

STEEL SUPPORT STRUCTURE for Sandia's EBFA-I (Electron Beam Fusion Accelerator) is shaping up in the new facility building south of Area I. Components of EBFA-I are being fabricated in machine shops throughout the state. Accelerator assembly should be complete and the experiment operational in June 1980. In the meantime, construction of a new office and laboratory building is nearing completion; occupancy by the staff of Fusion Research Department 4240 and Pulsed Power Systems

Department 4250 will start in mid-January. Sandia has proposed that after two years of experimenting with EBFA-I, the accelerator be shut down and upgraded as EBFA-II. If all goes as planned, this device will demonstrate scientific breakeven in 1985-86. Funding for preliminary engineering of EBFA-II is expected in FY79-80. In the foreground are members of the Division 4251 EBFA-I project mechanical design team — George Hiett, Tiny Hamilton, George Staller, and Marlin Aker, mechanical project engineer.

# LAB NEWS

VOL. 30, NO. 24

NOVEMBER 27, 1978

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

## The Directorates

### 5500: Engineering Sciences

If they had a slogan in Engineering Sciences Directorate 5500 it might well be, "Technology Development Through Numerical Modeling." That's not the simplest slogan to comprehend, but it implies a lot.

Orval Jones, Director of 5500, describes Sandia as a "high-technology systems engineering lab," and his own directorate as primarily a support group to Sandia project management organizations. "Basically," Orval explains, "we use computers to provide numerical modeling as it applies to structural response, wave motion, fluid-flow and heat transfer. It makes a lot of sense to pull these closely related disciplines together in a single directorate."

Current activities are in support of weapons development, nuclear waste transportation and isolation, geothermal and fossil energy, solar energy and reactor safety.

"We also conduct supporting research," Orval says, "most of which is aimed at verifying our numerical modeling tools and at characterizing materials properties needed in the models. But we're not primarily a research

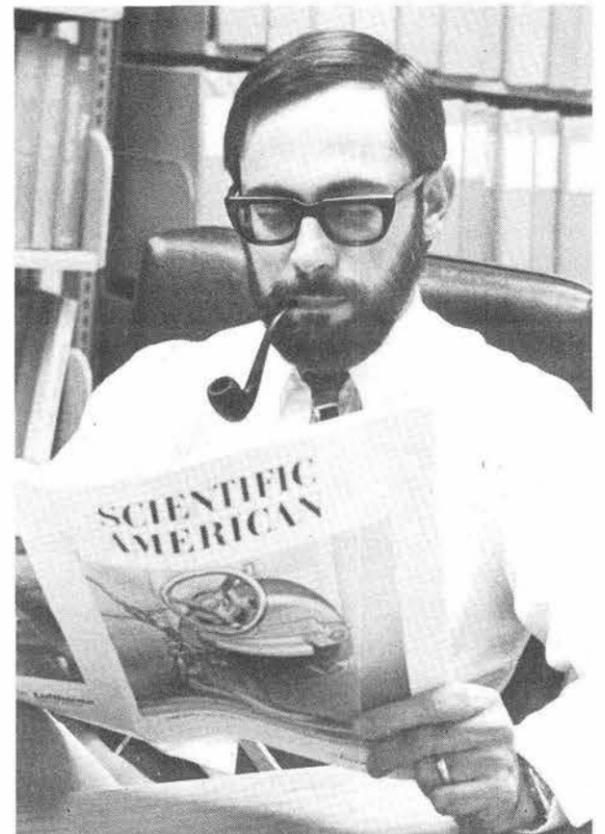
group. There are about 120 people in the directorate, each of whom is a specialist in the engineering sciences, skilled in applying numerical modeling to the solution of engineering problems."

A recent 5500 project support effort involved studying the effects of transportation accidents on casks used to transport nuclear waste. First, computer codes were used to analyze behavior during selected accidents. Then the analyses were correlated with the results of scale-model tests. Finally, the ability to accurately predict cask responses over a wide variety of environments was verified in full-scale rail and truck accidents.

"In the future," Orval points out, "designers of shipping casks can rely more heavily on numerical modeling to provide important design inputs and to minimize the need for expensive full-scale tests."

The Engineering Sciences Directorate also maintains the Transportation Data Bank — an asset of national importance since it constitutes the largest single source of data on

*(Continued Next Page)*



SANDIA'S FUSION PROGRAM was discussed by Gerry Yonas, Director of Pulsed Energy Programs 4200, in an article, "Fusion Power with Particle Beams," in the current issue of SCIENTIFIC AMERICAN. Says Gerry in the article: "The new Sandia electron beam fusion accelerator will initially consist of 36 modules delivering a total of 30 trillion watts; it will be constructed to make possible its upgrading to at least 60 trillion watts. The assembly of the accelerator began this past summer, and pulsed-power testing should start late next year. If these early steps are successful, the upgrading could be completed as soon as 1983, making it possible to conduct pellet-ignition experiments by 1985. If these latter steps also prove successful, then the inherent simplicity and efficiency of the particle beam technique will clearly set the stage for future (fusion) reactor applications."

# Engineering Sciences

the effects of accidents on shipping containers. These data enable both rational definition of accident environments and analysis of accident risks.

Right now, and for the foreseeable future, 5500 is committed to a spectrum of programs involving geomechanics.

"This is a relatively new area of interest for Sandia," Orval explains, "one that arises from our involvement in energy-related programs. In support of fossil fuel programs, for example, we're studying ways to optimize explosive rubblelization of underground oil shale beds for in-situ retorting, and we're developing computer codes for calculating gas and fluid flows through porous geological materials."

Terradynamics and underground safety calculations are of concern to 5500, and they are also involved in the development of heat probes and special drilling systems to explore the feasibility of using underground molten rock, or magma, as a geothermal energy source.

In the nuclear waste area, the creep and flow characteristics of salt are being measured. "Our numerical models are being used with this information to predict how rapidly rooms will creep shut for different underground designs," Orval explains, "and whether the resulting subsidence will fracture overlying rock layers." Additionally, the heat transfer characteristics of deep ocean floor sediments are being studied both numerically and experimentally.

Structural analysis is a basic expertise in 5500. Working with weapon design teams, complex problems are being solved to provide needed structural strength in ever-smaller weapons of greater capability.

In summing up, Orval Jones says: "Numerical modeling can save time and money in the design process. For example, the need for expensive, cumbersome experiments is often reduced. Our major responsibility to the Labs is to meet today's needs in the engineering sciences and to develop the capabilities that will be needed in the future."



5500 DIRECTOR ORVAL JONES is briefed by Ron Boyd (5511) on studies being made to measure heat transfer coefficients in the annulus between a simulated radioactive fuel assembly and an outer cylindrical cask. Paul Montoya (5512) adjusts mirror that guides path of helium neon laser and projects image showing thermal activity on screen in center of picture.

## Take Note

A comprehensive microprocessor short course, sponsored by UNM and the Albuquerque Chapter of IEEE, is scheduled Jan. 4-6 at the Albuquerque Inn. Sessions run from 8:30 a.m. to 8:30 p.m. during the first two days, from 8:30 a.m. until 4:30 on the last day. Course material was prepared by the IEEE Educational Activities Board. Fees start at \$495 and include a microprocessor kit, course materials, lunches, dinners and parking fees. For additional information, contact Peter Dorato, chairman of UNM's Department of Electrical Engineering, 277-2436.

\* \* \*

President Sparks discussed Sandia's energy programs at a luncheon meeting of the Carlsbad Chamber of Commerce Nov. 16. Included in the talk was an update on the proposed Waste Isolation Pilot Plant (WIPP).

\* \* \*

The Armory Show — a broad spectrum collection of contemporary New Mexican art — will be on display at the main library, 5th and Copper NW, through Dec. 1. Hours are from 10 to 5, Monday through Saturday. The collection includes painting, drawing, sculpture, photography and mixed media. It is a peer-juried show.

The Christmas season approaches, and LAB NEWS plans its usual coverage of the various Christmas projects that employees undertake. If your organization is planning such a charitable project, be sure to let us know so that we can carry your story in our Christmas issue. Call Norma on 4-7841 with the details.

\* \* \*

The Trinity Section of the American Nuclear Society is featuring H. Peter Metzger of Denver as speaker for their next dinner meeting at the Albuquerque Convention Center on Dec. 1. Mr. Metzger's talk is entitled "The Coercive Utopians: Their Hidden Agenda," and it deals with the methods and motives of people in the anti-energy movement. A social hour, at 6:30 p.m., precedes the dinner which is set for 7:30. Reservations, before Nov. 28, call Joy on 4-6855.



Unless you know what you're about in the wilderness, you're better off snacking on a granola bar. A Univ. of Massachusetts scientist warns that no matter how good all those wild leaves, roots, seeds and berries look, it takes a botanist to separate the good from the bad. If you're desperate, a good rule of thumb is to avoid any plant with milky sap, plants with white berries and plants with a bitter taste.

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*bruce hawkinson & lorena schneider report livermore.*

## Addendum

In the last issue of LAB NEWS in an article on the relationship of nuclear weapons and computers (*The Weapon, The Computer: A Symbiotic Coupling*), the vital role that actual testing of components and systems plays in the design of nuclear weapons was omitted during editing. Testing and computer modeling complement each other. Together they are the indispensable elements of nuclear weapon design.

## Take Note

Security Inspector Carl Feighner placed third in the individual marksman category at the annual DOE National Pistol Tournament held recently at the Mercury, Nev., test range. Carl also placed in team competition, along with inspectors Ron Higgins and Bob Sater. The tournament is open to DOE and DOE-contractor people who carry a firearm in the performance of their jobs.

\* \* \*

Newly elected officers of the Livermore chapter of the American Business Women's Association include Karen Quock (8100), recording secretary; Gertrude Williams (8212), program chairman; and Glenda Day (8256), bulletin chairman. ABWA is a national association with aims of improving employer-employee relations, keeping members informed of new business techniques, and increasing their knowledge and confidence through education.

\* \* \*

Over 200 participants met at the Chabot College Livermore campus recently for a conference sponsored by the LLL's Women's Association and Office of Equal Opportunity. Purpose of the conference was to provide women with information on how to get ahead in their careers and how to prepare for career changes or job opportunities in nontraditional fields such as science and the crafts. Mary Quigley of Affirmative Action Division 3511 and Gertrude Williams (8212) represented Sandia at the conference.

## Authors

Ken Wilson (8347) and Mike Baskes (8341), "Thermal Dissorption of Deuterium Implanted Stainless Steel," *JOURNAL OF NUCLEAR MATERIALS*, Vol. 74, p. 179.

Jim Shelby (8347), "Effect of Morphology on Helium Mobility in Soda-Lime-Silica Glasses," *JOURNAL OF APPLIED PHYSICS*, Vol. 49, No. 5, p. 2748-51.

Carl Melius (8341), "Atomic Coreless Hartree-Fock Pseudopotential for Atoms K thru ZN," *JOURNAL OF CHEMICAL PHYSICS*, Vol. 68, No. 5, pps. 2364-72.

## Sympathy

To Paul Coronado (8347) on the death of his father in Livermore, Nov. 3.

To Lana West (8256) on the death of her father in Vallejo, Nov. 5.

To Jim Smith (8254) on the death of his father-in-law in Lake City, MI, Oct. 18.

To Stan (8161) and LaVonne Pickens (8213) on the death of his mother in Chino, CA, Nov. 3.

To John Totten (8123) on the death of his father in Ephrata, WA, Oct. 10.

To Ed Cull (8452) on the death of his father-in-law, in Belmont, CA, Oct. 9.

To Bill Whitney (8412) on the death of his brother in Newcastle, WY, Oct. 6.

# LIVERMORE NEWS

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## Laughed All the Way From the Bank

### Sandian Leads Scuba Expedition

Normally a mild-mannered combustion research physicist, Bob Schmieder (8342) transformed himself last month into the leader on an expedition to explore a portion of a mysterious submerged island 20 miles west of Point Reyes, north of San Francisco.

The island, covered a few thousand years ago by the melting waters of the last Ice Age, is known as Cordell Bank after its first surveyor, Edward Cordell, who mapped its contours with a sounding line in 1869. Now 120 to 200 feet below the Pacific's surface (it's not

flat on top), Cordell Bank sits on the very edge of the cliff that is the continental shelf — the sea floor depths on the seaward side soon reach 10,000 feet.

The original mystery — why ships were pushed off course in the area — was solved when it was realized that a reverse offshore current capable of affecting a ship's course flows over the Bank during certain times of the year.

The mysteries today are somewhat more mundane — what kind of flora and fauna exist on the Bank? Is there evidence of human visitation by food-gathering Indians when it was a real island?

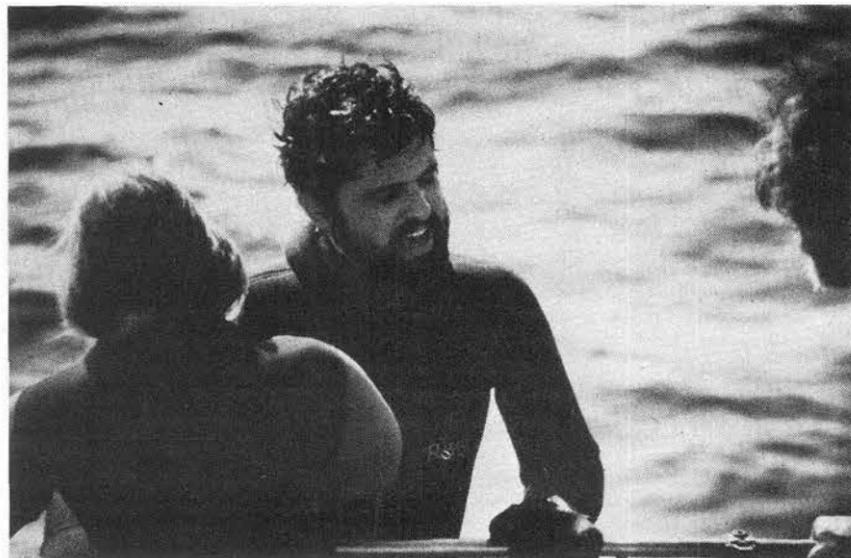
"Our expedition's primary goal — to answer the first of those questions — was met," says Bob. "We anchored at a spot 150 feet above the Bank and sent down two dive teams. Each one surfaced with a wide variety of specimens of both invertebrates and algae. Members of the expedition and scientists at UC Berkeley are analyzing them now.

"Our most exciting finds were the discovery of a new genus of marine algae and new records for northernmost occurrence and depth of more than a dozen other algae.

"We also found what is apparently a new species of sponge. It's semi-circular and stands on its straight edge propped up by quarter-circle-shaped flying buttresses.

"The biggest surprise was the amount of light at such great depths. California waters normally permit a 20-foot visibility near the surface; at 100 feet down it's often pitch black. We were at 150 feet with enough light to read by. The light has allowed brightly colored organisms — red, orange, violet — to thrive at depths where their existence wasn't suspected.

"Cordell Bank is only 25 miles southeast of the breeding ground for the Great White Shark, but we were lucky — didn't see a one. We did see a gigantic school of 12-inch fish several feet above the Bank — it was like swimming through a blizzard. And a curious



UP FROM THE DEPTHS comes a happy Bob Schmieder, reporting far greater visibility than expected at 150 feet underwater. Bob led a successful scientific expedition to explore a portion of a submerged island, Cordell Bank, off Point Reyes. (Photo by June Marr of the Expedition team).

sea lion followed us around down there, sticking his nose into our collecting baskets."

Although the expedition was certainly a success and went off without a hitch, Bob cautions other divers against attempting the dive casually. "It's a deep dive, and you're a long way — three hours — from help. The current can be strong. It is shark territory. And the weather is usually bad so the swells toss your boat or your diving raft around — we scheduled this trip 19 times before the weather was finally right."

Bob hopes to lead a second expedition to the Bank next year — "if we can find support in the form of specialized gear and administrative funding. I believe in doing things scientifically, but subsidizing science out of your own pocket puts a considerable crimp in your bank account."

## Speakers

John Pohl and Don Hardesty (both 8353), "The Combustion of Pulverized Coals — An Assessment of Research Needs," National Bureau of Standards Tenth Materials Research Symposium on Characterization of High Temperature Vapors and Gases, Sept. 18-22, Gaithersburg, MD.

Mike Soderstrand (8466) et al, "Master Control System for the Central Receiver Solar Power Plant," ISA, AIChE, ASME, IEEE and SME 1978 Joint Automatic Control Conference, Oct. 18-20, Philadelphia, PA.

Ron Stoltz (8316), "Effects of Hydrogen on the Fracture Toughness of A516 Steel"; Rick Stulen (8347) and Ron Stoltz, "Solid Metal Embrittlement of Ti-6Al-6V-2Sn by Cadmium, Silver and Gold"; John Brooks (8316), "Effect of Minor Elements on Weld Cracking of Austenitic Stainless Steel"; John Smugeresky (8314), "Thermal Mechanical Response in JBK75"; and John Brooks and Dan Dawson (8314), "The Relationship of Weld Microstructure and Mechanical Properties in High-Strength HP9-4-20 Steel," Fall Meeting of Metallurgical Society of AIME, Oct. 15-19, St. Louis, MO.

Ray Ng (8442), "Use of Laser Interferometry for the Analysis and Understanding of Explosive Valves," Tenth Annual Electro Optics Laser Conference, Sept. 19-21, Boston, MA.



# WESTWARD DOUGH!

## OR how DO you COVER A Wagon?

The wild, wild West. Land of hope and opportunity to thousands of courageous settlers. But, if it weren't for the dollars of thousands more Americans taking stock in their country, there might never have been a West to go west to.

You see, money raised from the sale of government securities helped us purchase the Louisiana Territory from the French. Other securities helped buy the states of California, Nevada, Utah, western Colorado and most of New Mexico and Arizona from Mexico. Even settlement of the Oregon Territory was made possible through the issuance of United States securities.

Today, you can still take stock in your country's growth by buying U. S. Savings Bonds.

Just sign up for the Payroll Savings Plan where you work. There's no easier, safer way to save or help your country. After all, U. S. Savings Bonds are still a great way for you to go West. Or East, North and South.

Now E Bonds pay 6% interest when held to maturity of 5 years (4 1/2% the first year). Lost, stolen or destroyed Bonds can be replaced if records are provided. When needed, Bonds can be cashed at your bank. Interest is not subject to state or local income taxes, and federal tax may be deferred until redemption.



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## Speakers

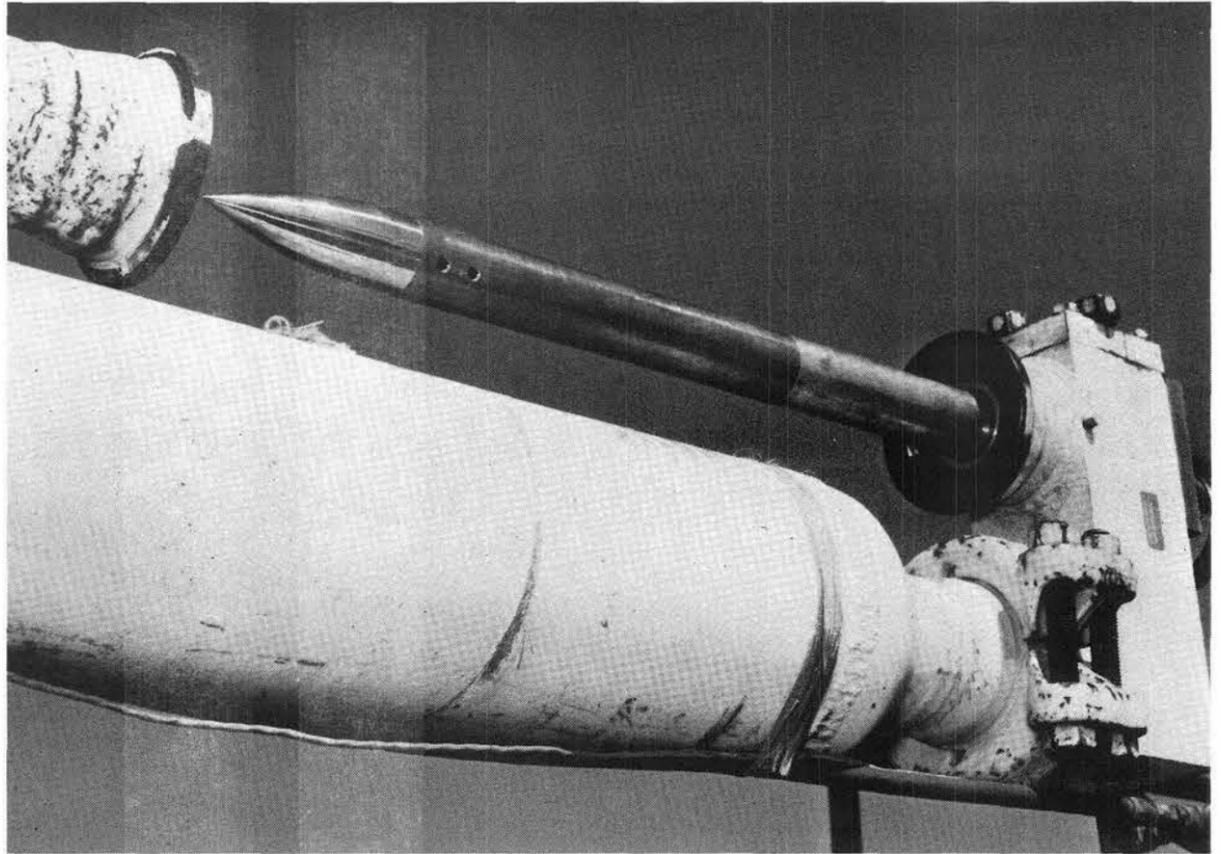
G.B. Varnado, D.M. Ericson, Jr., S.L. Daniel (all 4414), H.A. Bennett (4416) and B.L. Hulme (5642), "Light Water Reactor Safeguards System Evaluation," ENS/ANS International Meeting on Nuclear Power Reactor Safety, Oct. 16-19, Brussels, Belgium.

L.H. Goldstein (2113), "Computational Complexity/Confidence Level Tradeoffs in LSI Testing," 1978 Semiconductor Test Conference, Oct. 31, Nov. 12, Cherry Hill NJ; Goldstein c.B. Worrell (1758), "Automated Design Verification and Optimization of Combinational Logic Circuits," CUBBIUM, Oct. 4-6, Los Alamos NM; Goldstein, "Circuit Node Controllability, Observability Analysis," CANDE Workshop, Sept. 18-19, Timberline Lodge, OR.

R.P. Clark (2523), P.K. Gallagher (Bell Laboratories) and B.M. Dillard (GE Neutron Devices Dept.), "Thermoanalytical Investigation of Calcium Chromate," 1978 North American Thermal Analysis Society Conference, Oct. 17, Atlanta GA.

## Congratulations

Gerald Gajewski (1485) on the birth of his son Nicholas Anthony, Nov. 10.



MARS PENETRATOR is tail-mounted upon air gun horizontally; breech of gun is fitted over it and the assembly raised to vertical position for firing. The 25-pound unit is 25.75 inches long.

### At TTR and White Sands

## Sandia Testing Mars Penetrators

A series of field tests of a half-scale Mars penetrator is being conducted by Sandia's Division 5624 at Tonopah Test Range and White Sands.

The Mars penetrator was first proposed by Sandia as an outgrowth of the Lab's terradynamics studies and development of COIN devices (seismic detection devices used as an "electronic fence" in Viet Nam).

NASA's Ames Research Center is considering the penetrators for use on a Mars probe sometime in 1984 (LAB NEWS, July 29, 1977). Mars-orbiting spacecraft would eject several units to penetrate the Mars surface and relay seismic information and other scientific data via the orbiter back to earth. On impact, the aft section with telemetering instrumentation separates from the projectile and remains on the surface while the forward section, connected to the aft by cable, penetrates up to 45 ft. beneath the surface.

In the current series of tests, the penetrators are fired into various geological formations (chosen to match possible Mars terrain) by a compressed air gun mounted on a flatbed trailer. At TTR, the penetrators were fired into the fine-grained, compacted playa of a dry lake bed. At White Sands, the

penetrators were fired into volcanic lava rock — part of the malpais ("bad country") flow which extends from the Valley of Fires State Park near Carrizozo into the White Sands range.

In the current tests, the "coupling" of penetrators to surrounding soil and the effectiveness of seismometers mounted on the penetrators are measured. After emplacement, several blunt projectiles are fired into the earth near the positioned penetrators to provide seismic shocks. These shocks are also measured by standard seismometers for data comparison. Survivability of the penetrators is also a testing consideration.

This month, 18 firings will be made at TTR into specially-prepared targets representing a gamut of possible terrain.

The half-scale penetrators are 2.25 inches in diameter, 25.75 inches long; they weigh 25 pounds. Impact velocity of the tests is about 500 ft. per second. The air gun is positioned vertically for the firings, the muzzle about 70 inches from the target surface.

Al Foster is project leader for the NASA-sponsored test series. Mechanical designer is Dan McNeill. Bill Jacoby is assisting. All are in Division 5624 under Ed Rightley.



SANDIA'S mobile compressed air gun is shown emplaced at the White Sands range over a malpais formation.



UNM's north golf course at Stanford and Marble NE offers 2-mile course around perimeter, which is marked by orange-painted posts.

### **Fit Is Better**

## **Try A Change of Course**

Promise not to tell anyone, and I'll let you in on a secret: running can be monotonous. The same workout, day after day, week after week, brings a certain ennui, a sense of staleness.

So change things around. It's always fun to run over a new course (another good reason for taking the running gear on trips). The new sights, new hills, new people, even the new dogs are refreshing, and the workout seems to go more quickly.

Here are a few courses around town (we assume you're familiar with those on Base) that you might try some weekend. The collection, partly ours and partly from other runners, is incomplete, so let us know your favorite course and we'll include it later on.

\* \* \*

#### *North University Golf Course*

Though heavily used, the runner traffic on this two-mile course is never any real problem, and it remains one of the best and most pleasant courses in the city. You can park and start your run at the UNM law school parking lot, Stanford and Marble NE. Orange painted posts delineate the course, which generally follows the perimeter of the golf links. On the west side you run along a dirt road, on the south there's a brief stretch of pavement. If you like to run with your dog, take him along (but not if he dotes on golf balls). There's a few hills, all gradual, lots of trees, and the running surface is mostly dirt. Try it after a fresh snowfall sometime — that's a real kick.

\* \* \*

#### *Other Golf Courses*

We called the other public courses and found that runners get a mixed reception.

The South University Course says "no way" and will escort you off. We generally ignore such prohibitions when they come from what used to be called public servants, but there's this Tech Area-type fence around the course which probably rules it out unless you like challenges.

Los Altos and Arroyo del Oso have a more reasonable stance. As the manager at the latter put it, "We don't prohibit running. But we can't condone it or invite the running public because, sooner or later, someone would get zonked by a golf ball and we'd be accused of negligence." Neither course has a complete perimeter road, so the possibilities are limited in any event.

\* \* \*

#### *Corrales*

Jack Cyrus (2524) has found good running in Corrales. "The roads atop the ditch banks are all good. I happen to use the one on the extreme east, next to the river. It's dirt, not sand, and there's lots of shade and wildlife. Distance — maybe five miles."

\* \* \*

#### *The Northeast Fringe*

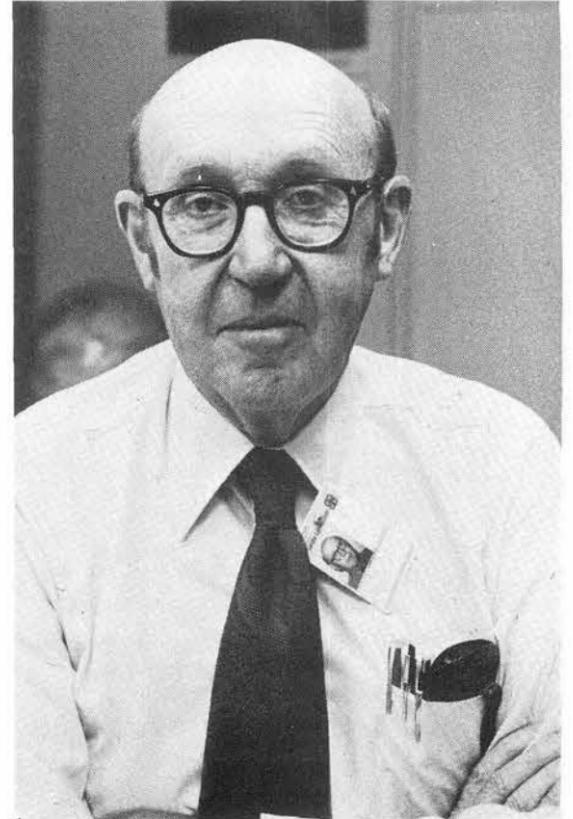
Joe Maloney (2626) likes an area rather than a specific route. "It starts where housing ends on the northeast fringe of the city, near the intersection of Juan Tabo and Eubank. Western edge is Wyoming; eastern is Tramway and the Sandia Indian reservation forms the northern boundary. You've got perhaps 16 square miles with dirt roads running in all directions. Go east and there's a long gradual hill; north-south has many small hills. For access, take the dirt road section of Academy east off Wyoming and park near the earth dam.

\* \* \*

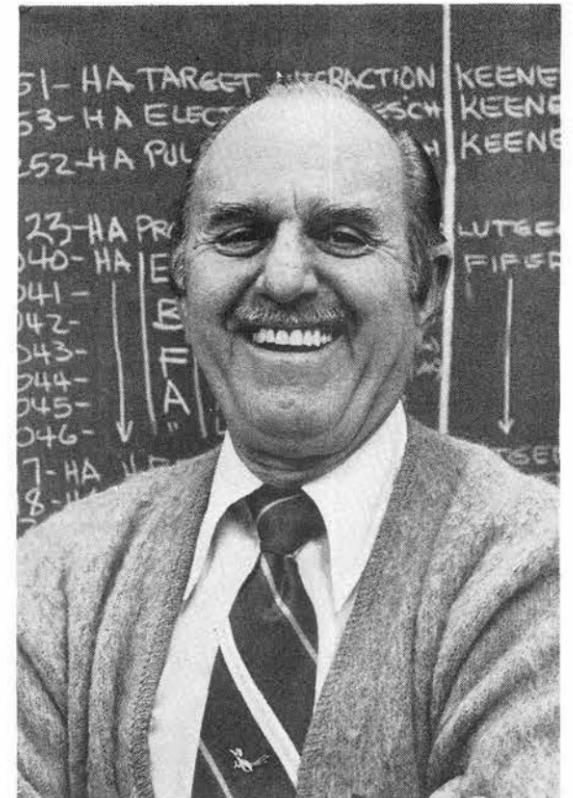
#### *If You Like Privacy*

If you want to run about 10 very private miles, try the road atop the flood control ditch about a block west of the intersection of Indian School and Harvard NE (where you can park). After 10 miles you'll find yourself on the banks of the mighty Rio Grande, a nice finish to an adventuresome run. It's adventuresome because you have to keep ducking under the overpasses and crossing from one side to the other, occasionally through water. But you do have it to yourself, and the graffiti that ornament the overpasses will amuse or repel, depending on taste. •js

## **Retiring**



George Hansche (1120)



Elmer Devor (2452)

## **Sympathy**

To John Shunny (3162) on the death of his father in New Jersey, Nov. 10.

To Sam Giron (1485) on the death of his father in Las Cruces, Nov. 19.

To Louis Roybal (1471) on the death of his mother-in-law in Albuquerque, Nov. 18.

To Dick Andes (2625) on the death of his father-in-law in Clovis, Nov. 17.



For a fee, a California company named Constructive Leisure, will help you take the ho-hum out of your non-working hours. "Twenty years ago," says company founder

Patsy Edwards, "people felt guilty about having leisure time because they equated it with having nothing to do or not working hard enough. Now they cherish their leisure time because they realize it's the one area of life over which they have total control. Many of them cannot move, change jobs, or get into a new profession, but they can develop new interests." For \$45, Constructive Leisure will analyze your interests and help you select some fun things to do. "After all," Patsy says, "satisfying leisure isn't just something that happens."



NEW SUPERVISORS — Standing are Kent McIntire (2629), Frank Bacon (2352) and Jim Kennedy (2543). Seated is Jim Martin (3430).



Pace Vandevender (4252), Mel Widner (4247), Steve Goldstein (4254) and Paul Miller (4244)

## Supervisory Appointments

**JIM KENNEDY** to supervisor of Detonating Components Division 2543, effective Dec. 1.

Jim joined the Labs in July 1968 and has worked 10 years in explosive components research and development. He holds Bachelor's, Master's and PhD degrees in petrochemical processing and chemical engineering from Illinois Institute of Technology where he also worked for nine years in explosives development and field testing with the ITT Research Institute.

Jim's principal off-work activity is with the New Mexico Association for Retarded Citizens. He has held a number of offices with

the organization including state president. He also enjoys bowling and golf occasionally.

Jim, his wife Joan and their two daughters and son live in NE Heights.

\* \* \*

**PACE VANDEVENDER** to supervisor of Pulsed Power Research Division 4252, effective Dec. 1. Since coming to Sandia four years ago, Pace has worked in particle beam research. His first assignment was working with very fast water-dielectric switching for ICF (inertial confinement fusion) particle beam accelerators. More recently he has worked on self-magnetically insulated transmission lines to transport power to the target

in ICF accelerators. In his new position, Pace's division will conduct research necessary to produce 100TW accelerators for ICF.

Pace earned a BS in physics from Vanderbilt University, an MS in solid state physics from Dartmouth and a PhD in plasma physics from the Imperial College of Science and Technology, University of London, England. He is a member of the American Physical Society. Off the job Pace spends much of his time on activities of his church, and he is a member of Amnesty International. He and his wife Nancy have two children and live in the NE Heights.

\* \* \*

**KENT McINTIRE** to supervisor of Procurement Systems Division 2629, effective Nov. 16.

Kent joined Sandia's purchasing organization as a buyer in June 1962 after earning a BS in business administration from Arizona State University. After five years he transferred to a systems and procedures organization and received his first computing experience. He rotated to a weapons scheduling group and also worked on a computer science degree at UNM. He received his master's degree in 1970. For the past two years Kent has worked in property management and purchasing computer applications.

In his new job, he will develop an integrated procurement system with a computer data base as well as a word processing system for document production.

Off the job, Kent concentrates his activities around his family — he and his wife Carole have six children ages 2 to 17 — and his church.

\* \* \*

**FRANK BACON** to supervisor of Applied Technology Division 2352, effective Dec. 1.

Frank joined Sandia in February 1968 after earning a PhD in EE from Georgia Tech. He has worked on ion source development for weapon neutron tubes and ion source development for an intense neutron device for cancer therapy. For the past two years he has been project leader in this program.

He is a member of the American Physical Society and IEEE.

In leisure hours Frank enjoys backpacking, skiing and hiking with his wife Peggy and their young daughter and son. Also, for the

NEW SUPERVISORS— Frank Higgins (3726), Pat Cox (3732-3) and Waylon Ferguson (3730)



past four years, Frank has enjoyed piloting a hot air balloon he shares with the Buffalo Chip Balloon Club.

\* \* \*

**PAUL MILLER** to supervisor of Beam Experiments Division 4244, effective Dec. 1.

Since joining the Labs in November 1970 as a staff member, Paul has worked in a number of organizations concerned with electron beam and ion beam research. Immediately before coming to Sandia, Paul earned BS, MS and PhD degrees in EE from the University of Illinois. He is a member of the American Physical Society.

Off-the-job he enjoys snow and water skiing, backpacking and flying. Paul lives in the NE Heights.

\* \* \*

**MELVIN WIDNER** to supervisor of Target Interaction Theory Division 4247, effective Dec. 1.

Mel joined Sandia in August 1971 as a staff member working on theoretical studies of the effects of nuclear weapons. He later transferred to Plasma Theory Division 4241 where he has been concerned with laser and electron beam fusion research. Mel's new division will be responsible for designing particle beam targets.

At the University of Iowa, Mel earned his BS, MS and PhD in EE. He is a member of the American Physical Society and IEEE. Mel's leisure time interests include hiking, photography and woodworking. He and his wife Linda, with their two daughters, live in the mountains east of Albuquerque.

\* \* \*

**PAT COX** to supervisor of Data Collection and Computer Application Section 3732-3, effective Nov. 16. Pat has worked in both stores management and purchasing planning since she joined Sandia in Sept. 1975. She came to Sandia from Wichita State University where she was assistant to the dean of the College of Business, taught business courses and did systems analysis. She has a BA and an MA in business, both from Wichita State. Pat and her husband Don live in the NE Heights. Their hobbies are hiking and skiing.

\* \* \*

**FRANK HIGGINS** to supervisor of Purchasing Division H 3726, effective Nov. 16. After graduating from UNM with a BA in industrial management, Frank came to Sandia as an assistant buyer in 1958. He has worked in purchasing since, both as a buyer and as supervisor of a commercial purchasing section group. He has completed all course work for his MBA degree. Married with four daughters, Frank and his wife Helen live in the SE Heights. Frank's leisuretime activities include golf and jogging.

\* \* \*

**WAYLON FERGUSON** to Manager, Purchasing Planning and Services Department 3730, effective Dec. 1. Since coming to Sandia in 1950, Waylon has worked in accounting, reclamation and purchasing organizations. He has been supervisor of Administrative Policies and Procedures Division 3212 since Nov. 1977. A graduate of Baylor University with a BBA degree, Waylon is married and has two children. He and his wife, Mary Ann, live in the NE Heights and enjoy fishing, skiing and gardening.

\* \* \*

**JIM MARTIN** to Manager of Safeguards and Security Department 3430, effective Dec. 1. Jim joined Sandia in 1963 after completing his MBA degree at Oklahoma State University. Starting in wage and salary, Jim has worked as an administrative systems analyst, as a section supervisor in accounting and as a division supervisor in payroll and disburse-



**BILL RIGGAN** (2351) built a solar heating system for his home with economy in mind — total installation cost was \$583, with savings of 30 to 50 percent on his gas heating bills.

## Bill Riggan Builds Simple, Inexpensive Solar System

"High technology solar systems are impractical for home use," says Bill Riggan (2351). "They cost too much."

So Bill's goals in building the solar system on top of his spacious home in the NE heights was to keep the construction cost down and to save about 10 percent on his gas bill annually.

Both goals have been met. The total system installation cost \$583. Bill's data is incomplete, but it appears that the system is effecting savings from 30 to 50 percent on his gas heating bill.

"Since the system wasn't complete until after Christmas last year," Bill says, "it hasn't operated for a full winter yet. And I'm not much of a bookkeeper so I don't have several years of records of gas bills that I can make comparisons against."

To keep construction costs down Bill scrounged materials, haunting the salvage yard and flea markets. He bought used 2x4s, decided on corrugated fiberglass instead of glass for his collectors and managed to pick up an air conditioner fan and two-speed electric motor for \$5.

Bill build a 416 sq. ft. collector structure on his roof using 2x4's. His collector cells are 2 ft. x 4 ft. modules angled at about 30°. Panels of wall board painted black form the backs of the collectors. The entire structure is sealed so that it functions as a duct. Hot air is pulled from the collector structure, circulated through a heat storage chamber or into the house, and then it goes back into the collectors. It operates as a sealed recirculating system except when venting is needed.

ments auditing, security, purchasing and property management. Since August of this year he has been supervisor of Systems and Appraisal Division 3416. Jim is married and has two children. He and his wife Carol live in the NE Heights. Jim's leisure activities include ham radio and long distance running (he's completed two Albuquerque marathons).

\* \* \*

**STEVE GOLDSTEIN** to supervisor of Pulsed Power Operations Division 4254, effective Dec. 1. Since joining the Labs four years ago, Steve has been a staff member in Electron Beam Experiments Division 4244. Respon-

Bill has three options for venting, the heated air: into the house, into the heat storage chamber or, in summer, to the outside. Each option can be controlled by manually opening spring-loaded vent doors with pull chains hanging through the air entrance into the house.

"Simple, inexpensive and effective," Bill says.

Bill's heat storage is a bin of water-filled, gallon-size plastic milk jugs. Some 450 of them are stacked in an insulated chamber near the collector structure. Weight was a consideration, so Bill placed the heat storage chamber above several converging interior walls.

"The water jugs hold heat until about 11 p.m. on a really cold night," Bill says. "When the temperature does drop, the automatic gas furnace comes on."

In summer, the collector structure is vented by wind-driven fans.

"It works," Bill says, "and it's inexpensive. Except for long periods of cloudiness, the gas furnace rarely comes on during the winter days."

One other thing that helps: when Bill designed his house 21 years ago, he placed a row of windows high on the south wall with an overhang roof. The winter sun shines directly through these windows to warm the interior of the house. In summer, the overhang roof keeps the windows in shade.

Next summer Bill plans to complete a solar installation for his hot water heater. The tank and plumbing for this is already included in the total \$583 cost of his solar space heating system.

sibilities in his new position include particle beam experiments using the accelerators, data acquisition, and improving and maintaining the reliability of the pulsed power machines.

Steve received a BS in chemistry from the University of Illinois and a PhD in chemistry from the University of Wisconsin. Immediately before coming to Sandia, he held a post doctoral position at Iowa State University. Steve is a member of the Society of Applied Spectroscopy. His outside interests include street and dirt motorcycle riding, automotive mechanics and model airplane flying. Steve lives in the NE Heights.



NORM and his wife constructed this doll house with its furniture and interior decorations. Norm's first doll house was for his granddaughter (his grandson received a comparable barn). His second came to the Blue Portal and sold the day the shop opened; he worked quickly to complete this one for the shop's open house on Oct. 31.

### Our Town

## The Blue Portal: A Happy Mix of Something Old, Something New

The Blue Portal has all the ingredients for success: historic setting, philanthropic support, enthusiastic volunteers, and an inventory as varied and interesting as the senior citizens who produce the goods.

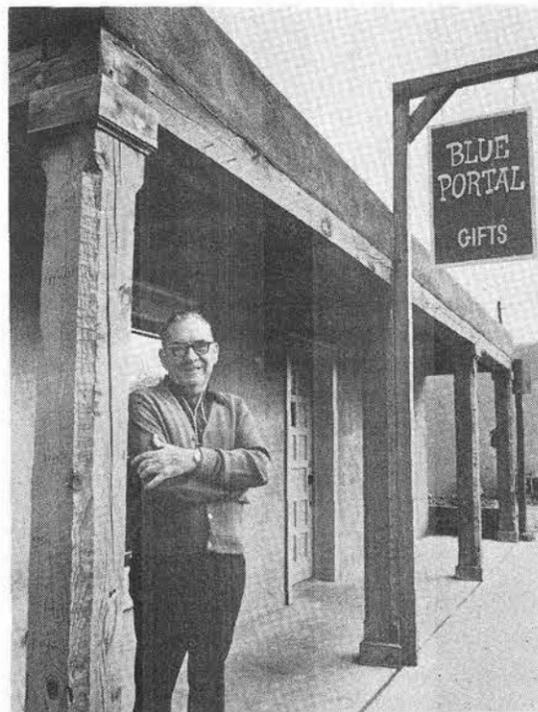
Located in Old Town, the Blue Portal is a non-profit gift shop administered by Assistance League of Albuquerque in cooperation with the Albuquerque-Bernalillo County Office of Senior Affairs. Staffed by Assistance League members, the shop helps senior citizens supplement their income by providing an outlet for hand crafted work. Much of the talent represented by these handcrafts has gone unrecognized; possibly only members of the artist's family were the lucky recipients of such gifts.

Men and women, 55 years or older, who make marketable handmade items, may place the articles for sale through the League's Shop Committee. Individuals price their own merchandise and the Assistance League adds a 15 percent maintenance charge for rent, utilities and furnishing costs.

Open less than a month, more than 90 craftspeople have submitted items for sale including: toys, pottery, jewelry, woodworking, leathercraft, paintings, clothing, dry flower arrangements, china painting, quilts, pillows, Christmas decorations, knitted and crocheted items, novelties, embroidered linens and more.

Elizabeth Jercinovic (wife of Jerry, 3440), chairman of the shop project, explains that the Blue Portal is the result of long and hard work by the Assistance League. The idea originated through the League's sponsorship of the Hospitality House for Senior Citizens. "So many of the older people are on a limited income, yet they have a marketable talent," Elizabeth says. "Now the community has the opportunity to purchase these items."

Located at 2107 Church St. NW, (directly behind San Felipe Church), the building is on



NORM HERBST, a Sandia retiree, is one of more than 90 craftspeople offering work for sale at the Blue Portal.

property once belonging to the Church. County Assessor's records contain two interesting dates for this site: 1706 — the year the Church was constructed — and 1886 — possibly the date of construction of the present building. Old timers in the area tend to agree, saying the house was built about 100 years ago as a private residence. Prior to that time, the site was part of an area of corrals for vehicles and livestock.

Hours at the Blue Portal are 10 a.m. to 4 p.m., Tuesday through Saturday. Items to be sold are processed by the merchandising committee on Mondays between 10 and 4 at the shop.

## feed **feedback**

*Q. As Security Inspectors we have been directed to prevent any employee from bringing lighters and matches into Tech Areas II and IV for safety reasons. While on patrol in these areas I have found many ashtrays with cigarette ashes, butts, and matches. How come?*

A. Thank you for your concern about following proper safety practices.

Area II and the 6000 Igloo area have a general restriction on smoking and the carrying of flame-producing devices.

Some smoking areas are designated and electric lighters are provided in those areas where indicated. Matches or other flame-producing devices are forbidden without a special permit. The permits are issued by one of the Fire Protection engineers on an as-needed basis for a special task and only with the approval of Safety Engineering. The presence of matches in these areas without a permit is a violation of the safety regulations and should be reported to Safety Engineering immediately.

Safety Engineering will survey these areas and determine if the smoking areas in use are in compliance with the existing safety regulations.

D.S. Tarbox - 3400

## Woods Initiated Into Tau Beta Pi

Bob Woods (4715) was initiated Nov. 13 into the National Engineering Honor Society, Tau Beta Pi as an Eminent Engineer. He was selected for the honor by his alma mater, Princeton, and is officially a member of the Princeton chapter. His initiation was conducted by the UNM chapter of the society. Bob, whose degrees are in aerospace and mechanical sciences, is currently working on energy storage in flywheels. In addition to Tau Beta Pi, he is a member of Sigma Xi, the National Society of Professional Engineers, the American Physical Society and the American Geophysical Society.

## Events Calendar

- Nov. 29 — "Messiah," NM Symphony Orchestra and Chorus, Popejoy, 8:15.
- Dec. 1 — Ballet Folklorico Nacional de Mexico, Popejoy, 277-3121.
- Dec. 1-3, 8-10, 15-17 — "Exhausting the Possibilities," Vortex Theater, 255-0715.
- Dec. 2 — Central NM Audubon Society bus trip to Bosque del Apache, 256-7359.
- Dec. 2 — Shalako Dance at Zuni Pueblo, 782-4481.
- Dec. 3 — Ron and Mary Day Puppet Show and Christmas Party, UNM Fine Arts Museum, 247-4001.
- Dec. 7-9 — "Festival of Artists and Craftsmen," Civic Auditorium, 247-2679.



A survey of industrial experts by the Society of Manufacturing Engineers and the University of Michigan reveals that the 32-hour workweek is roughly 12 years away for most U.S. industries — and that its arrival will be speeded along by use of robots and other mechanical devices so efficient they'll seem almost human. It occurs to us that for machines the shape of things to come in an automated, industrial world is pretty well defined. Now about those people . . .

**MILEPOSTS**  
**LAB NEWS**  
**NOVEMBER 1978**

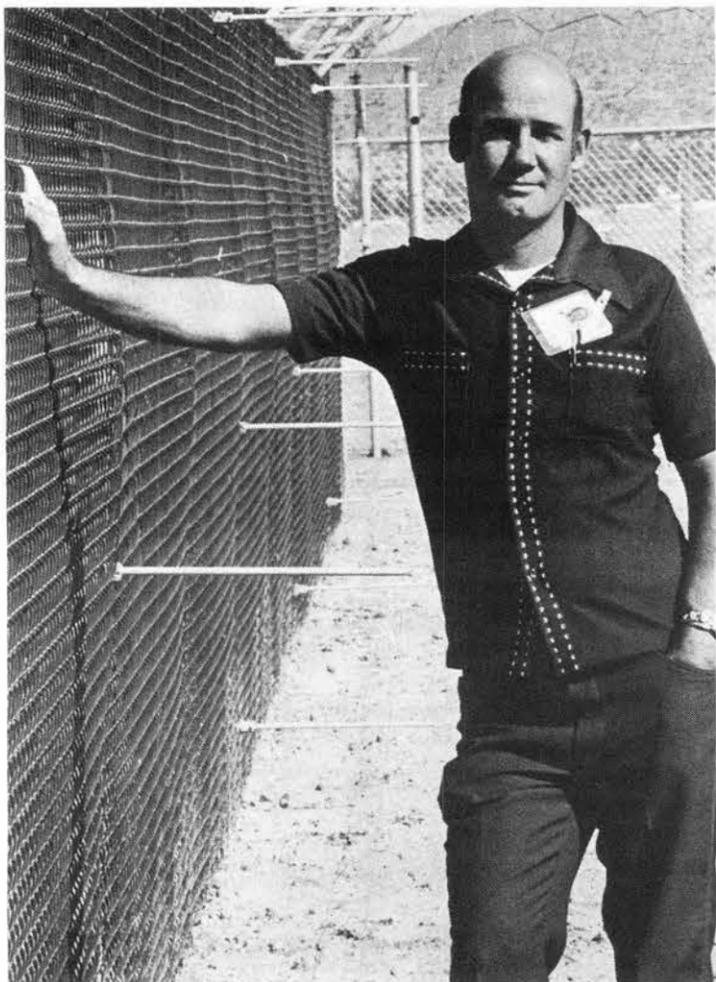


Eddie Martinez - 3725 30



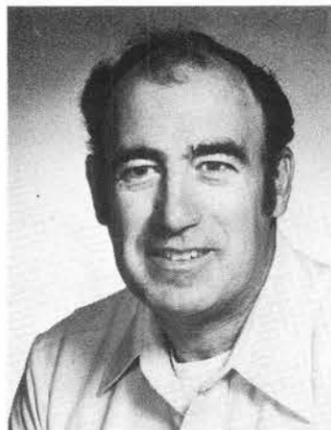
Don Dreesen - 3411

35



Mike Kmatz - 1734

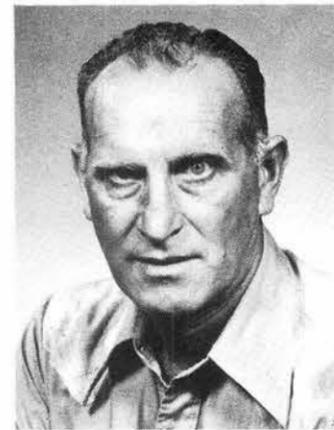
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Richard Oliveira - 1115 20



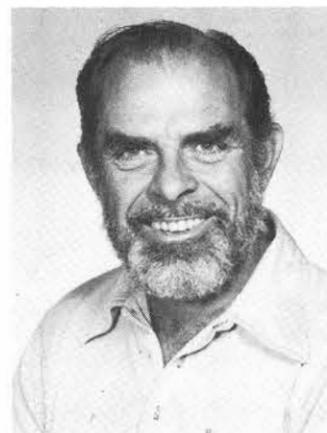
Tony Chavez - 3423 30



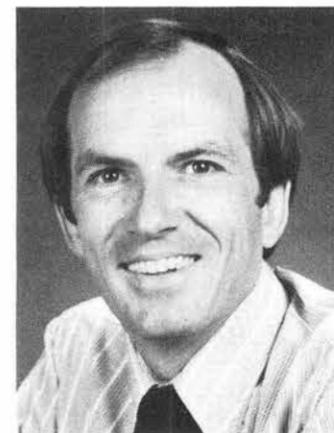
Troy Bewley - 1483 20



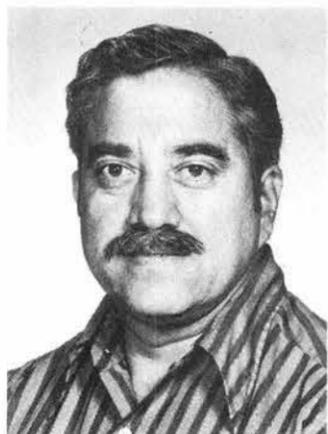
James Mashburn - 4321 20



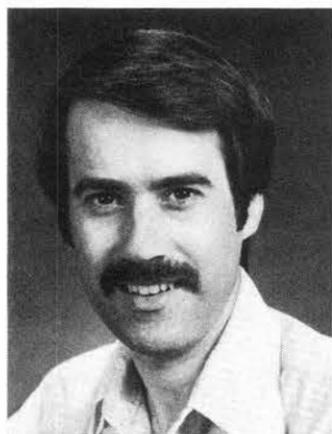
Richard Bohannon - 1533 30



Dan Hartley - 8350 10



Fidelino Carrillo - 4312 20



Art Hull - 8466 10



Paul Langdon - 2514 30



John Galt - (5000) BTL

30



Ruth Cowham - 3610

20



Robert Casper - 2154 20



Albert Disch - 2335 20



Nancy Nelson - 2421 20



Harold Widdows - 5632 20



Dick Clarkson - 8271 20

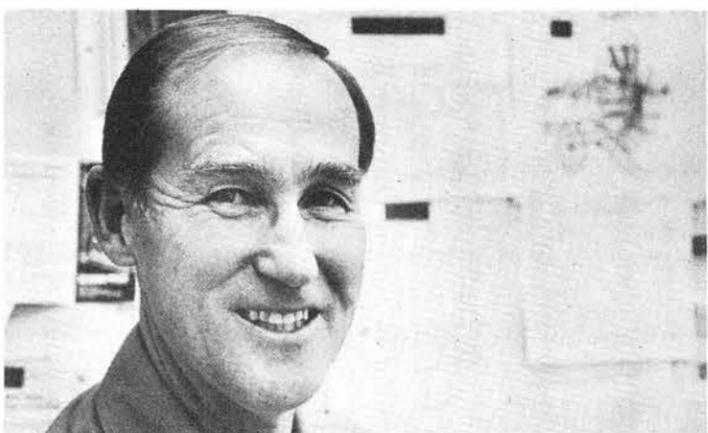


Jim de Montmollin - 1760 25



Ed Hawn - 1472

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Ed Ames - 1116

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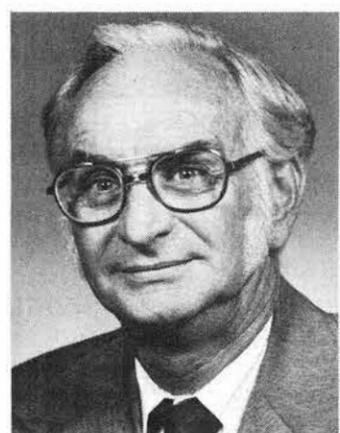
Cliff Mendel - 4244

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William Shock - 4314

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Don Spatz - 4341

25



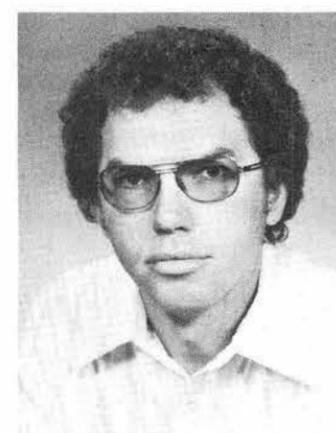
Nick Magnani - 5831

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Lloyd Bonzon - 4432

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Frank Mason - 2647

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Ivan Moore - 1210

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Ed Garcia - 1247

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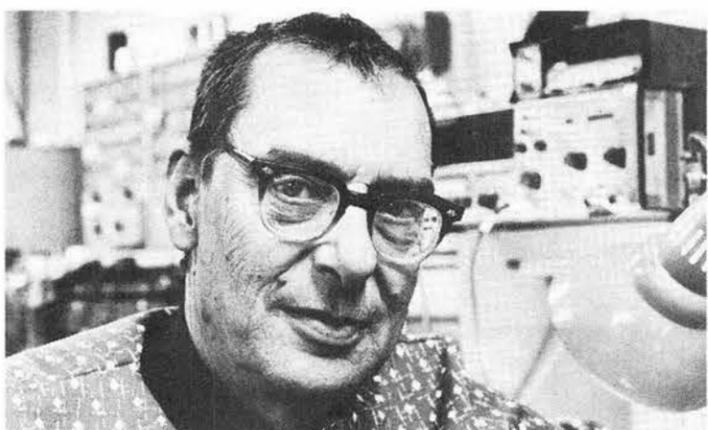
John Carroll - 3222

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Doreen Westfall - 3732

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Leon Day - 3425

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Arsenio Montoya - 2515

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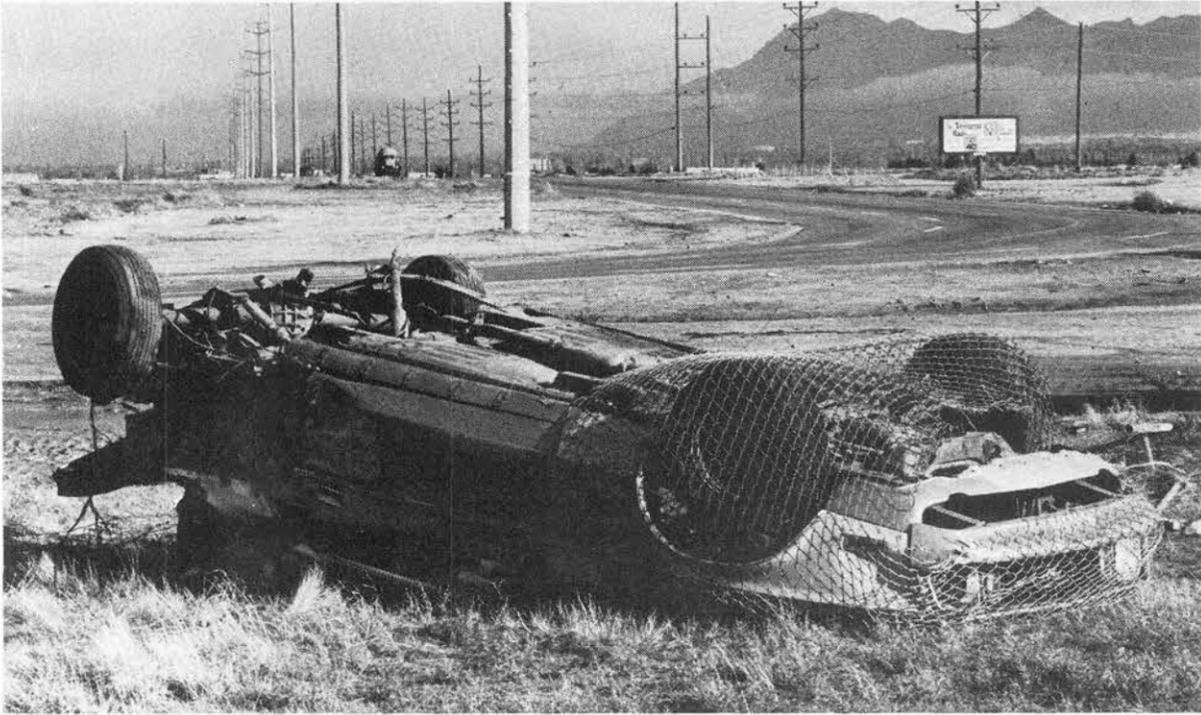
Ted Schmidt - 4451

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Bob Yoder - 6020

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A TOUGH WAY to gain access to the base is wrapping about 150 yards of security fencing around your vehicle. This sight greeted early arrivals at the Eubank gate one day last week and serves as a grim reminder that it's hazardous out there. Drive defensively.

## Retiree Works Three Years in Israel

Gerry Laursen, who retired in October 1975 after 24 years in Sandia field test organizations, recently returned from Israel where he spent three years working as a volunteer on the staff of the Baha'i World Center in Haifa.

"I worked in information processing, microfilming and instrument and equipment repair," Gerry says. "My wife Rhea was a volunteer secretary with the International Teaching Center."

"The three years were full of new experiences, new people, new customs and lots of sightseeing in the Holy Land. And you know, the U.S. seems very strange since coming home — much has changed. It's almost like a new country."

Gerry and Rhea are currently learning Spanish for they won't be staying home long — they will be moving to the Argentine winter resort of San Martin de los Andes shortly to continue volunteer work with the Baha'i faith.

## 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 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

SALVAGING OUT 1972 1-ton truck w/4spd. trans. & dual-wheel rear end. Dees, 865-5152.

CHEVROLET PARTS: auto. Power Glide trans., power steering unit, AC unit, etc., best offer. Baczek, 255-3429.

UPRIGHT FREEZER, Hotpoint, 10.5 cu. ft., \$75; 50 1/2 x 69 1/2 steel casement window, 16 panes, \$30. Freyermuth, 299-2053.

TV, Sears 15" B&W, \$45. McConnell, 255-2488.

BEDROOM FURNITURE for child's room: single bed w/foam mattress, 9-drawer dresser, lg. toy box, seat combination, \$80. Snelling, 294-5751.

2 SNOW TIRES mounted on wheels W/HD tubes, \$75, fits 6 hole, 700x15, 6 ply; 30.06 gun. Mora, 881-2150.

DUTCH DOOR, 80"x29 1/2" w/hardware, \$10. Noel, 298-2142.

ANTIQUE RADIO, wood cabinet, \$80; oval dining table w/4 oak chairs, \$70; maple twin bed frame, \$40; rollaway bed, \$25. Young, 292-2805 after 5.

FREE KITTENS: 1 black female, 1 blonde male, 14 weeks old. Donohoe, 268-5051.

3-PC. full size bedroom set: bed frame & mirror, \$75; 4-drawer night stand, \$20; 4-drawer chest, \$25, white loveseat, \$20; platform rocker, \$25. McKay, 821-1950.

AMATEUR TRANSCEIVER, YAESU FT101B 200W P/P SSB AM CW 10-160M, WWV, CB, \$450 firm. Anderson, 299-2595 evenings.

SPAIN TRIP: July 1979, for Middle school students, sponsored by the American Institute of Foreign Students. Koepke, 292-2209.

FIREWOOD, delivered, split, stacked, \$60 per cord. Chavez, 344-4611.

CUSTOM 3-M graphite fly rod 8'3" for 5/6 wt. line, \$85. Kindley, 296-7819.

50 CAL. FLINTLOCK Thompson-Center Hawken w/horn & mold, never fired, \$195. King, 298-2628.

MAGAZINES: I.R.E. 1955-1963; FORTUNE, 1955-1972, best offer each lot. Lodge, 255-1137.

PUPPY, Shetland Sheep (Sheltie) tri-color female w/shots, AKC reg., \$150. Puccini, 265-2232.

TWIN SIZE BED & springs, \$25. McConnell, 255-2488.

CHILDCRAFT ENCYCLOPEDIA, 1964, \$45. Rudolph, 298-0949.

DRAFTING equipment to include drafting sets, beam compasses & rulers suitable for map making. Roth, 877-4997.

THREE NAVAJO RUGS: one a Two Grey Hills; will sell for best reasonable offer. McMaster, 296-7881.

WEDDING GOWN, lace, long train, long sleeves, size 7, high neckline, \$50, original cost, \$286. Lujan, 299-4820.

8' CABOVER CAMPER, sleeps 4, 3-burner & oven stove, \$500; 4 tires, 2 G70's, 2 L60's raised white letters. Stout, 299-8709.

LADIES bowling ball & bag, \$15; ladies hood type hair dryer, \$5; cannister vacuum cleaner, \$10. Koletar, 255-4751.

THREE gals. Prestone II, \$5; chrome floor type shoe rack, \$4; 30x72 prox. metal table, folds to half length, \$12. Catt, 821-4726.

POOL TABLE, 92x50 w/accessories, \$150. Neidel, 299-4369.

AIR COMPRESSOR, trailer mounted DeVilbiss 4-cyl. compressor driven by Wisconsin V-4 engine, lg. capacity, \$450. Brin, 281-3834.

DOORS from remodeled house: interior sliding, interior hollow core, exterior (1/2 glass), hardware, frames & trim included. Schroeder, 344-4921.

1974 23' TRAVEL TRAILER, fully self contained, dual holding tanks, demand water system, full bath w/shower. Owens, 881-0815.

HOOVER apt. washer/dryer, plugs into reg. outlet, \$160; vanity chair, \$15; sleeping bag w/air mattress, \$30; Instamatic camera, \$10. Anderson, 255-7881.

HIDE-A-BED couch, blue-green velvet upholstery, Sealy mattress (full size), \$75; men's golf clubs, matched set, \$300. Clarkson, 294-5834.

MEN'S SKI BOOTS, top-of-the-line Dolomite, size 8, \$50. Peet, 294-1250.

PORT. dishwasher Kenmore, \$95; Olympic radio-phono comb., \$45. Michaels, 299-8017 between 11 and 2 p.m.

SEWING MACHINE, Kenmore, stretch stitch, w/accessories, mounted in floor cabinet, carrying case, \$150. Wood, 268-2053.

19" B&W TV, portable, best offer. Wilson, 296-5965.

AUDIONICS PZ-3 power amplifier, Audionics BT-2 preamplifier, 1 yr. old, best offer. Mortley, 299-1706.

LAFER END TABLE, smoked glass top on Brazilian rosewood table, \$70; antique bronze & black fireplace screen, \$15. Peters, 293-6356.

12 GA. SHOT SHELL reloader, new, never used, 1/2 price, \$25; adjustable bedframe w/casters, \$15; ladies 3-sp. English bicycle, \$20. Stang, 256-7793 after 5.

SKI BOOTS, Ladies 6 1/2 narrow, leather, buckle, Henke, \$5. Dippold, 821-5750.

ELECTRIC ORGAN, Baldwin Panasonic w/Leslie speaker, \$300. Schindwolf, 897-0470.

ROLLAWAY BED, \$20. Coughenour, 296-4146.

REVOLVER, S&W 38-44 heavy duty, dbl. action, cal. 38 spec., \$125. Parks, 884-7475.

HAND TOOLED leather holster & cartridge belt, made for Colt SA revolver. Laskar, 299-1024.

GAS PIPE, 3/4" black, 160' in 10 1/2' joints, \$75. Silva, 873-1172.

NEW MG Midget tonneau cover, \$40, regularly \$60; Midget striping kit, \$15; repair manual for 1971 to 1975 Chevrolet. Barnard, 831-4114 evenings.

DACHSHUND puppies, AKC reg., aval. Dec. 20, \$100 female, \$110 male. Schaefer, 281-3271.

HANDWOVEN TAPESTRY, 46 high x 38, unicorn & Tree-of-life motif, off-white on green background, all wool, \$150. Krefft, 881-3486.

STAINLESS FLATWARE, 57 pieces, \$15; Winfield handcraft China, white w/green bamboo pattern, 27 pcs. w/lg. serving dishes, \$75. Shieler, 881-8723.

ALFALFA HAY, 163 bales, weed-free, in covered storage. Hartwigsen, 865-7836.

SMITH & WESSON .22 kit gun, \$178; heavy duty exercycle, \$35; 36" kitchen wall cabinets, \$25 ea. Watterberg, 294-6759.

CHAIRS, 2 ea. brown tweed, overstuffed. Nagel, 298-2779.

SUNTEMP solar collector fluid, 4 1/2 gal. Edenburn, 869-2911.

SOFA, new, 101" white velvet, \$200. Fraser, Rio Rancho, 898-9479.

BRUNSWICK AIR HOCKEY game, \$15; small port. pool table, 2 1/2 x 4', \$30; Yashica camera w/power zoom, \$15; drapery rods; hurricane lt. fixture; misc; books. Siska, 298-5756.

SEARS vacuum cleaner w/attachments, \$50. Rosborough, 298-3645.

PRINTING CALCULATOR, 4-function, Sperry Remington model 800P, \$25. Reed, 884-8643.

HAMMOND console organ, 1978 Grandee model, all auto. features, consider less sophisticated organ as trade in. Austin, 299-6791.

SERVEL gas refrigerators: 6' \$250; 8' \$350. Browne, 281-5728 evenings or 345-2593 days.

CHAIRS, 2 ea. Brown Tweed, overstuffed. Nagel, 298-2779.

### TRANSPORTATION

'77 JEEP CJ5 Renegade, 304 V8, 27,000 miles, AM-FM radio, PS. Walla, 299-2209.

'73 GMC 4-wd 1/2-ton pickup, lock out hubs, low mileage, 350 V8, new paint, AT. Bloomquist, 296-9701.

'73 VW BUG, 4-sp., new clutch & rebuilt engine — under warranty, AM-FM, 8-track, \$1650. Williams, 293-8115.

'65 MUSTANG, 6-cyl., AT, needs paint & interior, \$500. Dillon, 268-7038.

'78 T.B., loaded. Sena, 881-1591.

'71 ROADRUNNER, 383, AT, PB, PS, AM radio, Diamond Tuck upholstery, no dents, good finish. Schaefer, 294-0862 after 5.

'75 MARK IV, full power, low mileage, \$6950. Perryman, 294-6113.

'73 VEGA GT hatchback, new tires, AC, 4-sp., \$750. Paul, 298-3066 after 2.

'65 MUSTANG, AC, radio, tape deck, 2 new snow tires, \$1800. Mason, 281-3052.

VOLKSWAGEN 7-pass. micro bus, 4-sp., Porsche engine, beige/white, snow tires, book price. Chacon, 292-1461.

'69 GMC 1/2 ton, 230 cu. in. 6-cyl. eng., long bed, \$1000. Doyeto, 883-1867.

'76 SOUTHWIND motorhome, 28 1/2', self contained, low mileage, sleeps 6, all extras, lg. engine, AM/FM/CB, power plant, \$14,600. Bassett, 898-1840.

'76 MERCURY Comet, AC, PS, AT, 4-dr., deluxe interior group, 25,000 miles, \$3100. Coalson, 298-0061.

'71 CHEV stn. wgn., new tires & battery. Nuttall, 821-2895.

'76 SUZUKI GT550, Windjammer III, Cruise control, rack, 4521 miles, \$1100. Garrison, 881-1851.

'72 R5C 5-sp. Yamaha, 65 mpg, 14,750 miles, \$375. Conklin, 298-8217.

'77 SUZUKI GS750 motorcycle, new 4-cyl. model, includes fairing, custom seat, shop manual, valve tool & protective cover. Kidd, 299-0035.

'73 PINTO, AT, 2-dr., new tires, 4-cyl., low mileage, gold color, \$1500. Lucero, 344-0686 or 298-2142.

'75 TOYOTA Corona 2 dr. sedan, white, 5-sp., 47K miles, \$2200. Seager, 299-4137.

'60 CHEV., 4-dr., AT, 48,000 miles, \$600. Reed, 255-9991.

VOLKSCYCLE Mark X w/steelight tubular frame, many accessories, \$150. DiPaolo, 883-4604 after 5.

BICYCLE, 10-sp. Gitane, w/all accessories, \$125. Syler, 299-2941.

'77 GRANADA GHIA, 14,000 miles, V8, loaded w/every option available. Marquez, 877-0117.

'59 FORD convertible, retractable hardtop, 352-V8, AT, PS, new interior, recent paint, \$4000/reasonable offer. Roberts, 293-8726.

'77 VW RABBIT, \$4300 cash or \$1200 equity assume payments, will consider trade. Harvey, 265-3055.

'75 CAN-AM MX250 dirt bike, \$700. Forsythe, 298-4034.

'67 FORD stn. wgn., well equipped, \$575. Zipprich, 298-8381.

### WANTED

ROTOTILLER, running or not, but reasonably priced. Dees, 869-6949.

NEED to rent garage space for 1 or 2 cars, 3-6 mos. starting late Jan. Roberts, 293-8726.

20 GAUGE shotgun for a youth; 6-string classical guitar; music stand. Worrell, 299-0381.

METAL DETECTOR. Jennings, 255-5950.

LADIES BICYCLE, 3, 5, or 10-speed, must be in good condition. Hole, 255-1444.

DINING ROOM SET with at least 6 chairs & china cabinet or server. Chorley, 296-1454.

REASONABLY PRICED 8' cabover pickup camper. Souder, 281-3121.

STATIONARY BICYCLE EXERCISER. Lundergan, 299-8368.

HARVEST GOLD REFRIGERATOR. Cox, 268-9516.

WOODWORKING MAGAZINES, will trade Ski & Skiing magazine issues 1963-78. Horton, 298-4449.

TO BUY DUCK and/or goose eggs for Christmas decorations. Brooks, 881-4319.

### REAL ESTATE

SECLUDED 2.1 acres in Peralta. Abeyta, 298-4276.

2150 SQ. FT., 2-bdr. home, 20x43 den, 2 baths, single garage covered patio, some furniture, appliances. Lassiter, 298-2461.

### FOR RENT

NE, 3-bdr., 1 bath, walled yard, garage, stove & refrig., disposal, near schools & shopping. Martinez, 881-3289.

1-BDR., unfurnished, 2 blks from base, \$145. Martinez, 298-8812.

MOUNTAIN CHALET, near Taos Ski Valley, deluxe accommodations, sleeps 8. Peet, 294-1250.

2-BDR. APTS. in fourplex, 204 Gen. Stillwell NE, unfurnished, \$180/monthly plus utilities. Gonzales, 298-2164.

2-BDR. unfurnished apt., dishwasher, range, refrig., drapes, storage, laundry room, on Sandia bus route, near Lomas-Chelwood, \$200/mo. Wiczler, 296-4496.

### LOST AND FOUND

LOST — Ladies' Rx sunglasses w/multi-color rims & square lens in yellow case, 6 keys on chain, Int'l. truck key, black wallet, man's brown leather glove for RH, men's Rx glasses w/smoky grey rims in brown case, ladies' white gold Seiko watch w/silver stretch band, black "Rapidograph" fountain pen.

FOUND — Men's bifocal glasses w/black/grey rims in black case. LOST AND FOUND, Bldg. 832, 264-1657.

**Coronado Club Activities**

# Kids to See Santa Soon

HAPPY HOUR Friday, Dec. 1, will see a spread of seafood on the buffet, Jeanne Rich and Friends on the bandstand. Call 265-6791 by mid-week to reserve buffet tickets. This will be the only Happy Hour Friday night buffet in December — organizational Christmas parties will occupy the calendar for the remainder of the month. Friday Night Happy Hours will continue in the lounge only.

ANNUAL KID'S CHRISTMAS PARTY is scheduled Saturday, Dec. 16, from 9:30 a.m. until 12:30. Entertainment will be songs by the Goodday Singers and a puppet show by Ron and Mary Kay Day. Santa Claus will appear in person, of course, with a bag full of goodies for the little ones.

SANADO WOMEN'S CLUB will dine and dance Dec. 2 at the Silver Bells Ball. Prime rib is the dinner feature; the Smoothies play for dancing.

CORONADO GRAND SQUARES party Dec. 4 with square dancing, a pot luck dinner and a singalong with Mike Michnovicz and accordion.

IT'S NOT TOO LATE to sign up for the Wolfpack charter bus trip to Tempe for the Sun Devil tournament Nov. 30-Dec. 3. Call Pro Padilla, 4-3462, for more info.

TRAVEL DIRECTOR Ed Neidel has two packages open — a go anytime trip to London for either one or two weeks and a Caribbean cruise Jan. 6-14. Call the Club office for more info.

A NOTE OF THANKS from Cliff Shaw (1483) to all those who helped with the recent Chamber of Horrors and Kids Halloween party: "Your help was deeply appreciated."



A REAL LIVE SANTA CLAUS is just one of the surprises in store for singles as they mingle next Friday, Dec. 1, starting at 4:30 in the Eldorado room. Music, munchables, goodies and door prizes complete the festivities. Al Artiaga (3721) plays Santa Claus to Debra Vosburg (6011) and Georgia Rivera (3253).



**CONGRATULATIONS!** 13 Infraction-Free Years At Pantex

ALL OVER PANTEX during November, this poster lauding the 13 infraction-free years compiled by Sandia's Systems Test Laboratory Division 1424 reminded employees of the continuing need for security. Sandia contingent was assigned to Pantex 13 years ago, has never had a security infraction.