection Systems Handbook* and the *Entry Control Systems Handbook*.

We also talked with Ira White, project leader of the 1711 Barrier Group about the design rationale of physical security systems.

"One thing we have to accept," Ira told us, "is that no barrier can stand up indefinitely to a determined and well-equipped adversary. A barrier can only delay him—sometimes for seconds, sometimes minutes. So we concentrate on methods to slow him down, to keep him busy until a response force arrives.

"Our objective is to force the adversary into a complex operation—make him bring more sophisticated tools and additional equipment, make him work longer and harder. There are a number of ways of accomplishing this. For example, you might start with a series of barriers, each of which presents its own problems. The outermost barrier could be simple—say, chain link fences. These can be breached quickly, but in the process the terrorists may set off an alarm and start the cycle of evaluation and response.

"Along the way, you could complicate things by installing vehicle barriers like truck tires half buried in the ground, taut

cables, earthen mounds or concrete sections. Precious time would get eaten up either removing the impediment or hand-carrying breaching aids to the next barrier, whatever that might be.

"At some point, the terrorists would probably face concrete walls. Now they need explosives. And if the walls are thick and heavily reinforced, they'd need large quantities of explosives—perhaps even have to make multiple explosive attacks before they breached the wall. If they got through a wall of that type, they might then encounter a second wall and later even a vault. It all depends on how you put the system together—and there are a great many ways of doing that.

"The goal," Ira concluded, "is to slow down the adversary, to escalate his problems, to keep the clock ticking...and ticking...and ticking."

Contributions to this end, all detailed in the *Barrier Technology Handbook*, include Ira's own studies of walls (and special projects); Joe Crompton's work on utility ports and vehicle doors; George Dykes' on armor; Martin Kodlick's on pedestrian doors and perimeter barriers; Frank Norris' on earth cover, gates and igloos; Dick Simmons' on aircraft deterrents, windows, roofs and vaults; Joe Williams' on locks and locking mechanisms. Neil Hartwigen (1712) worked on chemical deterrents and Zack Ortiz handled all test coordination for the 1711 project group.



The world's only known Smilologist (psychologist James McConnell of the Univ. of Michigan) reports that most of us smile a lot less than we think we do. In his words, "When it comes to smiling, most of us rank closer to Attila the Hun than we do to President Carter."

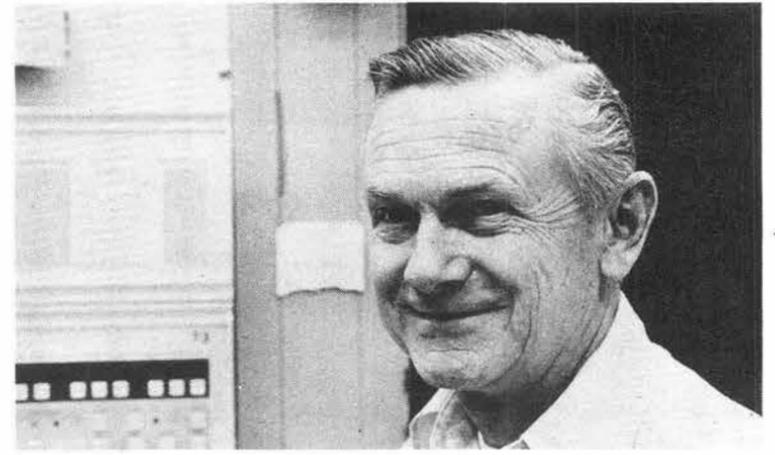
MILEPOSTS

LAB NEWS

JUNE 1978



Joe Salas - 3423 15



Leo Navoda - 1245 25



Soila Brewer - 4337 10



Fred Thome - 8261 20



Don Benton - 8411 25



Melvin Smith - 9563 15



Tom Stevenson - 4338 25



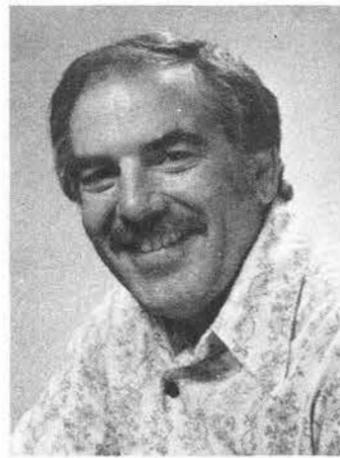
Danny Mitchell - 8153 10



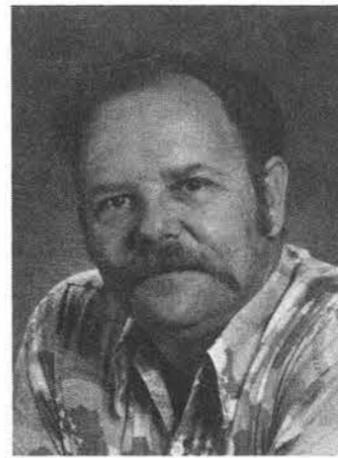
Frank Gurule - 3725 30



George Treadwell - 5715 25



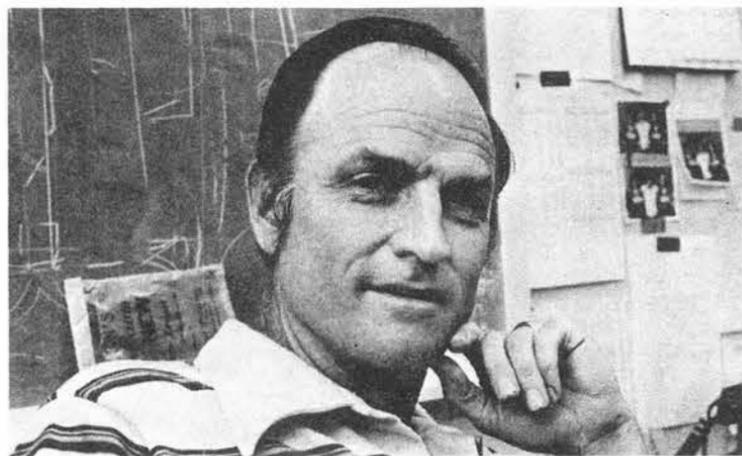
Larry Brown - 8441 15



Jim Dugger - 8354 20



Dale Berg - 1334 10



Charles Karnes - 5835 15



Ed Franzak - 2550 20



Lynn Zirkle - 8166 15



Billy Sanders - 8354 10



Roy Hay - 9713

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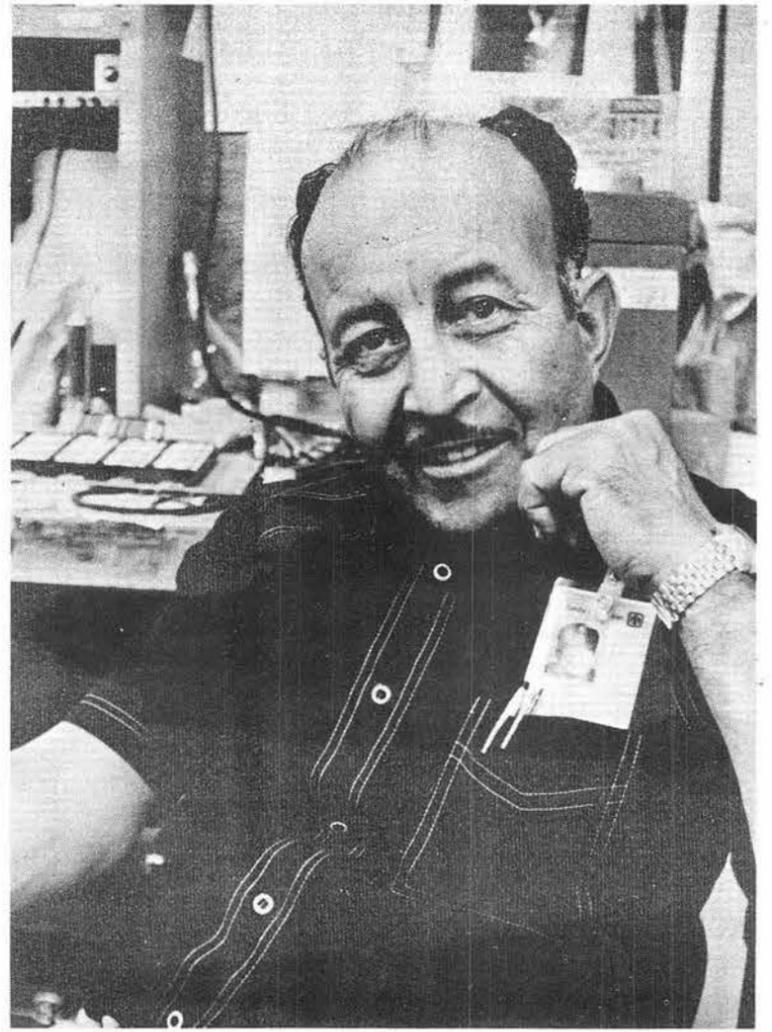
Ross Sinkey - 1762

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Jack Marceau - 9354

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Murph Martinez - 1762

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Parker Jones - 1231

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Kip Blossom - 1739

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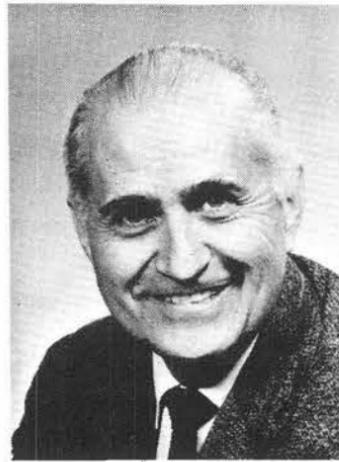
Ken Grant - 9743

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Jay Chamberlin - 2551

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Gil Lenert - 9341

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Don Goodrich - 9414

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Sam Blaylock - 9718

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Leonard Parsons - 9524

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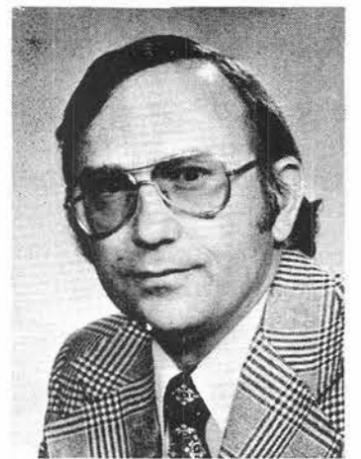
Frank Keene - 2100

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Marcella Hightower - 3255

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Bob Eldredge - 3254

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Gene Harling - 9400

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Floyd Coppage - 4343

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Ellen Martin - 2633

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Events Calendar

- Through July 16—"The Second Time Around," the Barn Dinner Theatre, 281-3338.
- June 9-11, 16-18, 23-25—"Fiddler on the Roof," Albuquerque Civic Light Opera, Popejoy, 277-2317.
- June 9-11—12th Annual Intertribal Powwow, Albuquerque Indian School, 12th and Menaul.
- June 13—San Antonio Feast Day at Sandia, San Ildefonso, Santa Clara and Taos Pueblos.
- June 16-18—Red River Valley Festival '78, Blue Grass music, Red River, NM.
- June 18—Cambio Fiesta, Spanish Village, State Fairgrounds, 243-5668.

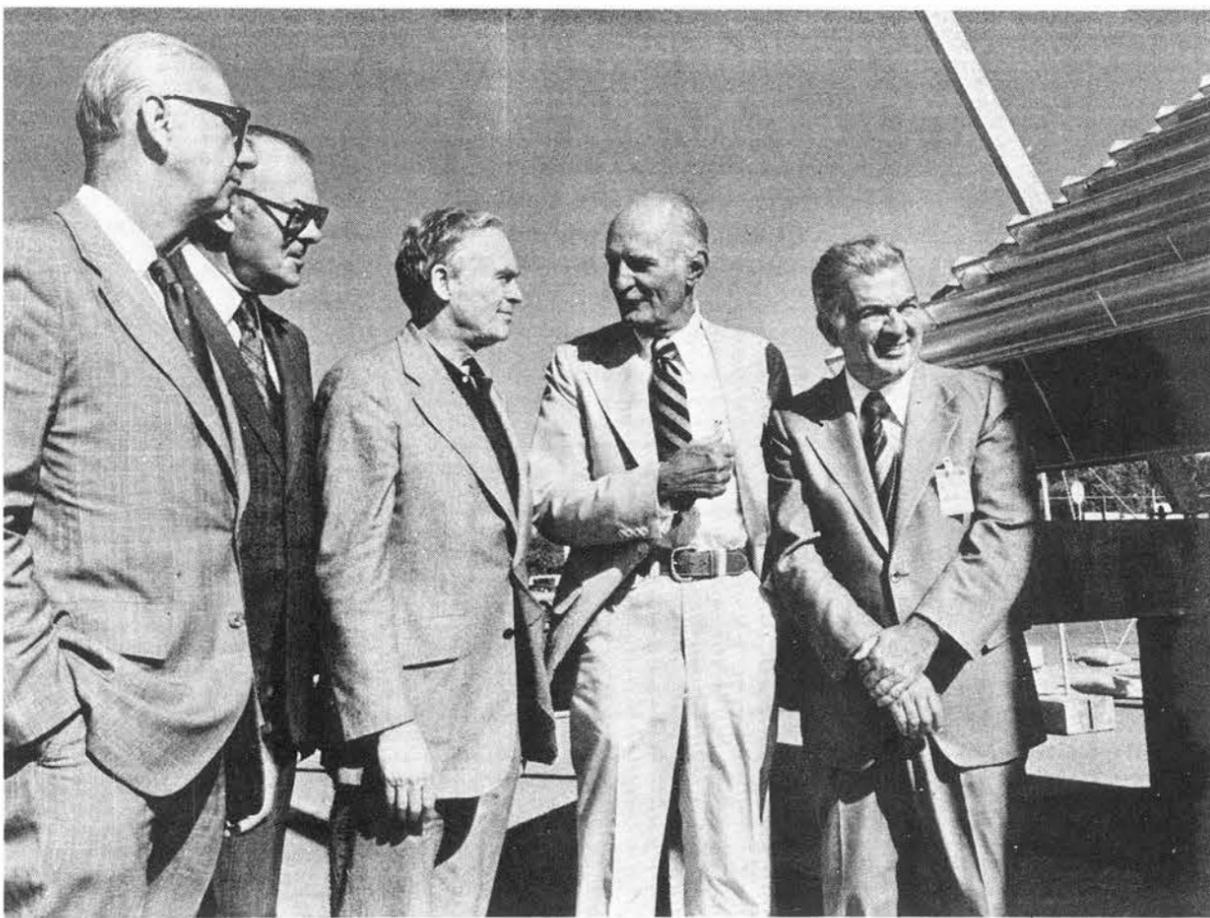
Sympathy

To Evelyn Pafford (2626) on the death of her father in Albuquerque, May 8.

To Robert Chavez (9718) on the death of his brother May 19 in Albuquerque.

To Richard Bryant (9573) on the death of his mother May 31 in Albuquerque.

To Prospero Toledo (9718) on the death of his sister-in-law June 1.



BOARD OF DIRECTORS met at the Labs last week for their annual meeting. Following a day of conference, the group toured several Sandia facilities, including the Midtemperature Facility near Bldg. 832. From left, Phil Hogin, Don Thomas, Kenneth McKay, President Sparks and Guy Accettura. Several Board members were unable to attend the meeting.

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 (814/5).

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 ERDA 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

- TRASH BAGS, city approved, \$4/box, \$20/case of 6, South Hwy. 14 Project. LAB NEWS office, Bldg. 814.
- BARGAIN BOOK SALE. Unprecedented clearance, hundreds at 5 cents each. LAB NEWS office. Bldg. 814.
- ALFALFA, 700 bales. 864-7234, Belen.
- 35MM CAMERA, Fujica V2, automatic, f1.8 lens, speeds to 1/1000th, case and flash, \$75. Roth, 877-4997.
- ¾ ARABIAN FILLY, sired by Bay Rabus out of Cheyenne Cindy, both grand champions. Traver, 898-4255.
- 73 TRAVEL TRAILER, Starcraft, Wonder Star series, 24 ft. Cihak, 345-3124 after 5.
- G.E. ELECTRIC RANGE, \$75; Shower doors, brand new, \$20. Martinez, 296-2346.
- DOUBLE BED, boxsprings and mattress, \$10; new frame and headboard, \$30; new gold velour bedspread, \$10. Kerschen, 821-2848.
- DRYER, 110 volt, harvest gold, Apt. sized, \$25. Johnson, 836-3164.
- PING PONG TABLE, 5/8 in. thick. Rolls but will not fold. Kenna, 298-6059.
- RIDING LAWN MOWER, Rotary Snapper, \$450. 299-7813 after 6.
- TORO ROTARY LAWNMOWER, 21", rear bagger, self-propelled. Serviced & sharpened for summer. \$100. Hardin, 293-5679.
- RUSTIC KITCHEN CUPBOARDS with flagstone tops, built-in working electric range, oven, sink, dishwasher. \$400 entire unit or sell separately. Gregory, 344-4419.
- ZIGZAG SEWING MACHINE in cabinet. 293-2617 after 4:30, Eads.
- COMPONENT STEREO: Scott solid-state amplifier and tuner, Garrard Lab-80 changer, Realistic Electrostat-4A speakers, 11 yrs old, \$250. Schkade, 293-7453.
- HYDRAULIC JACK, 8 ton cap., NAPA Fleet 91-228, 9" high, raises 10", \$35. Hernandez, 268-5000.
- ALLIS CHALMERS PLOW, 3-bottom, 2-way, 16". New cylinder, hoses,

- wheel bearings, \$850. Shank, 877-4497.
- TENDERFOOT CAMPER SHELL, fits LWB, inside and running lights, \$300 firm. Armijo, 268-7645.
- HONEYWELL PENTAX SP-500, f2/55mm, \$80; Yashica TL-Super, f1.7/50mm, \$75; Wen jig saw, \$10; Hoover upright vacuum cleaner, \$15. Sutherland, 266-1734.
- PING PONG TABLE, \$60; electric train set, \$50; swing set frame/attached monkey bars (no swings), \$15; '65 VW rear bumper, \$15. Hart, 255-2133.
- MUSIC MAN AMPLIFIER, four 10" speakers, 18 mos. old, \$444. Esterly, 881-1973.
- MAG WHEELS: two 14" U.S. for Chev.; two 14" Shelby's for VW; two slalom water skis. 293-5162 after 5.
- GREAT BOOKS, 54 vols/Syntopicon plus 10-vol set of Great Ideas program, all for \$200. Tendall, 256-0712.
- SYLVANIA COLOR TV, 21", nearly all solid state. Make offer. Hymer, 298-2232.
- SYLVANIA B&W TV, 19"/stand, \$75. Nance, 296-8255 after 5 and week-ends.
- PAINT SPRAYER, portable electric, compressor with 1 qt. paint cup, \$45; two-point system camper jacks, \$45. Klecotka, 821-1466.
- COINS: uncirculated Kennedy halves, silver dollars, Indian cents, Lincoln cents, Liberty nickels, Buffalo nickels, Liberty dimes. Lassiter, 298-2461.
- SKATE BOARD, Fibreflex board w/ tracker trucks and Sims pure juice wheels, \$24.50. Snelling, 294-5751.
- KITCHEN TABLE, white formica, 48" round, six white chairs, \$100. Amole, 299-1788.
- SOFA BED, full bed size, \$75. Schooley, 266-6706.
- KODAK XL-33 movie camera; standard seat for Honda GL-1000. Perryman, 294-6113.
- CANARIES, yellows, whites, red factors, crested. Singers, \$35-\$40; hens, \$15-\$20; cages, \$4-\$15. Riggan, 268-1961.
- CLEAN BENCH for allergy sufferers, \$50. Rarrick, 296-2340.
- G.E. TV, b&w, 12", \$50; AM car radio from 74 Dodge Colt, \$15. McConnell, 256-7321.
- HIKING BOOTS, Vasque, size 6M: gold shag carpet and pad, 12"x12". Dennis, 293-4168.
- CARPORT COVER, 12"x24", 40 lb snow load, \$115, you move. Womelsduff, 296-9485.

TRANSPORTATION

- 74 ALFA ROMEO Berlina 2000, 5-speed, AM/FM cassette, AC, 5 new radials, alloy wheels. 266-0319 after 6.

- 74 YAMAHA RD-350, 5000 mi., new crash bar, sissy pad/pouch and luggage rack, \$595. Chavez, 296-8691.
- 75 DODGE RAMCHARGER, 4WD, SE package, wide radials, \$5500. Hopper, 292-3059.
- 77 VEGA COUPE, 4-speed, 4-cyl. Weaver, 898-7716.
- 73 VEGA WAGON, \$595. Pat, 842-6035.
- 72 INTERNATIONAL TRAVELALL, Model 1010 custom, complete towing package, AC, PS, PB, 3-speed auto., new tires, under book at \$2400. Morgan, 299-2850.
- 73 HONDA 500cc CYCLE, 4-cyl, new battery, Candy gold, \$775. Johnson, 836-3164.
- 73 FIAT SEDAN, Model 128A, all original. Take older American car in trade. Smitha, 881-1001.
- 73 MERCURY COUGAR, XR-7, below book, 351 AT, AC, PB, PS, stereo. Bagg, 298-4035.
- 71 CHEVY WAGON, AC, PS, PB, radio, luggage rack. Nuttall, 821-2895.
- 78 KAWASAKI K2 200, 7 mons old, \$650. Peet, 294-1250.
- 77 CHEVROLET CONCOURS, 4 DR, V-8, AC, PS, PB, stereo, deluxe interior. Hay, 836-4173.
- 47 CHEVY ONE TON, nine ft. bed, new valve job, new windows, \$700. Armijo, 268-7645.
- 71 BUICK SKYLARK, 4 dr, 6 cyl, one owner, new tires, battery, brakes, radiator. Siegrist, 299-3088.
- 74 VW K.GHIA CONVERTIBLE. Classic, low miles, tonneau car cover. Serious enquiries only. Class, 281-3836.
- 69 MUSTANG, 3-speed, 6 cyl, low miles. Krumm, 294-4495.
- 68 FIREBIRD CONVERTIBLE, PS, PB, AC. Make offer. Falacy, 293-2517.
- LADIES 21" SCHWINN SUBURBAN 5-speed bike; Ladies 21" Schwinn Varsity 10-speed. Benson, 256-1350.
- GARELLI MOPED, running condition, \$275. Cordova, 877-4568.
- RALEIGH GRAND PRIX, 21" silver, 10-speed, \$150. Edelman, 266-7507.
- UTILITY TRAILER, U-Totum, 8"x4" open or 8"x4"x4" closed, includes fitted tarp, 14" wheels and spare, \$350. Marshall, 281-5821.
- TWO MATCHED MOTO-CROSS BIKES, Graco MX-500, rear shocks, front telescopic fork. Perryman, 294-6113.
- 72 OLDS CUTLASS, AT, PS, low miles, \$1700 or best offer. Biefeld, 292-1671.
- 71 CONTINENTAL MK3, new Michelins, paint, \$3195 firm. Schulze, 898-2880.
- DUNEBUGGY, 1600 cc, Manx body, street legal. Lewis, 881-7093.
- 74 DODGE VAN B300, AT, PS, PB, AC, carpeted and paneled, \$700 under NADA. Mitchiner, 281-3086.
- 70 KARMANN GHIA, Michelin steel

- radials, mag wheels, automatic stick shift, 8-track tapedeck, AM radio, \$1850. Martinez, 293-2301.
- 75 YAMAHA ENDURO DT250B, 4800 mi, \$600. Ewing, 268-6920.
- 68 FORD F-100 PICKUP, 360 CID, 3-spd, aux gas tank, roll bar, \$1350. Rarrick, 296-2340.
- 78 CHEVETTE, AT, AC, AM/FM stereo, CB in dash, luggage carrier, extras, 6000 mi, in warranty, \$3995. Hastings, 881-6789.
- 77 PONTIAC GRAN PRIX, silver with red cloth interior, PS, PB, radio, AC, \$200 under book. Perea, 255-6902.
- 73 VW SUPER BEETLE, AC. Palmer, 296-2551.

REAL ESTATE

- 3 BDR IN VOLCANO CLIFFS, 1508 sq ft, \$54,200. Cropp, 296-1877.
- ½ ACRE in Blue Ridge Estates, wooded/yr round stream, 15 mins from Breckenridge, Colorado, ski area, \$9500. Schwartz, 294-1113.
- 3 BDR IN PRINCESS JEANNE, custom built-in kitchen, 1½ tiled baths, Franklin FP, 10520 San Jacinto, \$39,500. 294-0327 after 5.
- 3 BDR, 1½ baths, wood floors, laundry room, quiet neighborhood, \$25,000. Cordova, 877-4568.
- 3 BDR MOBILE HOME, 1½ baths, stove, refrig, washer/dryer, skirted, in family park, \$7500. Daniel, 268-8335 after 5.
- 3 BDR IN S.E., LR w/FP, den, sewing, utility, dining, lg kitchen, carpeted hardwood floors, landscaped, 2050 sq ft, upper \$50's. Konnick, 298-1422.
- 3 BDR 5 blocks from Gibson Gate, mid \$40's, 1036 Dakota S.E. No agents. Chavez, 255-1585.
- CONDOMINIUM, Clubhouse, pool, tennis courts, 2160 sq. ft., 3 bdr., 3-bath, refrigerated AC, covered patio. Barncord, 296-1889.

FOR RENT

- 4 BDR, 1½ BATH, carpeted, FP, Den, walled yard, SE, furnished. Avail 1 July. Gomez, 256-1584.
- FOR LEASE: 3 BDR and den, all-brick in Netherwood Park north of UNM medical and law schools. Avail in July for 12 mons. Furnishings can be arranged. \$400/mon, deposit required. Edwards, 268-1026.
- 3 BDR, NE HEIGHTS, den, FP, corner lot, double garage, carpeting, drapes. Avail 1 June, \$350/mon. Johnson, 299-4383.
- MOUNTAIN CABIN on Hondo River near Taos ski valley. Sleeps 8, \$35/day, 3-day min. Peet, 294-1250.
- APARTMENTS, 2 & 3 BDR, range,

- refrig, dishwasher, drapes. Near shopping. White, 294-5504 or 293-2219 after 5.
- 4 BDR IN NE, carpeted, draped, LR, den, FP, all kitchen appliances, dining area, landscaped, fenced, \$385/mo. Moody, 292-2975.
- 3 BDR IN NE, 1½ bath, single garage, freezer, water pd, \$250/mon plus \$100 deposit. Widman, 268-0436.
- 2 BDR UNFURNISHED duplex, near bases, maintained private patio/yard, FP, AC, garage, storage, no kids or pets, \$240 plus utilities. Konnick, 265-1409.
- LAKEFRONT CABIN ON VALLECITO LAKE near Durango; available day/wk, fully furnished, 3 BDR w/FP. Vacation reservations. Croll, 881-7235.
- SANDIA MTN HOME, 7-room, 1½ baths, sunken tub; sleeping loft w/sun deck, view; furnished, 2 acres, \$375; available early July. Hawkinson, 455-9034 Livermore.

WANTED

- TILE SETTER, must like challenge. Approx 250 sq ft Mexican floor, counter and wall tiles. Alcone, 292-2028.
- PING PONG TABLE, folding type w/rollers. Volk, 299-1702.
- METAL FIREPLACE LINER (heatolator), fencing, windcharger & setting hens. Jenkins, 344-4405.
- HANDYMEN, PAINTERS, hauling, house sitting, mature college students, individual or together. Have tools & pickup. Stixrud, 298-0478.
- TEXTBOOK: "Principles of Reliability," by Eric Pieruschka, Prentice Hall, 1963. Once used in Sandia-sponsored course. Causey, 881-7534.
- ADDING MACHINE, electric. Coleman, 299-2377.
- WATER SKIING EQUIPT: ski-belts, ropes, skis, etc; boat ladder (fixed type); used Honda cycle (150 qr thereabouts). Chandler, 296-3323.
- SUMMER WORK, window washing, trash hauling, yard work, vacation watering, house sitting, Peter Shunny, 265-1620.

LOST AND FOUND

- LOST—woman's diamond ring in light gold setting; gold ring w/word love, diamond in "O"; twisted silver ring w/knobs on each side; small 3" knife, brown handle; man's pinkie ring, gold w/one diamond; ladies' silver Timex watch.
- FOUND—key marked GAS A-863; white windbreaker; microphone for recorder. LOST AND FOUND, BLDG. 832, 264-1657.

Take Note

The Corrales Adobe Theater opens its season this weekend with a children's show, "A Witch's Historical Switches," all about witches, warlocks, magic and enchantment. It runs June 10-11, 17-18, and 24-25 with performance time at 2 p.m. Tickets are \$1 at the door. Or you can give less fortunate kids a happy afternoon by buying tickets for them as a charitable donation. Call 294-5729 or 842-9653 if you're interested.

* * *

"The Jeaning of America" is the clever title of the Museum of Albuquerque's newest exhibition which is all about—you guessed it—blue jeans. The museum's release states that 516 million pairs of jeans were sold in 1976 for \$4.5 billion, and if all those jeans were placed end to end, well, their occupants would probably get a little weary. The exhibition includes reproductions of early jeans and bib overalls, a WWII denim flight suit and, *piece de resistance*, a pair of Hopalong Cassidy's jeans. There's an ingenious-but-dubious explanation of the term "jeans" offered in the museum's write-up: "The term *jeans* originated with Italian soldiers who named their denim pants after their home city, Genoa (JEEN-OH-AH)." If they'd come from Palermo, would we be wearing tight pals today?

* * *

If you have a restive 9th grader at home this summer, then consider the Energy Resources Seminar being jointly offered to young people by the National Atomic Museum and the Junior League of Albuquerque. It runs weekdays from July 10 to 21, 9:30 to 12 noon, at the Museum here on KAFB. The seminar features field trips and science projects, and a number of speakers, including several from Sandia, will discuss various aspects of energy. The young people will visit a geothermal site in Los Alamos, Sandia's power tower, the wind turbine and other energy installations. Cost is \$5. LAB NEWS, Bldg. 814, has a supply of registration forms.

* * *

Speaker for the June 14 colloquium is Robert Salter of the Rand Corp. Title of his talk is "Planetran—High Speed Electromagnetically-Driven Subway System." The colloquium will be held in Bldg. 815 at 10:15 A.M.

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Several Sandians will present their *objets d'art* at the New Mexico Arts & Crafts Fair which is set for the weekend of June 23-25. As usual, it will be held in the State Fairgrounds. Admission is a buck; parking is free.

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Elaine Howard, Division 115/116 has been elected President of the New Mexico Division of the National Secretaries Association. As such, she will represent the New Mexico Division at NSA's International Convention in Vancouver, British Columbia, in July.

Coronado Club Activities

Luau Scheduled Saturday, June 17

TONIGHT Smoothie is on the bandstand to make the Happy Hour music while the kitchen staff puts veal cordon bleu on the buffet. You are encouraged to pick up your Friday buffet tickets earlier in the week to help the staff with meal planning. Next Friday's Happy Hour buffet features tenderloin tips; Martha Kay Trio on the bandstand.

THE BIGGIE of the year is the Club's annual Luau. This year it's set for Saturday, June 17. In addition to a bountiful spread of Polynesian goodies—Kalua roast pork, Hawaiian sweet and sour chicken, baked halibut, fruited teriyaki, etc.—Freddie Baker and his troupe of a dozen or so hula skirted South Pacific dancers will entertain. Break out your sarongs and wild sport shirts; the Coronado Club Luau is a fun time. Ticket deadline is tomorrow.

SINGLES will meet for a planning session at 4:45 p.m. Tuesday, June 13. The steering committee has a number of activities to discuss.

TEEN DISCO event is set Thursday, June 22, from 8 to 11 p.m. Member parents must pick up tickets for their youngsters.

WEDNESDAY evenings for the remainder of the summer have been designated for family picnics in the Club patio area. Pack a basket of goodies and c'mon out. The kids can swim until 6; the patio remains open until 8.

CLUB MEMBERS may buy discount movie tickets occasionally good at the Wyoming Mall and Louisiana Cinema I, II and III theatres. The tickets are \$2.15 purchased at the Club office.

TRAVELOGUE on Wednesday, June 21, at 7:30 p.m., features movies of Wales and Scotland by Travel Director Ed Neidel (2166).

CANCUN, Mexico's newest glamour resort on the Yucatan Peninsula near the

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Dick Damerow, supervisor of Explosive Projects Division 2514, has been selected by DOE's Office of Military Application to work with that group on a loan basis for the next year. Dick will be assigned within MA to the Office of Safety, Environment, and Emergency Action, where he will act as scientific advisor in matters relating to the Safeguards program. He will also monitor R&D contracts and suggest possible new projects for this office to pursue. His year with MA in Germantown starts in August.



SOUTH PACIFIC dances such as this fire dance are scheduled as part of the Luau entertainment June 17. Deadline for picking up tickets is tomorrow.

Mayan ruins of Chichen Itza and Talum, is the Club's newest travel package offer. Air fare, cocktail party and seven nights at the Cancun Caribe go for \$366.50. Departure date is Saturday, Sept. 9; return Saturday, Sept. 16. The beach at the hotel is powdered white sand and the ocean is crystal clear—great for scuba diving. Optional tours to the Mayan ruins are available. Sign up now; Ed needs 100 people for this one.

Other travel packages still open include air fare only to Europe or Hawaii, a 3-day Las Vegas jaunt and discounts on tickets on the Cumbres and Toltec scenic railroad for June 24, Aug. 26, or Oct. 14.

See Ed in the Club lobby tonight between 6 and 7 for the full scoop.

