

EXPLORATION ACTIVITIES directed by Sandia Labs are underway in the Los Medanos area southeast of Carlsbad, the site being considered for ERDA's radioactive waste pilot plant. Pilot plant program will evaluate deep salt beds for permanent disposal of radioactive wastes. At left, Shorty Digby, president and coring engineer of International Diamond Coring Company, cleans a section of salt-bearing core taken from Hydro Hole No. 1. Section comes from about 220 metres (740 feet) below the surface. At right, Joe Magruder (1135), Sandia's representa-

ive at Carlsbad, and Dave Ogden, left, driller for Sonora Drilling Company, examine the diamond bit used for cutting cores. Drilling program consists of coring to depths of 800-plus metres so that the underlying salt beds can be scientifically evaluated. A hydrological study of the area is using separate drill holes to gain data for the calculation of possible radioisotope migration.

# LAB NEWS

VOL. 28, NO. 12

JUNE 11, 1976

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

## Hallmark: Weapon Quality

### Sandia QA Marks 10 Years In Space RTG Business

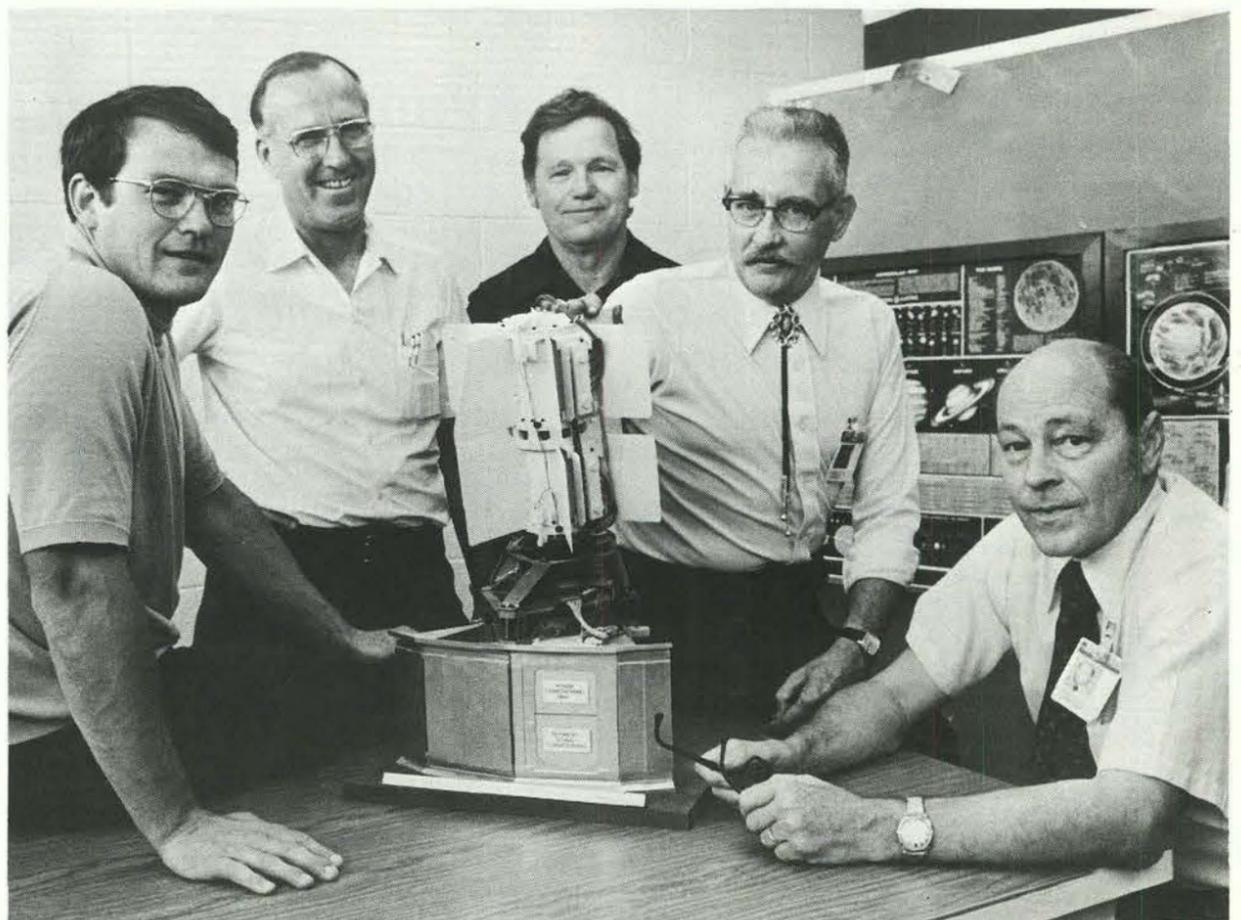
A small group of Sandians in the Quality Assurance business has achieved a remarkable record — 10 years of 100% success — and in so doing has contributed immeasurably to the nation's space program.

First called upon in 1966 to provide weapons-type quality assurance programs for the radioisotopic thermoelectric generators (RTG's) that were being sent into space, Sandians in Electric and Electrical Devices Division 9512 under Bill Thomas have had a role in some of the outstanding technical achievements of the 20th century:

- Six Apollo manned space missions
- Two Pioneer instrumentation probes of Jupiter, one of which will fly by Saturn
- Establishment of operational Nimbus, Transit and LES weather, navigation and communications satellite systems.

In all of the programs, Sandia is responsible for quality assurance of the RTG units, which use radioisotopic heat sources to generate electrical power. Initial funding for the QA activity started at \$50,000 in 1966; now funding has reached \$500,000 annually. Overall program direction and funding comes from ERDA's Division of Nuclear Research and Applications (formerly Space Nuclear Systems Division of the AEC).

Early in the effort Sandia QA engineers  
(Continued on Page Five)



QUALITY ASSURANCE PEOPLE this month mark 10 years of 100% success in the RTG space program. The unit is the first radioisotopic thermoelectric generator designed for space applications back in 1966. From left are Gary Reif (2522) and Dale Pipher (5422), no longer active in QA; and Gene Jeys, Bob Harnar and Bob Hannigan (all 9521).



Don Parker



Gary Mauth



Ned Keltner

## Supervisory Appointments

**DON PARKER** to supervisor of Industrial Hygiene Division 3311, effective June 1. Don has been an industrial hygienist at Sandia since December 1964. His concerns are toxic chemicals and materials at the Labs, the adverse effects they might have on individuals or on the environment, and their safe handling procedures. Before coming to Sandia, Don worked with the Oregon State Board of Health.

He received a BS from the University of Washington and MS — both in public health — from the University of Michigan. Don is a member of the American Association of Industrial Hygiene, the Air Quality Control Commission-City of Albuquerque, and, president of Parents Without Partners. His favorite activity is sailing. Don has three children and lives at 8911 Northeastern NE.

\* \* \*

**GARY MAUTH** to supervisor of Sensors Development Division 1243, effective June 1.

Gary joined the Labs in June 1965 as a member of the Technical Development Program. He had earned his BS degree in EE from the University of Colorado. Gary worked with a weapons systems group for a year and then transferred to his present organization. He received his MS from UNM in 1967. The primary responsibility in his new position will be the development of sensor instrumentation for satellite systems.

Gary's off-the-job interests include camping, fishing and skiing. He and his wife

Mary and their two sons live at 1717 Luthy Place NE.

\* \* \*

**NED KELTNER** to supervisor of Thermal Test Planning and Analysis Division 9337, effective June 1.

Following graduation from Michigan State with a BS in Chemical Engineering, Ned came to Sandia in July of '64, joining the Labs' TDP program at UNM. In '66 he completed MS requirements in mechanical engineering under that program. Later, in the early '70's, he gained his PhD at UNM under Sandia's Doctoral Study Program.

Ned has worked chiefly in areas relating to thermal testing and, besides his normal assignment in Area III, has also completed temporary assignments, performing analytical heat transfer studies for the 1200 organization and working with an energy systems studies group. In his newly created division, he will be concerned with thermal testing relating to the solar tower facility and reactor safety.

The Keltner's (Sharon) have two girls and reside at 12605 Loyola NE. Camping and skiing are their principal leisure time activities.

## Events Calendar

**June 11** — KHFM, 96.3 FM, Stephen Vincent Benet's "John Brown's Body," 9:40 p.m.

**June 11-13** — 9th Annual Inter-Tribal Powwow, Albuquerque Indian School, Mrs. Haury, 299-8942.

**June 13** — NM Mt. Club, Tent Rocks walk and picnic, Gulf Mart at 3 p.m.

**June 15-July 18** — "Pajama Tops," Barn Dinner Theatre, Reservations, 281-3338.

**June 18-20, 25-27** — "The Music Man," Albuquerque Civic Light Opera, 344-3217.

**June 19** — NM Mt. Club, 20 mt. hike San Pedro Parks, 7 a.m., Gulf Mart.

**June 19-20** — Bicentennial Open House on KAFB, air shows, exhibits, sky divers, Major Neely, 264-5992.

**June 25-27** — New Mexico Arts & Crafts Fair, State Fairgrounds.

## Congratulations

To Marlin (1134) and Joyce Aker, a son, Marlin Franklin III, May 22.

To Ernie Garcia (1134) and Linda Salvo, married in Santa Fe May 29.

To Ray (9651) and Judy Thomas, a son, Nathan Bradley, May 30.

## Patent Awarded For New Ceramic To Metal Seal

ERDA recently received a patent for a method to make ceramic-to-metal seals. Inventors are Paul Wilcox and Gary Snow of Active Ceramic Materials Division 2521.

Gary and Paul have been working on an Army reimbursable program to develop a new flat pack ceramic enclosure for quartz crystal resonators. This enclosure requires a low-temperature hermetic seal enclosing a gas atmosphere. Conventional methods of making the seal are time consuming, expensive, or damaging to the crystals.

Their solution to the problem is relatively simple, effective and inexpensive. They developed a metal gasket seal which, when heated slightly and deformed under pressure, effects a strong, hermetic bond between two ceramic members. The technique lends itself to processing a number of units simultaneously. In some applications, the seal can provide electrical leads to the package interiors. The sealing method has applications in the packaging of electronic components in gas or vacuum environments, and it is also being used to fabricate experimental oxygen sensors for use in coal gasification reactors.

## Sympathy

To Eloy Sedillo (3283) on the death of his father in Albuquerque May 24.

To Jim Pacini (1241) on the death of his father-in-law May 14.

To Wayne Trump (4231) on the death of his mother-in-law May 29 in Nebraska.

## RETI R I N G



James Hiser (9550)



Lawrence Bowen (3645)

## LAB NEWS

Published every other Friday

### SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA

Editorial offices in Albuquerque, N.M.  
Area 505 264-1053  
ZIP 87115

In Livermore Area 415 455-2111

john shunny is editor

&

don graham ass't. editor

bruce hawkinson & norma taylor write

bill laskar does picture work

so does russ smith

&

lorena schneider reports on livermore

## SLL/LLL Co-Host Safety Conference

Sandia/Livermore and LLL co-hosted the recent Explosives Safety Engineering Conference, an annual get-together of explosives specialists from ERDA and ERDA laboratories throughout the country.

Latest developments in explosives safety and hazards control were shared and discussed. Sandians who presented papers were: Bill Wilson (8165), "Nonviolent Explosives Destruct System (NEDS)"; Carl Wright (8185), "Laser Initiated Detonators and Laser Pyrotechnic Pumping"; and Scotty Romine (8252), "A Premature Detonation in the XP-2 Firing Chamber at SLL." Scotty also served as SLL coordinator for the conference.

At the close of the conference, Dick Doyle (9542) was elected chairman and Scotty secretary of the 1977 ESEC conference to be held at Pantex next May.

## Speakers

Ray Mar (8313) and Stan Zehr (8365), "Use Denial of Special Fissionable Materials"; George Thomas (8314), Walt Baviour (8334) and Barry Granoft (5825), "Helium and Hydrogen Implantation Effects in Graphites"; Ken Wilson and Walt Bauer (both 8334) and George Thomas (8314), "Low Energy Proton Implantation of Stainless Steel"; and Bill Wilson and Mike Baskes (both 8341), "Atomistic Diffusion in Metals During Helium Implantation," American Nuclear Society 1975 Winter Meeting, Nov. 16-21, San Francisco, Calif.

Carl Melius (8341), "The Role of d Electrons in Chemisorption and Catalysis in Transition Metals," Invited Presentation: Seminar in Chemical Physics, Bell Laboratories, Murray Hill, N.J., Nov. 3; University of Pennsylvania, Solid State Physics Dept., Nov. 5; and University of Florida, Quantum Chemistry Dept., Dec. 10.

Bob Setchell (8115), "Analysis of Laminar and Turbulent Flames Using Raman Spectroscopy," Invited Seminar, University of California, Mechanical Engineering Dept., Dec. 15, Berkeley, Calif.

Bob Cattolica (8115), "The Application of a Fabry-Perot Spectrometer for Velocity and Temperature Measurements in Gas Dynamics," Invited Seminar, Purdue University, Mechanical Engineering Dept., Jan. 23, West Lafayette, Ind.

## Congratulations

Mr. and Mrs. Wil Jorgenson (8114), a daughter, Regina Antonia, Apr. 23.

Mr. and Mrs. Larry Rahn (8342), a son, Timothy Andrew, Apr. 25.

John Hachman (8431) and Diane Dengate, married in Stockton, Calif., Apr. 17.

Debbie Booher (8431) and Tracey Petersen, married in Tracy, Calif., May 22.

## Sympathy

To George Cosgrove (8423) on the death of his mother-in-law in Santa Monica, Calif., May 9.

To Ray Faltings (8413) on the death of his mother in Garfield, N.J., May 10.

To Dan Pegan (8168) on the death of his mother in Fontana, Calif., May 7.

To Iona Ratcliff (8433) on the death of her father in Mitchell, S. Dak., May 1.

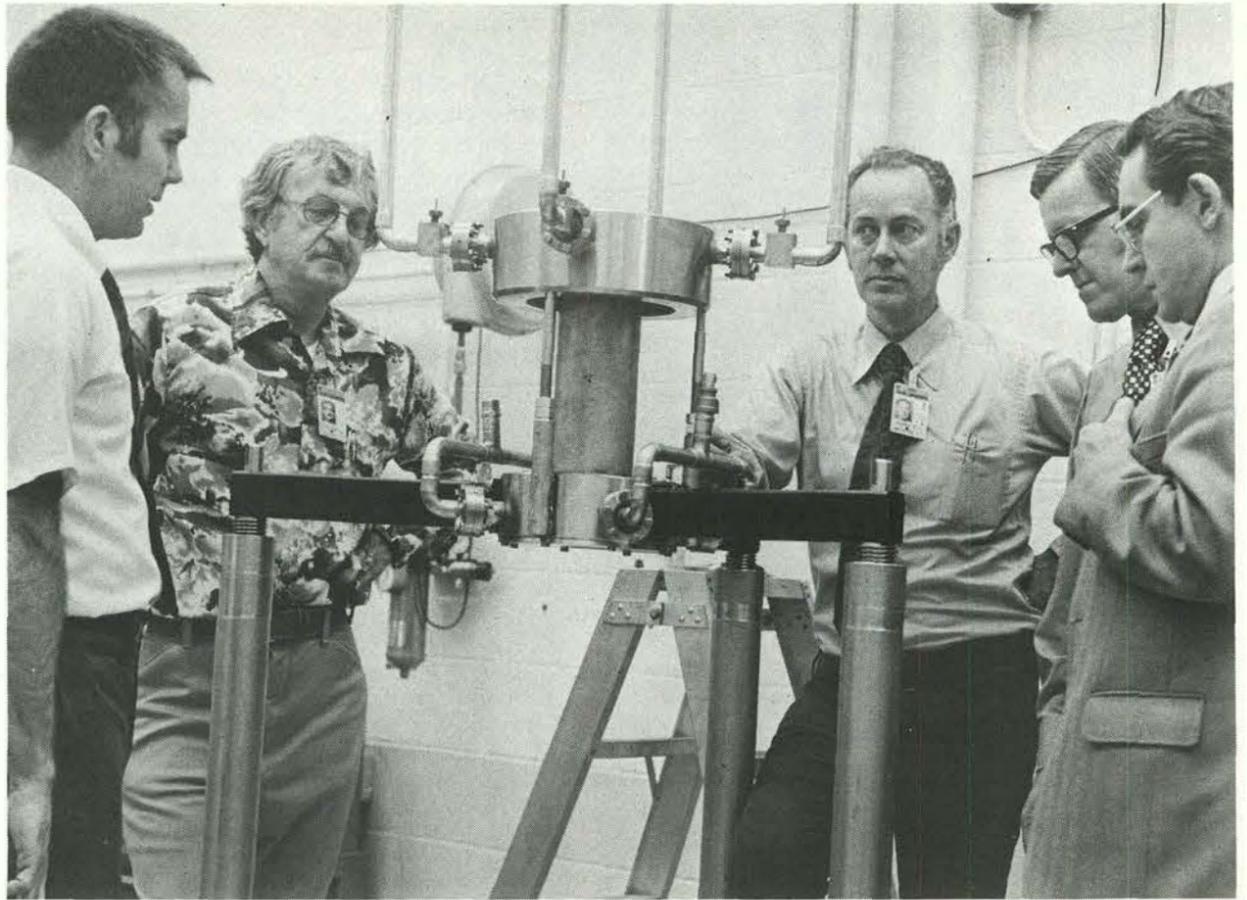
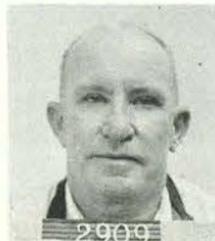
To Moe (8161) and Shannon Houk (8323) on the death of his mother in Castro Valley, Calif., May 20.

## Death

Elmas (Andy) Anderson, a plant technician mechanical in Plant Maintenance Division 8257, died suddenly May 18. He was 60.

He had worked at Sandia since March 1964.

Survivors include his widow, his mother and a half brother.



*FRENCH VISIT—Claude Royere, Director of the Solar Furnace at the National Center for Scientific Research (CNRS) in Odeillo, France, views a solar experiment under construction at Sandia Livermore with (from left), Al Baker (8111), Cliff Selvage (8180), Tom Brumleve and Al Skinrood (both 8184). Mr. Royere was at SLL to discuss planned testing of a U.S. prototype solar receiver this summer at CNRS, site of the world's largest operating solar energy facility. Purpose of the tests in France is to confirm that the simulated conditions created in Sandia Albuquerque's Radiant Heat Facility yield an accurate measurement of performance. The radiant tests were conducted by Paul Adams (9331) and Ned Keltner (9337).*

# LIVERMORE NEWS

VOL. 28, NO. 12

LIVERMORE LABORATORIES

JUNE 11, 1976

## From Project Plowshare

# Seismic Signaler Awarded Patent

A development that arose from earlier SLL work on Project Plowshare is the subject of a patent that has been awarded to ERDA. Inventors are Tom Brumleve (8184), Mearle Hicks (8324), and Milton Jones (8168).

Called "A System for Remote Control of Underground Device," the invention enables the firing of a nuclear device buried many thousands of metres underground, independent of any hard wire connection to the device.

Tom Brumleve explains, "In Plowshare natural gas applications, up to five nuclear explosives might be emplaced in the same drill-hole at depths of 3,000 metres or more. Getting control cables down to that depth is difficult and costly. Further, the deeper you go, the more reliability problems you have with the cable — the increased pressure and temperature at those depths are hard on the cable, not to mention problems associated with backfilling the hole after the devices are emplaced. If the devices are to be fired sequentially, insuring survival of cables is extremely difficult. Then, after the shot, if you want to reenter through the emplacement hole, the presence of the cable can complicate the drilling process."

"Hicks, Jones, and I speculated that it might be possible to eliminate the cable entirely if we could reliably transmit signals directly through the earth to the nuclear device. We investigated both seismic and electromagnetic methods, but elected to go seismic initially since we believed signal

attenuation would be less severe."

About this time Don Starkey (now 8156) joined the Plowshare group and set out to determine feasibility through a series of field experiments in shafts, tunnels, and drill-holes at NTS and in a deep, natural gas well in Wyoming. In early experiments small charges of high explosive were detonated just beneath the surface. Underground geophones were able to detect the seismic signals at distances of several thousand feet, and the experimenters concluded that their approach would work.

In later experiments, the high explosive was replaced by a massive truck-mounted vibrator of a type used for geophysical exploration. The unit was placed in contact with the ground surface and vibrated in a predetermined frequency pattern. During the last tests near Pindale, Wyoming, they succeeded in transmitting to depths greater than 2,500 metres. The use of a unique seismic signature avoids spurious signal problems and enhances both the safety and security of the nuclear application. On the receiving end, the electronics associated with the arming and firing of the nuclear device were designed to respond only to this unique signal.

Project Plowshare is now relatively dormant, and this seismic controller has thus not seen actual use with a nuclear device. Other Sandians who assisted in developing the system include Dave Bray (8159), Bob Bedford and Bob Chan (both 8181), and John Brouillard (1131).



TO SAVE A LIFE — Dr. Judy Ewing of Medical and Ed Hart (2313) practice CPR on manikin.

## CPR: A Matter of Life & Death

Each year more than 650,000 Americans die suddenly. Poisoning, drowning, suffocation are among the many causes, but the single most common cause is heart attack. Some significant number of these heart attack victims might still be alive today if a non-medical person trained in cardiopulmonary resuscitation (CPR) had been nearby when the victim suffered cardiac arrest.

"Well-documented experimental and clinical studies have established that the proper combination of artificial respiration and external cardiac compression can sustain a victim of sudden cardiac arrest for a reasonable period" is how the Journal of the American Medical Association sums up the medical view of cardiopulmonary resuscitation. CPR works.

During this year Sandia Medical has been engaged in a series of two-day training programs, giving instruction to selected Sandians so that they in turn could become CPR instructors. These instructors are now ready to give their own classes in CPR, and interested Sandians are urged to contact an instructor (below) in their directorate in order to sign up. The CPR course lasts six hours and is given during working hours.

NAME	ORG.	PHONE		
Allen Church	1132	2008	Doug Drumheller	5167 7530
John Johnson	1132	7576	Jess Harness	5200 3197
Jim Reid	1712	6406	John Bagg	5212 7650
Richard Davis	1755	3165	Ray Clark	5245 6273
Dave Skogmo	2112	5163	Jack Cyrus	5715 7338
Bob Onan	2121	7016	Dan Drummond	5813 8821
Fred York	2130	5307	Howard Stephens	5842 7934
Ralph Benedict	2140	7650	W. Vandermolen	8114 3162
Dick West	2312	5697	Dorothy Hagen	8214 2700
Ed Hart	2314	7576	Mary Johnston	8214 2700
Harold Barnett	2316	6164	Vern McNabney	8252 3086
Roy Ellison	2316	7576	Ed Kuroski	8257 2583
Ross Yingst	2317	3574	Joseph Bradshaw	8413 2782
Bill Self	2353	6565	Jack Wilson	8413 2681
Paul Matson	2513	3198	Gary Laabs	9335 7970
Paul Kirby	2620	6102	Malcolm Woodward	9344 6647
John Kurzovich	3313	8703	Marion Young	9522 3216
Larry Tichenor	3622	1055	John Southwick	9531 7700
Bob Weaver	3622	1055	Leo Bressan	9532 7933
George Wayland	4211	3359	Jack Armbrust	9542 3876
Willard Benson	4323	4262	Ken Hykes	9711 3477

## Take Note

UNM begins funding a Public Interest Research Group (P.I.R.G.) in September. Before the professional staff comes aboard, a list of people and causes is needed. If you are involved in a "social change" activity (energy conservation, civic causes, education, any kind of cooperative, etc.) mail your name and a brief description of your interest to: New Mexico P.I.R.G., UNM, Albuquerque, 87131. More information from 277-2738.

\*\*\*

The 17th Annual Conference of the Industrial Photographers of the Southwest,

held last month, included presentations by Louie Erne (3171), Tom Zudick (3171), and Bruce Hawkinson (3162). Elliot Harris (3153) was General Chairman of the Conference.

\*\*\*

Fred Leckman (3171) has been appointed to the Metropolitan Parks and Recreation Advisory Board. He will serve until January 1979. Fred's interest and experience in the field stem from several year's involvement with the Kit Carson Council committee on camp development.

## Speakers

W.H. Smyrl (5831), "Current Distribution on Electrodes at High Current Densities," and "Potential Dependent Stress Corrosion Cracking in Molten LiCl-KCl"; R.M. Biefeld (5154), "The High Temperature Thermodynamic Properties of  $\text{Na}_2\text{WO}_3$ ," Electrochemical Society meeting, May 2-7, Washington, D.C.

J.L. Colp (5715), W.N. Caudle (1325) and C.L. Schuster (5733), "Sensors for Rapid Bottom Sediment Property Determination for Offshore Structure Design," 1976 Offshore Technology Conference, Marine Technology Society, May 3-6, Houston, Texas.

J.C. Bushnell (9352), "Rapid, Automatic Measurement of Dielectric Properties of Glasses Versus Frequency and Temperature"; C.P. Ballard (5846), "Metal Oxide Interactions in Glass-to-Metal Seals"; G.J. Jones (2531) and C.P. Ballard, "Gas Evolution During Glass/Metal Sealing"; R.J. Eagan (5846) and J.C. Swearingen (5847), "Relation Between Mechanical Properties and Composition of Alkali and Alkaline Earth Aluminosilicate Glasses"; R.J. Eagan, "The Effect of Dissolved  $\text{H}_2\text{O}$  on Electrical Properties of  $\text{Na}_2\text{O-SiO}_2$  and  $\text{Na}_2\text{O-Al}_2\text{O}_3\text{-SiO}_2$  Glasses"; M.L. Knotek (5155), "An ac 4-Probe Technique for Measuring Ionic Conductivity," American Ceramic Society Meeting, May 3-5, Cincinnati, Ohio.

F.L. Vook (5110), "New Uses of Ion Beams to Study Solids," Physics Department Seminar, Stanford University, May 4.

R.G. Dosch (5824), "Inorganic Ion Exchangers in Waste Solidification," Conference on Actinide Recovery from Acidic Wastes, May 4-5, Golden, Colo.

L.F. Shampine (5122), "The User's View of Solving Stiff Differential Equations," Workshop on Stiff Systems of O.D.E.'s, May 6-7, KAFB.

R.M. Biefeld (5154) and R.T. Johnson (5155), "Ionic Conductivity in Lithium Aluminosilicate Solid Electrolyte Materials"; M.L. Knotek (5155), "Surface

Studies of Na-B-Alumina"; E. Gorham-Bergeron (5151), "A Quantum Mechanical Theory of Ionic Diffusion," International Conference on Superionic Conductors, May 10, Schnectady, N.Y.

D.L. Wesenberg, W.B. Leisher, W.K. Tucker, E.C. Cnare (all 5233) and M. Cowan (5230), presented by Mr. Cowan, "PULSAR - A Flux Compression Stage for Coal-Fired Power Plants," 6th International Cryogenic Engineering Conference, May 11-14, Grenoble, France.

J.S. Pearlman (5214), "Effects of Incident Laser Beam Polarization on Plasma Absorption," Sixth Annual Symposium on the Anomalous Absorption of Intense High Frequency Waves, May 10-12, Vancouver, B.C., Canada.

P.C. Lysne (5131), "Electrical Response of Shock Wave Compressed Ferroelectric Ceramics," Physics Colloquium, May 10, Washington State Univ.

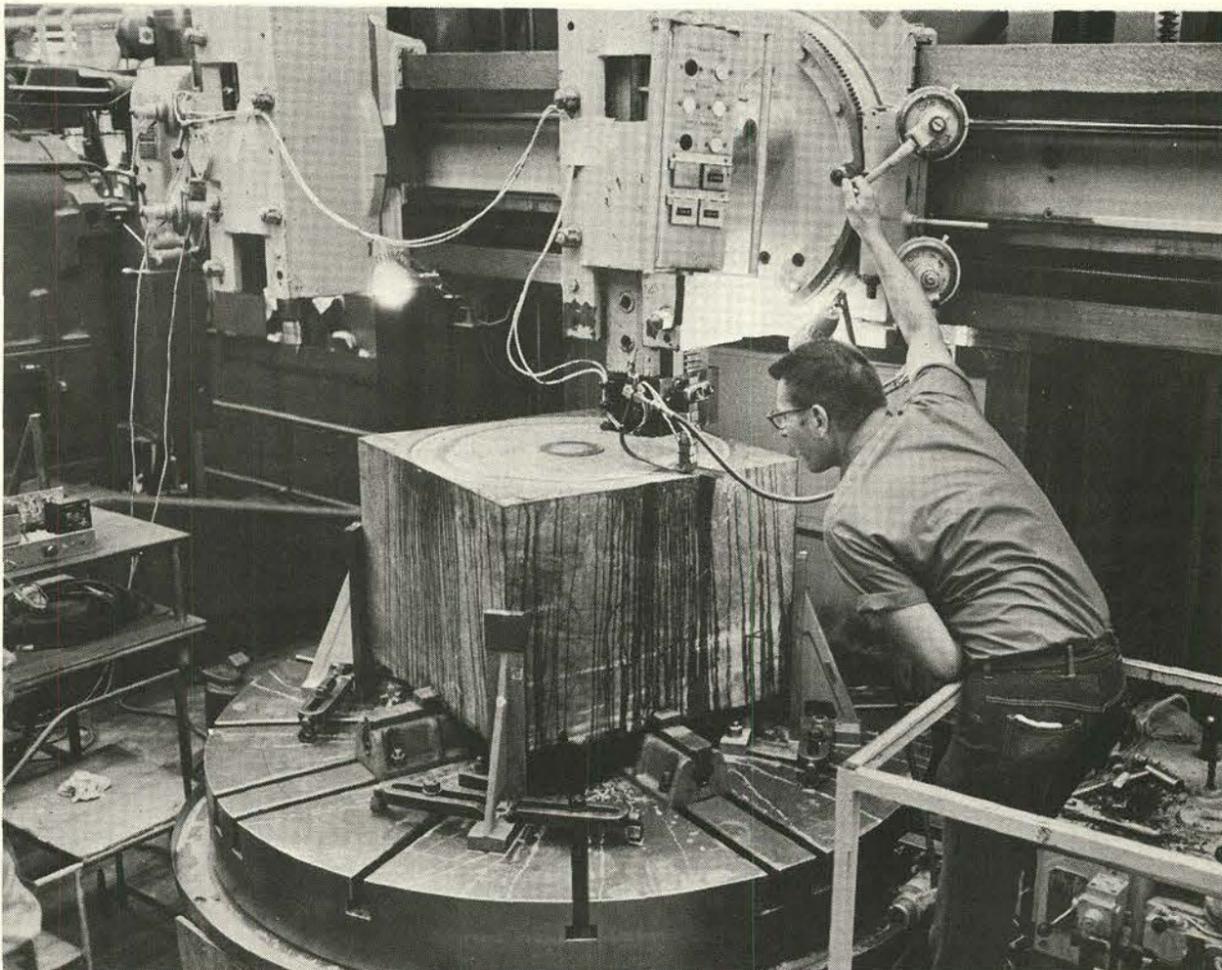
F.R. Norwood (5166), "Analysis of Rayleigh Waves for the BISS Program," 2nd Symposium on the Design, Testing, and Deployment of Unattended Ground Sensors, May 11-12, Vicksburg, Miss.

K.H. Eckelmeyer (5832), "Heat Treatment-Microstructure-Mechanical Property Relationships in U-3/4% Ti," Invited Paper, Army Materials and Mechanics Research Center Conference, May 17-20, Charlottesville, Va.

P.F. Hlava (5822), "Lavas of Unusual Composition from Molokai, Hawaii," The Geological Society of American Meeting, May 17-23, Albuquerque.

J.W. Reed (5443), "Anemometry Data Processing"; B.F. Blackwell (1333), "Selected Wind Tunnel Test Results for the Darrieus Wind Turbine," Vertical-Axis Wind Turbine Technology Workshop, May 18-20, Albuquerque.

R.M. Biefeld (5154), "The Vaporization Thermodynamics of Rubidium Iodide," High-Temperature Inorganic Chemistry Symposium, May 19-21, Akron, Ohio.



STRESS TEST — A GE diamond Compax cutting edge, part of an oil well drilling bit, is tested in Bldg. 840 for vertical vs horizontal stresses while cutting into a granite block. The project is part of Sandia's drilling research program. Operator of the vertical boring mill is Jim Myers (3646). Project engineer is Dick Ashmore (2325).

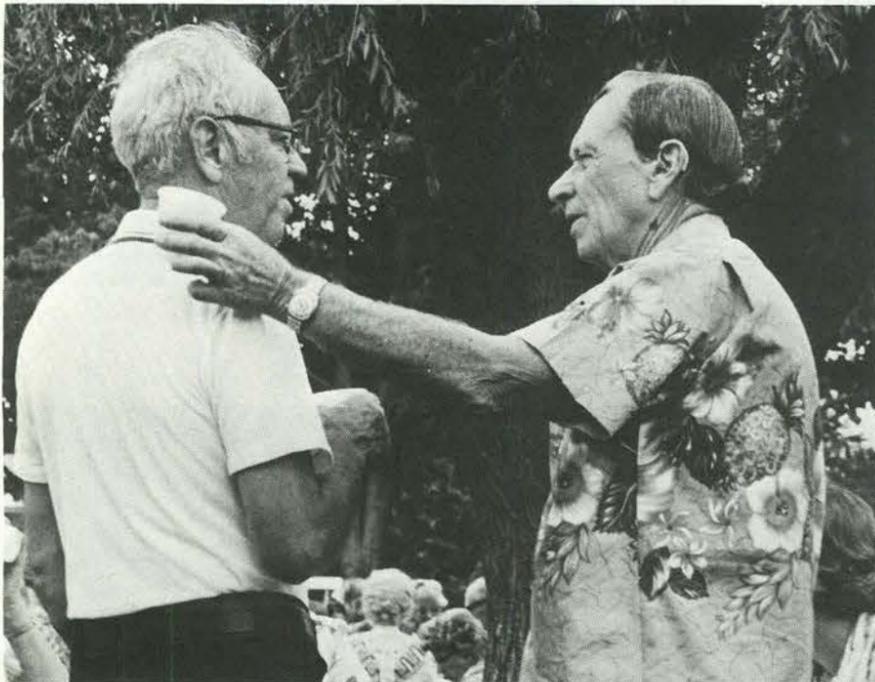




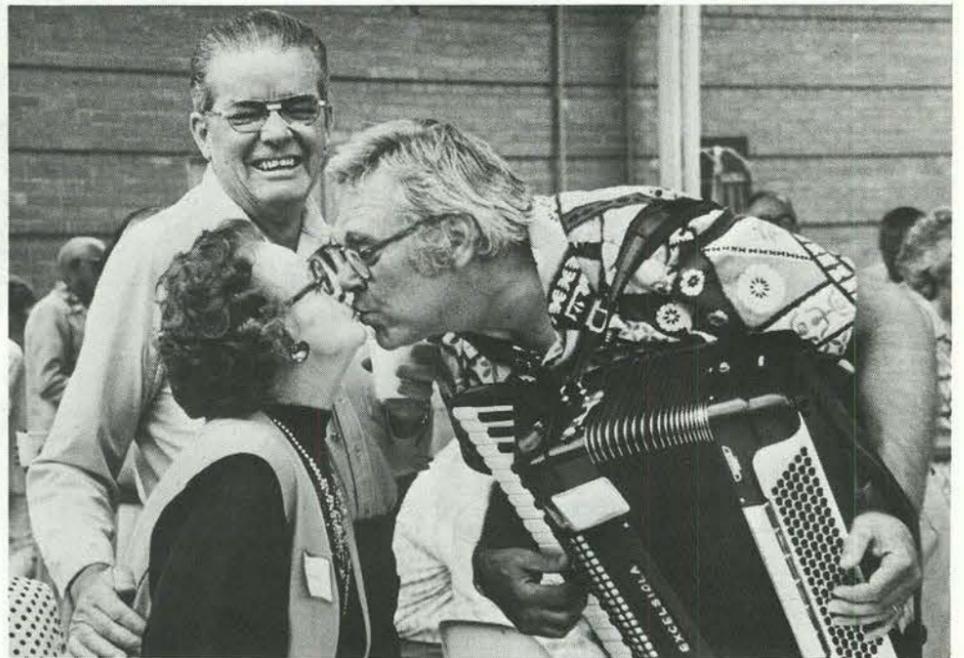
Lorraine and Hugo Flores, Mark Elich, Mark and Alice Martegane.

## Retiree Picnic

More than 800 attended. The weather cooperated, food and drink were plentiful and good, and the mood was — well, see for yourself.



Gene Peirce and Jack Hanson



Mildred Johnson busses the accordion player as Roger looks on. Mike Michovicz (the player, 9632) is a regular at the picnics.

### Continued from Page One

## Sandia QA: 10 Years in Space Business

wrote the ground rules of the business in a document called "Quality Control Policy for Isotopic Power Systems." At the beginning of each RTG program, Sandia reviews contractor planning to verify compliance with quality requirements. As the program progresses, Sandia field representatives monitor critical fabrication processes, assembly operations and performance testing.

Sandia accepts all RTG program material on behalf of the government for subsequent delivery to the using agency. Almost 100% of all RTG parts are inspected by Sandia and accepted against system requirements and specifications. The work is carefully documented, according to the quality plan, during all phases of fabrication, inspection, testing and acceptance.

"This kind of attention to detail probably accounts for our success rate," says Bob Harnar (9512), project engineer. "We adapted Sandia's standard QA practices

from weapons work to the production of RTG units."

Space programs Sandia has participated in include:

2 SNAP 19 RTG's on Nimbus B	1968
2 SNAP 19 RTG's on Nimbus III	4/69
6 SNAP 27 RTG's on Apollo-	12 11/69
	13 4/70
	14 1/71
	15 7/71
	16 4/72
	17 12/72
4 SNAP 19 RTG's on Pioneer 10	3/72
4 SNAP 19 RTG's on Pioneer 11	12/73
1 Transit RTG on	
Navigational Satellite	9/72
2 SNAP 19 RTG's on Viking 1	8/75
2 SNAP 19 RTG's on Viking 2	9/75
4 RTG's on Lincoln Experimental	
Satellites 8/9	3/76

The first of the Viking spacecraft is expected to land on Mars July 4. Experiments on the Vikings, powered by SNAP 19 RTG's, are designed to detect life on the planet, among other scientific goals.

Both Pioneer Jupiter spacecraft are still transmitting (via RTG power) data from the far edge of the planetary system. Pioneer 10 is now more than 1 billion miles from earth. These RTG's were designed to provide a minimum of 30 watts each during the nearly

two-year journey to Jupiter. All have exceeded that goal and continue to do so.

The SNAP 27 RTG's used in the Apollo missions are still providing power for the experiments and instrumentation left on the lunar surface. They have far exceeded the design requirement of 63.5 watts for one year.

Currently Sandia is involved in two RTG development programs for future Jupiter, Saturn and Uranus "fly-bys," and terrestrial applications. QA field representatives (all 9512) and their locations are Ken Harrington, RCA, Harrison, NJ; Martin Rhoads, Teledyne, Timonium, MD; and at GE, Valley Forge, PA, are Larry Grube, Robert Martinez, Myron Pilat and Hank Neues. Gene Jeys fills in at RCA and GE during peak workload periods.

"During 10 years in the RTG program," Bob Harnar says, "we've worked with many agencies outside Sandia, and we think we've influenced some of them to do a better quality job. We have excellent relations with ERDA, which has many times expressed its satisfaction and appreciation. The budget has increased tenfold in 10 years. And the fascinating nature of the space power programs has been a challenge — we've had to grow in the job, and it's been a good 10 years."



# MILEPOSTS

## LAB NEWS

### JUNE 1976



Ron Hayenga - 2532

25



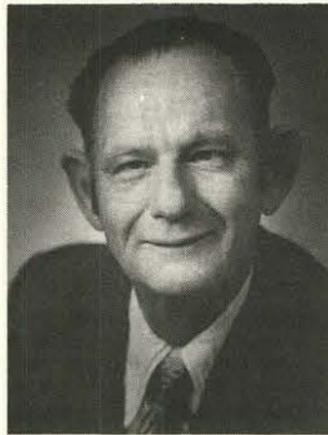
Harriett Skoog - 8159

10



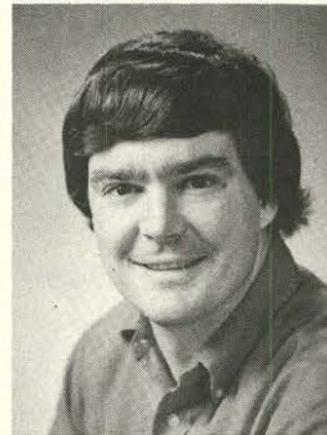
Tony Chavez - 2632

10



Fred Hohmann - 8257

25



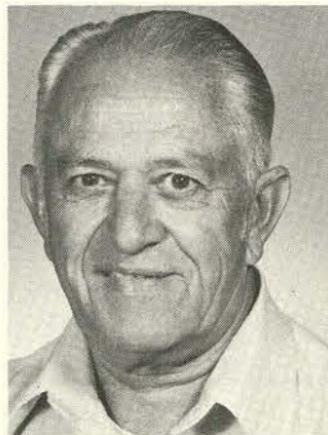
Pete Witze - 8115

10



Roger Baroody - 8410

25



Ed Ashland - 1752

20



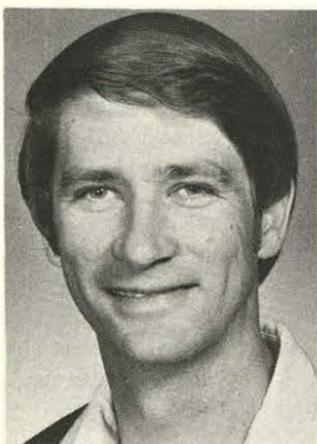
Bill Stokes - 9342

15



Stan Pickens - 8161

25



Virge Dugan - 5740

10



George Easley - 2312

10



Wesley Johnson, Jr. - 3724

25



Sandy Borgrink - 3735

15



Clory Valdez - 6021

25



Sam Key - 1341

10

# FUN & GAMES

**Golf** — Winners in the Socorro Tournament for women last month: 1st flight — Betty Chappell (retired), low gross; Sybil Milligan (retired), low net; and Lillian Mancuso (3321), low putts. 2nd flight — Eleanor Kelly (4213), low gross; Liz Bookwalter (2122), low net; and Helen Watkins (3721), low putts.

**The gym, for women too** — As near as we can determine, only a handful of Sandia women take advantage of the Base gym's facilities. Lockers are available (ask at the front door), and chances are that the gym offers at least as much in the way of equipment and facilities as the average spa. And the price (free) is hard to beat. Don't forget the Olympic swimming pool too.

Gym-goers in need of footwear can get a pretty good deal from Les Baumann (9550), who bills himself as "friend of the running foot." Les handles Brooks and Riddell shoes as well as spiffy warm-up suits. He's almost

always there from 3:15 to 5. Decent running shoes won't make the miles exactly painless, but they will help prevent foot, knee and hip problems arising from the pounding of running.

**Biking** — About the time we were feeling pretty self-satisfied about completing the 100-mile Tour of the Rio Grande Valley, a clipping from *Bike World* was sent to us concerning one Tommy Godwin, a Britisher who did a little cycling back in '39 and '40: in five consecutive days Tommy biked 258, 295, 361, 291, and 231 miles. In a single day he once completed 384 miles. Finally, just to show this was no passing aberration, Tommy biked an average of 200 miles/day for 500 consecutive days. Now that's the stuff of Empire.

We have another supply of the Albuquerque Bikeways map, showing the 1975-1977 program. Drop by the LAB NEWS

office or call 4-1053 if you wish a copy — they're free.

**Bowling** — Winners for April/May were Dorothy Castro, women's scratch, 579; Kay Duvall, women's handicap, 653; Jim Powell & Leo Bressan, men's scratch, 636; and Wayne Buisman, men's handicap, 717.

**Tennis** — The Sandia Tennis Association's singles tournament comes up June 26-27. Get on the courts by getting an entry from Jose Gonzales (4-3643) or Jean Langston (4-3882) and returning it, with \$1, by June 15. All Sandia, ERDA, Sandia contractor, and KAFB military people are eligible.

**Diving** — Dennis Schalles (3644) explains and illustrates with slides the sport of skin and scuba diving at the Coronado Club at 7:30 on June 14. Non-Club-members are invited.

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.

- RULES**
1. Limit 20 words.
  2. One ad per issue per category.
  3. Must be submitted in writing.
  4. Use home telephone numbers.
  5. For Sandia Laboratories and ERDA employees only.
  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**

- FAN TRAILER, 1971, 19 foot, self-contained, sleeps four, 40 gal. water tank, MOR/Ryde tandem axle, 40 lb. twin gas tanks. Burress, 298-5061.
- ROOM COOLER, Travelaire, furniture-styled, on casters, washable polyfoam filter. Michele, 298-8576 after 5.
- BASKETBALL GOALPOST, large, heavy duty, welded, \$30. Myers, 821-8318.
- CRIB, white and gold antiqued, dropside with mattress, \$20; bathinet with attached changing table, \$15. Hall, 296-2622.
- LEDGE STONE for fireplace face; 4-5 bags garden bark. Daniel, 299-4761.
- AUTOMATIC, German 7.65 Erfurt Werke, \$45; Savage .32 cal. automatic, 1905 patent, \$85. Smitha, 293-1177.
- COMBINATION baby buggy/stroller/car bed, \$40. Meidal, 255-6690 after 6.
- POOL TABLE, Brinktun, 4½'x8½', \$125 or best offer; Hermes Rocket portable typewriter, new \$80, sell \$40. Vigil 298-6188 after 5.
- BATHROOM SINK, round, with faucets; sliding glass shower doors, 54"; make offer. Giddings, 298-6221.
- LAWN SWEEPER, 30" Craftsman; 22" portable aluminum BBQ grill; Black & Decker rechargeable hedge trimmer; child's gym set. Tolman, 296-8239.
- POODLE PUPPIES, white standard, AKC reg, champion sired, born 3/19, OFA guaranteed, wormed, shots. Baca, 268-0943.
- ROYAL TYPEWRITER, \$30;

- Sears 9 gal humidifier, \$25. Bowers, 298-1992.
- TAPE DECK, Sony TC-355 reel to reel, with BASF tapes, \$125. Bagley, 294-4706.
- PICTURE WINDOWS, aluminum, four 6'x3', \$25 ea; one 3'x4', \$15. Hiltunen, 6500 Cochiti Rd SE, SP-56.
- BABY BED, \$25; mesh play pen, \$17; Gerry back pack, \$8.50; high chair, \$8; two pottier chairs \$3.50 ea. Vance, 255-8032.
- DISHWASHER, portable, coppertone, \$100; small dark dresser, \$125; Sears power lawn mower, \$35; misc. household items. Cooper, 299-7157.
- BATHTUB KIT, white/gold, with mastic, \$20; triple action exercycle, \$20. Brinegar, 299-7887.
- LABRADOR RETRIEVER puppies, black, be ready July 1, litter registered, \$75. Morrison 877-7425.
- TIFFANY LAMP, heavy glass, \$150; nylon carpet 11½' X 11½', \$45; 100 in. divan, \$95; cut velvet chair, \$35. Conlon, 268-6515.
- AM RADIO for 1970-72 Datsun pickup, \$25. Womelsduff, 296-9485.
- BASS ACCORDION, 120, with case; sewing machine. Johnson, 344-9369.
- REMINGTON Model 600, .243 Win. cal. Lewis, 298-6239.
- TWO TOY POODLES, male, neutered, papers, \$25 ea. Clay, 299-1769.
- TAPE RECORDER, RCA, solid state, AC-DC or battery, automatic level control, carrying case, \$35. Matlack, 256-7371.
- R/C TRANSMITTER/RECEIVER, 8 channel, with four servos, batteries, two frequencies, 72 MHz band. Fisher, 881-8072.
- REFRIGERATOR, small, \$25; small desk, \$25; butterfly chair, \$12; B&D gas mower, \$20; hand mower, \$12; small vented gas heater, \$15. Whitham, 836-1216.
- KITCHEN RANGE, 30" slide-in, Waste-King Universal, chrome top and front, \$95. Edwards, 299-5578.
- AIR CONDITIONER, window, refrigerator, \$100; electric

- ironer, \$15; floor polisher, \$15; 2 person pup-tent, \$15; dog house, \$10. Chapek, 294-5462.
- AIR CONDITIONER, refrigerative, 23,000 BTU/H, Chrysler Airtemp, 3-speed fan, fresh air control, thermostat, 220V, single phase, \$175. Ruminski, 256-0770.
- VACUUM CLEANER, Eureka, canister, with attachments, \$10; 80" x 36" wood screen door, \$5. Anthes, 877-7865.
- DISHWASHER, Sears, portable, \$65. Anderson, 296-0892.
- SWING SET, metal, with slide, \$25; Lohkamp, 298-6494.
- BAKE GOODS and rummage sale, Scout Troop 400, June 12, 9 to 3, 11900 Haines NE.
- SEWING MACHINE, Sears Zig-Zag, dial control, model 12040, without cabinet or case, \$35. King, 299-8768.
- PIANO, Kincaid, \$500. Jones, 255-2106.
- CLOTHES DRYER, electric, Frigidaire, white, \$100; 5 gallon aquarium, filter, air pump, \$10. McEwen, 881-3913.
- POSI-TRAC rear end, 488, Dodge or Plymouth, \$110. Gauerke, 299-5806.
- POOL TABLE, standard, solid oak; twin bunk beds with innerspring mattress and box springs; plate glass coffee table; misc. Sinnott, 299-1300.
- MIRROR TILES, 70, black vein, 12" x 12", \$25; 5 light wrought iron chandelier, \$25; center pull traverse rod, \$7. Haines, 296-8107.
- TAPE PLAYER, 8 track car stereo, \$30. Cabe, 265-2741.
- SQUASH BLOSSOM and earrings, Zuni inlayed, \$400; shadow box bracelet, \$80. Santana, 294-0536.
- OFFICE DESK, steel, 30" x 60", glass top, \$125; plate glass mirror, 2½' x 4', needs cutting, \$10. Schubeck, 294-5666.
- FREE SEDUM, you dig. Iris too. Slesinger, 299-4626.
- SWIMMING POOL, 32' x 16', extras, \$525; complete darkroom setup, \$175. Roberts, 298-9163.

**TRANSPORTATION**

- '70 PONTIAC LeMans, 4-dr, AC,

- R&H, \$1150. Zucuskie, 881-4086.
- '72 YAMAHA 100MX, never raced, low mileage, \$300, Bryan Fox, 299-9031.
- '65 VW, engine has less than 8,000, \$550. Schallert, 298-8942.
- '70 VW Campmobile, poptop, AC, radio, Michelin tires, big bore, Rapidcool oil cooler, 37,500 miles, extras, \$3250. Shea, 255-8092.
- '69 HONDA 450 CC, padded sissy bar and two helmets. Baca, 296-6554.
- SCHWINN 24 in. girls bicycle, single speed, \$20. Giddings, 298-6221.
- '75 KAWASAKI 90 CC, \$395. Roberts, 298-9163.
- GO-KART, pneumatic tires. Patterson, 877-6037.
- '70 PLYMOUTH Duster, 318-V8, 3-spd floorshift, AM radio, 41,000 mi., \$1400. Young, 292-2805.
- '63 RAMBLER Classic station wagon, 6-cyl, AT, \$185. Womelsduff, 296-9485.
- '75 HONDA 550-4, Windjammer fairing, Bates trunk, crash bars, helmets, \$1550 or best offer. Armijo, 268-7645.
- '71 CHEVY Blazer, 4-wd, v-8, 3-sp, PB, hubs, skid plates, rear seat, \$2875. Snelling, 294-5751.
- '70 TOYOTA Corona MK II, 4-dr, new tires, \$1200. Gallegos, 296-8533, 255-7900.
- '71 BUICK Le Sabre, 4-dr, PS, PB, AC, \$1650. Browne, 881-3772.
- '65 MUSTANG, 260 V-8, 3-spd, \$895 or make offer. Fimple, 881-5110.
- SHARE in flying club — Mooney MK 20A, IFR certified, retractable gear. Trudo, 299-6449.
- 20" GIRLS BIKE, high rise, banana seat, \$25. Gendreau, 268-3436.
- '75 FORD VAN, V-8, PS, AC, AT, Cruise-control, AM/FM/8-track stereo, custom exterior and interior, 9500 miles. Weatherbee, 869-2849.
- '58 CHEVY ½-ton, 283 CID, 4-spd, new clutch and rear end, \$425. Gauerke, 299-5806.

**REAL ESTATE**

- 3 BEDROOM, 1¼ bath, approx. 1300 sq. ft., family room, frame stucco, pitched roof, NE, close to Sandia and school. Clickner, 294-6983.
- HOME SITES in Bosque Farms, one to 2½ acres, paved roads, all utilities, \$8000/acre. Cooper, 869-2198.
- CABIN on 10 acres near Chacon, ½ acre meadow, one room with deck, gas stove, sink and drain, Thompson, 296-2235.
- GLENWOOD HILLS South, 2450 sq. ft., 4-bdr., custom house, all brick w/thermopanes, city & mountain view. Hill, 299-0019.

**FOR RENT**

- CONDOMINIUM, Purgatory Ski Basin, sleeps 6, kitchen, fishing, hiking, relaxation, Ouray, Durango, Silverton, narrow gauge train, \$25/night, \$125/week, reservations. Smatana, 299-6278.
- OFFICE bldg. near base, 6 rooms and vault, utilities paid, \$250/month. Rack, 268-1757.
- 1-BDR. UNFURNISHED, near base, utilities paid. Patterson, 877-6037.

**WANTED**

- HOUSE to sit this summer. Dunn, 298-4185.
- CARTRIDGES, singles or boxes, German, Japanese, Chinese and Italian, from W.W.I., W.W.II, and Viet-Nam. Edgerly, 898-2483.
- RECORD PLAYER, portable, 45 rpm. O'Bryant, 268-9049.
- CAR POOL rider-drivers from older section of Holiday Park. Have reserved slot near 832. Daniel, 4-3331.

**LOST AND FOUND**

- LOST — Brown rim safety glasses in black case, large silver key, thick silver-rimmed glasses, tri-focal safety glasses in black case.
- FOUND — Silver heishe earring, man's silver tradition watch, 7 keys on screw, Honda key, brown rim safety glasses.

**CANARY • C-CLUB • OASIS • SCUBA • THIRTY SINGERS • LUM LUNG • APPLE PIE**

FRIDAY	SATURDAY
11 — HAPPY HOUR NEW ORLEANS BUFFET Adults \$3.50 Under 12 1.92 Seman & Erker 6:30 - 8:30 COUNTRY ACES	12 — LUAU Cocktails @ 6 Dinner @ 7 Lum Lung Dancers NIGHTLIFERS Mai Tai Specials Ticketholders Only
18 — HAPPY HOUR ROAST BEEF BUFFET Adults \$3.50 Under 12 1.92 Patt Holt Singers 6:30 - 8:30 3 OF US & JEREMIAH	19 — SOUL SESSION 8:30 - 12:30 BLUETAIL Members Free Guests \$1

**PUTTING** — spice into Happy Hour tonight: 1) hot apple pie, 2) beef burgundy and shrimp creole, 3) Seman and Erker with bluegrass and folk. Come get spiced out at the Club.

**THE** — Happy Hour next week features the thirty (now that's a score-and-a-half) Patt Holt Singers out on tour with a fine Bicentennial Show. Precede them with a roast beef and baked potato buffet. Follow them with *The Three of Us and Jeremiah*.

**CART** — your friends or your family off to Picnic Night on Wednesday (or any Wednesday thereafter). Bring your own goodies and stake out a claim on a picnic table or a grassy knoll. Swim (till 6) or sun or stroll or sate yourself. Remember: no glassware.

**BEFORE** — we forget: there's another new monthly feature at the Club. It's a Travelogue Night, and it will give us all a chance to share the sights seen by sea-and-air-faring Sandians. The first one, at 7:30 on the 16th, includes recent movies and slides of Australia's east coast and the island of Tasmania. Next month, New Zealand and Fiji. All were shot by Ed Neidel, Mina and Don Carnicom, Bob Donahue, or Roberta and Roy Rainhart. (If you have a quality, well-edited slide show or movie of your travels, call the Club. August 18 is still open for a third Travelogue Night.)

**THE** — Swim Meet begins this evening and continues tomorrow. Come watch, cheer. (The pari-mutuel windows will not be open for this match.) If you want to immerse yourself, use the Annex Pool.

**HORSE** — around in Hawaii tomorrow evening. How? At the Luau, of course. Ticket holders only.

**AT** — Soul Session, the attraction is *Bluetail*. As in Fly. Which is what you'll do . .

**LEAST** — amount of money, most splendid of seats. It's the Wolfpack's deal on Lobo season football tickets, and it's available at the Club to all Sandians/ERDAns.

**GIVES** — the lie to the New Mexico-just-desert rumors. It's the Outdoors Indoors when Dennis Schalles shows off "The Underwater World." If you're one of those who has always been intrigued by diving, take

the plunge. Scuba-duba-do at 7:30 on the 14th. Open to all. Free.

**THE** — Drinks-of-the-Week? Current DOW, mai tais. Next week, wine coolers. June 21-26, tequila sunrises. Good deals, without a DOWt.

**DRIVER** — type music by *Oasis* for Teen Dance at 7:30 on the 24th — if parents remember to pick up tickets beforehand.

**BETTER** — get those travel plans firmed up soon. Both Greece and the Caribbean are go, but room remains on each. Mazatlan sold out on opening day, but join the waiting list — good chance of a second bunch.

**SCENERY** — HERE ON CANARY ISLANDS FANTASTIC. HAWAII OF EUROPE. COME SEPTEMBER 23-OCTOBER 1. \$479 PACKAGE. MORE INFO AT CLUB OR MEETING JULY 6. LOVE, BUD.

MORE INFO — 265-6791.

**PICNIC NIGHT • LUAU • SHRIMP CREOLE • BLUETAIL**



ARE computers really cold, aloof and unfeeling? "Not so!" says this group, who will ease you into a friendly relationship with the computer. Members of Computing Consulting & Training Division 2634, they are (seated) Sid Gasser, Natalie Vytlačil, Pauline VanDelinder, Louis Narvaiz and Gary Shepherd; Bob James and Norm Smith stand.

**Need Computer Programming Help? See Division 2634 Consultants**

An important resource of Sandia Labs is the Computing Center in Bldg. 880 where the Computing organization (2600) provides a network of CDC 7600 and 6600 scientific computers, a time-sharing system, computer graphics system and a dual Univac 1108 business and administrative data processor. More than a thousand Sandians are users of these machines. The Center operates three shifts per day, seven days a week.

For the novice computer user or for the veteran confronted with new systems, the introduction to computer hardware, software and terminals can be traumatic. Because of this, Computer Consulting and Training Division 2634 provides help for you and the machine to get on a first-name basis.

The division provides courses on computer languages, programming techniques, special software packages and

user interfaces with hardware. Manuals on the computers are distributed throughout Sandia, and a library of computer-related reference material is maintained.

Most important function of the division is assisting individuals developing computer programs to meet technical goals. Primary objective of Division 2634 is the efficient use of computers so that better technical and administrative results will occur in shorter time and at reduced cost.

"We can't assure a complete solution to every problem," says George Horne, 2634 supervisor, "but the combined experience of the staff, coupled with their broad base of contacts in the computing community, will usually result in a satisfactory solution. We are not staffed to do programming work for the user, but to give assistance and guidance. Call us anytime."

