



LAB NEWS

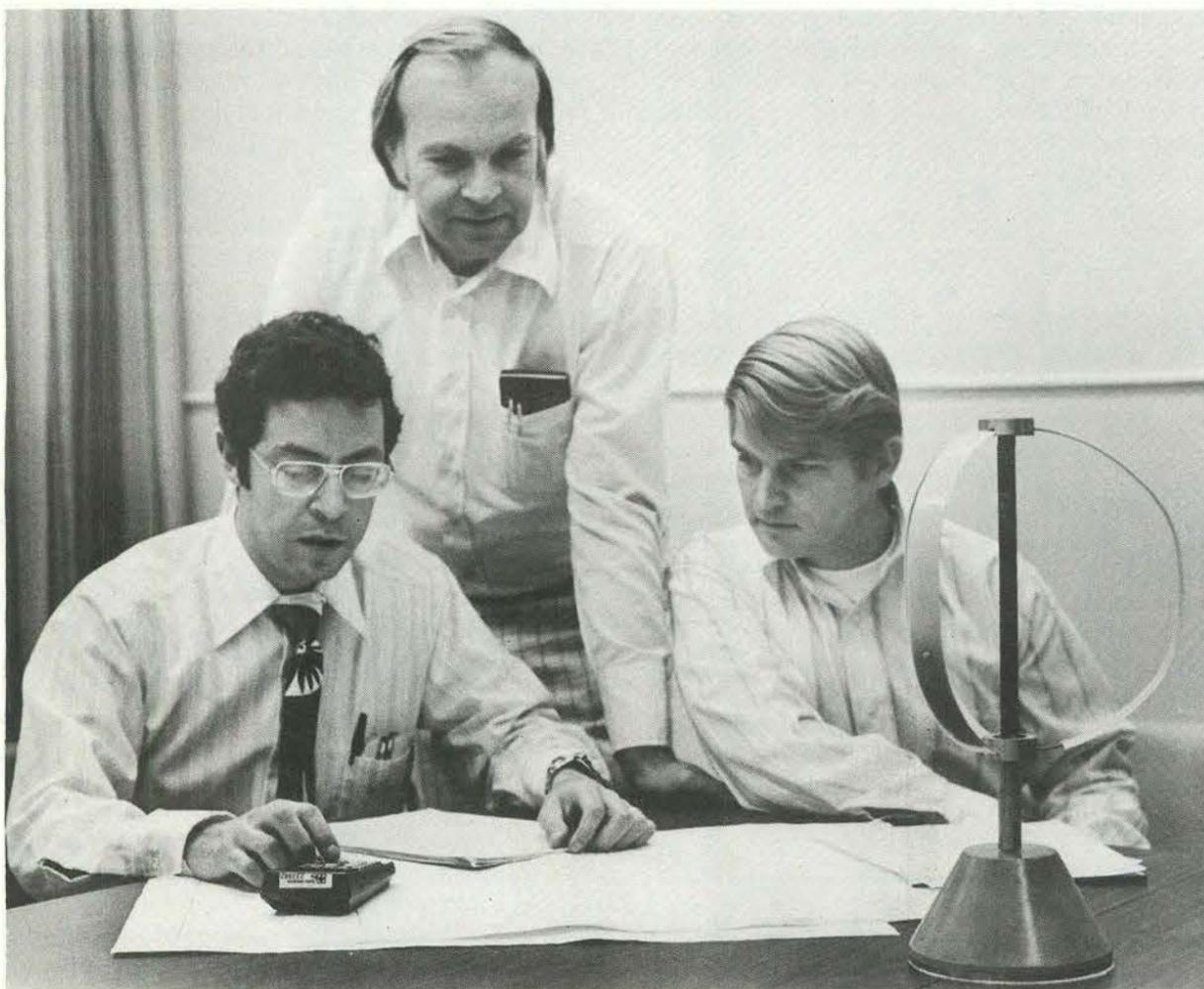
VOL. 28, NO. 1

JANUARY 9, 1976



Successor To Model On Bldg. 802

Labs to Build New Vertical Wind Turbine



DISCUSSING SYSTEM DESIGN of Sandia's new 17-metre vertical axis wind turbine are Tony Veneruso, systems analyst and electrical design; Emil Kadlec, project engineer; and Bob Reuter, structural analysis (all 5715). The new wind turbine will be taller than a six story building.

A new vertical axis wind turbine, 17 metres in diameter (taller than a six-story building), is being designed in Advanced Energy Projects Division 5715 under Dick Braasch. Funded with \$1 million by ERDA's Wind Energy Branch, the project calls for fabrication of the wind turbine, associated control and test equipment, and an electrical generation system which can produce 30-60 kW and connect with a conventional power grid.

The program is a follow-on to Sandia's 5-metre-diameter experimental wind turbine (the one that was atop Bldg. 802), which has been undergoing evaluation. Looking like a giant upside-down eggbeater, the turbine's blades resemble curved airplane wings. In fact, they are airfoils producing lift and actually driving into the wind.

The program was originated in Aerodynamics Projects Department 1330 under Randy Maydew.

"The project is much more complex than simply scaling the small machine up to 17 metres," says Emil Kadlec (5715), project engineer. "The aerodynamics are such that correlation between the performance of the small and larger blades is difficult. Computers put us in the ballpark, but optimum performance will require full scale experiments."

Immediate aim of the project is a system capable of producing 30 to 60 kW in the wind environment of Albuquerque's east mesa. Design will allow maximum flexibility in the

(Continued on Page Four)

Afterthoughts

Candor in public--A great flurry of tsk-tsking developed when Mrs. Ford allowed that it was conceivable that her attractive daughter might go beyond a good-night kiss on the front porch. Further, she declined to get terribly upset about the way some young people might experiment with marijuana and, when an inconceivably gauche reporter asked about her and her husband's sleeping habits, Mrs. Ford forthrightly stated they slept together "as often as possible." The criticism directed at this woman has largely gone away and, indeed, the real public appreciation of her honesty is becoming apparent. Whatever their politics, the silent majority find candor in a public person to be refreshing and heady stuff.

* * *

A matter of style--Frank Gerstle (5844) sends us this letter, with whose message we couldn't agree more: "With Sandia's enormous commitment to things nuclear (weapons, fuel cycle, etc.), it doesn't seem unreasonable that Sandians be able to pronounce the word correctly. Variations ranged from "nooklar" to the ever-popular "nookuler." The word is spelled nu-cle-ar, pronounced noo-klee-ar, three syllables, with no vowel between the c and l. The mispronunciation of this word, though not confined to Sandia, is practiced at most levels of Sandia's hierarchy, including people who should know better..."

* * *

The conservative life-style--By ERDA's James Kane in a recent speech: "The only way we as a nation can maintain any semblance of our current standard of living is by intelligent conservation. We must diligently avoid non-productive waste. Conservation should be an ethic."

* * *

Energy breakthrough--Here's one approach to the nation's energy problems, suggested by a 4th grader in Findlay, Ohio: "Find out if oil has another name besides petroleum and look for it under that name." Now that's an elegant solution. *js

Thomas Clark New ALO Deputy Manager



ALO Manager Herman Roser has announced the appointment of a Deputy Manager for the Albuquerque Operations Office. He is Thomas Clark, who has been serving in ERDA's Washington office as Executive Asst. in the Office of the AA for Nuclear Energy. Mr. Clark previously worked, from '63 to '75, in AEC's Division of Military Application where he was Asst. Director.

The new Deputy Manager attended the Univ. of Kansas and was graduated from the Military Academy at West Point in 1948. He is also a graduate of the Army Command and General Staff College and holds his MS in EE from Purdue. His military assignments include service in Korea and a tour at West Point as an associate professor, teaching atomic and nuclear physics.

Mr. and Mrs. (Barbara) Clark have three grown children. They have not yet selected a residence in Albuquerque. Mr. Clark plans to start work at ALO on Jan. 12.

Congratulations

Mr. and Mrs. Ken Touryan (5260), a son, Jonathan, Dec. 23.

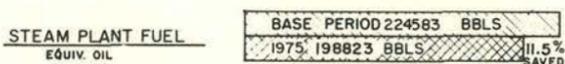
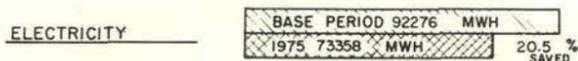
Sympathy

To Darlene (3283-2) and Bobbie Welch (9722-4) on the death of her father in Wichita, Kans., Dec. 13.

To Jay Newquist (2351) on the death of his mother in Albuquerque, Dec. 24.

ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD-- JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING NOV '75



Biography

AA's for Environment & Safety, Nuclear Energy

In our last issue, LAB NEWS carried biographies of Austin Heller, ERDA's Assistant Administrator for Conservation and of A. "Dodd" Starbird, AA for National Security. There are a total of six AA's heading ERDA's program areas.

* * *



James Liverman became Acting Deputy Assistant Administrator for Environment and Safety when ERDA began on Jan. 19, 1975. He was confirmed in this post in March. An expert in the environmental aspects of energy, he served AEC as Assistant General Manager for Biomedical and Environmental Research and Safety Programs from May 1973 until the creation of ERDA. Before his work with AEC he supervised ORNL's research programs relating to biology, medicine, and the environment. He joined ORNL in 1964 and in 1967 was named Associate Director for Biomedical and Environmental Sciences.

He received his BS in biology and chemistry from Texas A&M in 1949 and his PhD in plant physiology and bio-organic chemistry from Cal Tech in 1952.

* * *



When nominated by President Ford to become ERDA's AA for Nuclear Energy, Richard Roberts was serving as Director of the National Bureau of Standards, a post he had held since February 1973.

He first joined Standards in 1959 as a National Academy of Sciences Post-doctoral Fellow. A native of Buffalo, N.Y., he received his bachelor's degree in 1956 from the University of Rochester and his doctorate in physical chemistry (1959) from Brown University. He joined the General Electric Company's Center in Schenectady, N.Y., in 1960 and in 1968 was named manager of Materials Science and Engineering. At GE, Mr. Roberts had responsibility for a number of nuclear programs, including projects related to the fuel cycle. For two-and-a-half years he headed a task force that did research and development work to ensure the safe and long-life performance of fuel for boiling water reactors. He left GE in 1973 for the Bureau of Standards.

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Flat Pack Lead Former Developed

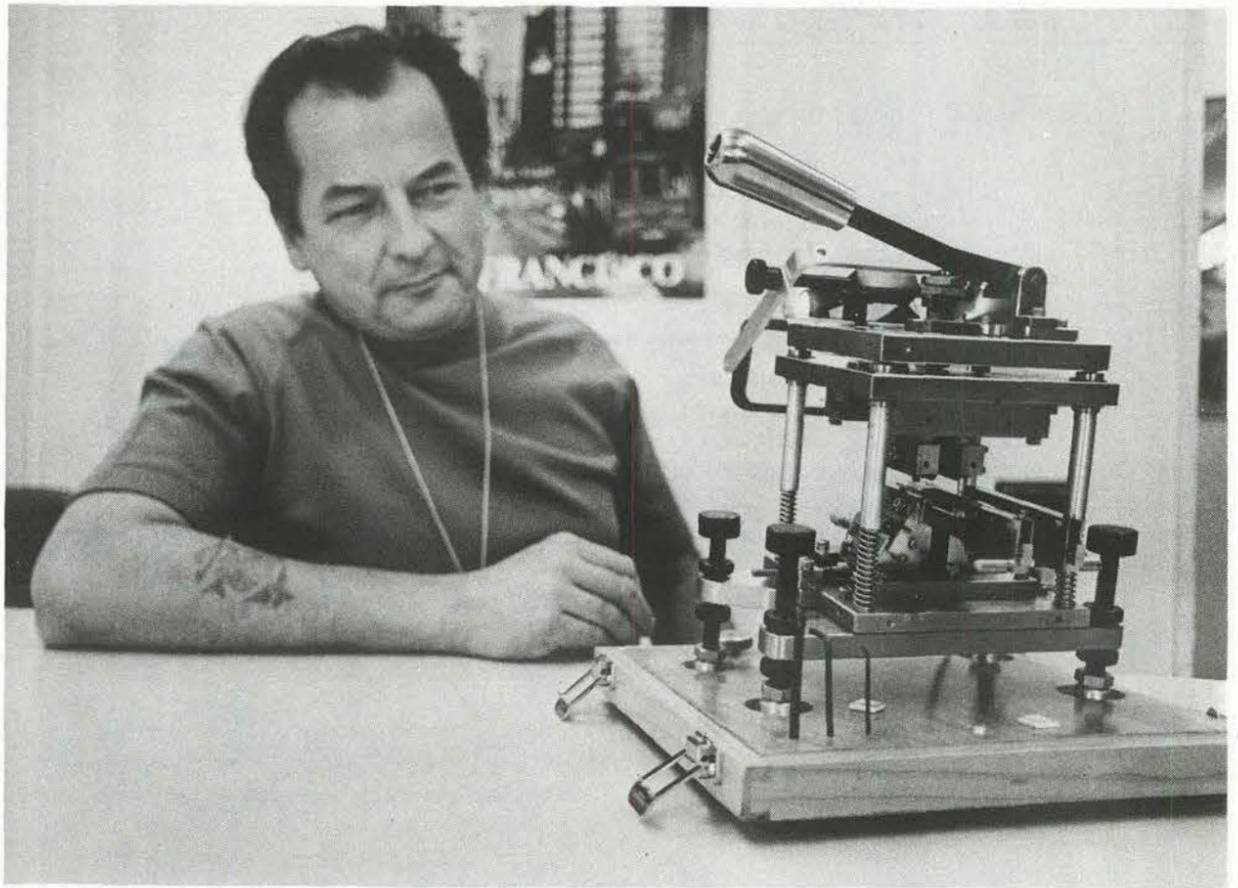
Flat packs are a common kind of integrated circuit package used in hybrid microelectronics. Forming the leads which protrude from the package (that is, setting them at the proper angle and cutting them to the proper length) has been a problem.

"Well, not so much a problem as a time-consuming — and therefore expensive — nuisance," says Don Dubose (8424). "Each of the many sizes and thicknesses had to have its own special lead-forming die.

"So I came up with a lead former, officially a 'Multi-Use Adjustable Lead Forming Tool,' which adapts to most of the commercially produced flat pack sizes and shapes."

In use, the device holds a flat pack securely and adjusts to its size and thickness. The operator then pushes the handle down to bend the leads to the proper angle. Finally, the operator slides a cutting mechanism into place and again pushes the handle down to trim the leads.

Several Sandians helped Don with the device — "in fact," says Don, "teamwork did the job." Among the major contributors: Bill Biergiel (recently deceased) who did much of the drafting work; Ray Gott in the Plastics Lab (8424); and co-worker Arnie Andrade who supported Don's progress from concept to prototype.



A MOON LANDER it's not. It's a lead forming and cutting device invented by Don Dubose, and it's capable of forming the leads on most of the common flat packs.

Authors

Rand German (8312) and Z.A. Munir (Univ. of Calif/Davis), "Morphology Relations During Surface-Transport Controlled Sintering," METALLURGICAL TRANSACTIONS, Vol. 6B, pp. 289-294

Rand German and Vic Ham (both 8312), "Production of Erbium and Palladium Flakes with Submicron Thicknesses," INTERNATIONAL JOURNAL OF POWDER METALLURGY, Vol. II, pp. 97-100

Ray Mar (8313), "The Uranium-Boron Systems," JOURNAL OF THE AMERICAN CERAMIC SOCIETY, Vol. 58, p. 145

John Brooks (8314), "Weldability of High N High Mn Austenitic Stainless Steel," WELDING JOURNAL, Vol. 54, No. 6

Ben Odegard and Anton West (both 8314), "On the Thermomechanical Behavior and Hydrogen Compatibility of 22-13-5 Stainless Steel," MATERIALS SCIENCE AND ENGINEERING, Vol. 19, No. 2, pp. 261-270

Speakers

Jim Rogers (8322), "The Use of Large Scale Display Graphics in Tactical Nuclear Gaming Studies," 35th Military Operations Research Symposium, U.S. Naval Academy, July 3, Annapolis, Md.

Ray Mar (8313), "Thermochemistry of the Erbium Borides," 30th Annual Calorimetry Conference, Battelle Seattle Research Center, July 16-19, Seattle, Wash.

Pete Witze (8115), "Hot-Wire Turbulence Measurements in a Motored Internal Combustion Engine," Second European Symposium on Combustion, Combustion Institute, Orleans, France, Sept. 1-5.

Bill Ashurst (8115), "Vortex Growth in a Moving Corner," American Physical Society meeting, June 16-18, Knoxville, Tenn.

Sympathy

To Bob Gaeddert (8210) on the death of his mother in Inman, Kansas, Dec. 10.

To Val Black (8333) on the death of his mother in Roosevelt, Utah, Dec. 10.

LIVERMORE NEWS

VOL. 28, NO. 1

LIVERMORE LABORATORIES

JANUARY 9, 1976

Take Note

Thanks to SLL guard force supervisor Jim Shackouls, Christmas this year had a special glow for Livermore resident Mrs. Frieda Van Arkle who had her purse returned intact after leaving it on top of her car while helping her husband into the car as they prepared for a trip to the hospital. The purse contained a sizeable amount of money since she had just cashed her paycheck and her husband's disability check.

As Jim was driving home from work, he noticed the purse in the street at the corner of East and Hillcrest Avenues, where it had fallen, and turned it into the police department. In true holiday spirit, Jim declined to accept the \$50 reward he received enclosed in a Christmas card.

Dan Hartley, supervisor of Combustion Research Division 8115, spoke recently before a meeting of Citizens for Safe Energy in Stockton, Calif. Title of his presentation was, "How Can We Save Energy: Are the Europeans Ahead?". Later, Dan was interviewed by KJOY radio in Stockton.

SLL recently hosted some 40 machinist apprentice students and their instructors from the Hayward Unified School District's Vocational Skills Center and Contra Costa College in San Pablo for a tour of Sandia's model shop and Xynetics plotter facilities. Adam Sandoval (8423) is a member of the Hayward class and Don DuBose (8424) instructs at Contra Costa. Also attending were Hugh Ewing and Ken Gibbons of the Alameda County Joint Machinist Apprenticeship Committee. Sandians involved in the tour included Lee Davies (8420) and Al Ford, Jay Jost, Bill Schmedding, Don Sadler, Tom Reitz, Bruce Affeldt and Carl Wackerly (all 8423).



Esther Rickert (8433)

Congratulations

Bill Rego (8256) and Judi Sudbury, married in Lake Tahoe, Nev., Dec. 6.

Death



Bill Long, a technical staff member in Electrical Subsystems Division 8185, died suddenly Dec. 12. He was 46.

Bill joined Sandia/Albuquerque in June 1957 and transferred to Livermore in Aug. 1959.

Survivors include his widow, a son and daughter.

NEW WIND TURBINE

investigation of various system elements; ultimate goal is to gain data to support the design of a 35-metre vertical axis wind turbine capable of producing at least 100 kW. In the meantime the 17-metre wind turbine could be adapted for specialized commercial use.

"Aerodynamic studies and field tests have already been performed on the 5-metre turbine," Emil says, "and will continue to support the design of the larger machine. We want a system that will generate a kW of electricity as cheaply as possible. And we want reliability and longevity."

Synchronization over the anticipated wind speed range and stability during rapidly changing wind speeds present special electrical design problems. However, the wind turbine will not "run away" in high winds. The air foils "stall" at high speeds; thus no blade feathering mechanisms are required.

All power generating equipment is located at ground level.

Emil estimates that detailed design should be complete in February, when contracts are awarded for fabrication. Hardware should arrive by next summer and, optimistically, the new turbine could be operating by next fall. It will be installed for test near Bldg. 899. The site is about a mile east of Tech Area I. It is marked by the 5-metre turbine still undergoing tests.

Division 5715 people working on the project include Bob Reuter, structural analysis and design; Tony Veneruso, system analysis and electrical design; Ralph Rusk, test instrumentation; and Carl Longfellow, mechanical testing and turbine design.

Other major participants in the project include Ben Blackwell (1333), aerodynamics;



RALPH RUSK (5715) monitors a test underway with the 4.5-metre wind turbine at a test site near Bldg. 899, about a mile east of Tech Area 1. Data will contribute to the design of a new 17-metre wind turbine.

Lou Feltz (1324), mechanical design; Bob Sheldahl (1333), wind tunnel testing; Jim Banas (5742), and Bill Sullivan (1544), systems analysis; Larry Weingarten (1344), structural analysis; Ken Grant (9743), electrical design; Dannie McNeill (1324), mechanical assistance; and Bob Anderson (9622), design draftsman. •dg

Materials Science Lectures Start Jan. 22 at UNM

A lecture series, "Critical Materials Problems in Energy Production," starts Thursday, Jan. 22, at UNM. The series, which will bring distinguished authorities on materials science to Albuquerque, is sponsored by the Joint Center for Materials Science. George Samara (5130) is the Sandia representative on the Center's board of directors.

Composed of representatives of Sandia, LASL, Air Force Weapons Laboratory, UNM, NM State and NMIT, the Center promotes continuing education in materials science and cooperative efforts in research among the member agencies.

The lecture series, offered as a credit course for graduate and advanced undergraduates at the three Universities, will feature two speakers weekly — Thursdays at 3:30 and 5 p.m. at UNM's Kiva Hall. The series will run through the duration of the spring semester.

Dick Claassen (5800) will speak at the opening of the series Jan. 22. Second lecturer is Prof. R.W. Staehle, Ohio State, who will discuss materials problems related to coal and other fossil fuels. Topics scheduled by future speakers include energy storage devices, flywheels, energy storage in metal hydrides, photovoltaic materials, solar energy storage, fusion, laser fusion, geothermal energy, fission, and materials for high temperature applications.

LAB NEWS will list scheduled speakers in the Events Calendar. Additional information is available from George Samara, 4-2945.

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Recreation Notes

FUN & GAMES

Sandia Bowling — Winners in the monthly high 3-game series for November were Sadie Knight (1115) and Cecil Tafoya (3171) with scores, respectively, of 543 and 688. In the handicap bracket, Helen Finley scored 604 and Wayne Brown (ERDA) 722.

Sandia Runners Assn. — On Monday evening, the 12th, the Southwest Masters will hear two cardiologists discuss running, stress testing and physiology at the Albuquerque Federal building, corner of Wyoming and Menaul. The group will meet in the hospitality room at 7:30 p.m., and both members and non-members are invited.

For doers — The armchair athlete and his nonstop TV sessions has become a cartoon character. But there are hopeful signs that some Americans prefer doing to sitting. We've received a flyer from an outfit called World Publications which states that they now publish eight special-interest magazines for devotees of vigorous (if somewhat offbeat) activities that emphasize participation. Here are their titles: *Nordic World* (cross-country skiing); *Aquatic World*; *Bike World*; *Runner's World*; *Soccer World*; *Down River* (river and white water boating); *Self-Defense World* (the martial arts); and *Gymnastics World*. A file of *Bike World* and *Runner's World* magazines is available in LAB NEWS office; short loans can be arranged.

SGA(W) — The final tournament for 1975 was a great one for first-year-member Barbara Ford (2124). Barbara was low gross winner and, despite the bad weather, she made a hole-in-one — her first one! Pat Hefley (3141) was low gross runner-up. Jo Ann Oswald (2150) took low net and Tess Reis (4124) was runner up. Low putts winner was Alma Mischke (4151).

NRA/NIRA Postal Rifle & Pistol Matches — In these matches, competition is offered in .22 rifle and pistol, and air rifle and pistol. Labs employees, including retirees, may take part. No experience is necessary. Target quality air rifles and pistols are available, as well as pellets and targets. For more information contact Jim Linn (1245), 296-3176 or Dick Vivian (1211), 299-1785.

Tennis Everyone? — As one of the items on the back page of this issue mentions, the Coronado Club is seeking names of Sandians/ERDAns interested in tennis facilities here at KAFB-East. Club member or not, if you're a tennis type, complete and return the form on the back page.

Sandia Softball Assn. — Bruce Whittet (9651) reports that softballers of all sexes will have their first meeting of the new year next Friday the 16th at 10 a.m., Bldg. 892, room 216. The season doesn't start until May, but preliminary moves need to get underway. New players as well as veterans are invited to the meeting.

Off-Highway Motorcycles — A news release from the Dept. of Motor Vehicles states that a new law, effective Jan. 1st, requires the registration and titling of all off-highway motorcycles, i.e., "any motorcycle operated or used exclusively off the highway of this State." The local motor vehicle office processes the paperwork, and documents proving ownership, such as the manufacturer's statement of origin, dealer's invoice, and bill of sale are necessary for title and registration purposes.



RECEIVED AN AWARD?
CALL US LAB NEWS
X-1053

Affirmative Action Program for Handicapped Announced

President Sparks today announced Sandia Laboratories' Affirmative Action Program for the Handicapped. Under the plan, Sandia pledges itself not to discriminate on the basis of physical or mental handicap in regard to any position for which an employee or applicant for employment is qualified, and to take affirmative action in accordance with the Rehabilitation Act of 1973 in the accommodation of qualified handicapped individuals. The Labs' Statement of Policy further asserts that "Employment decisions involving handicapped employees or applicants will be based on each individual's ability to perform a specific job."

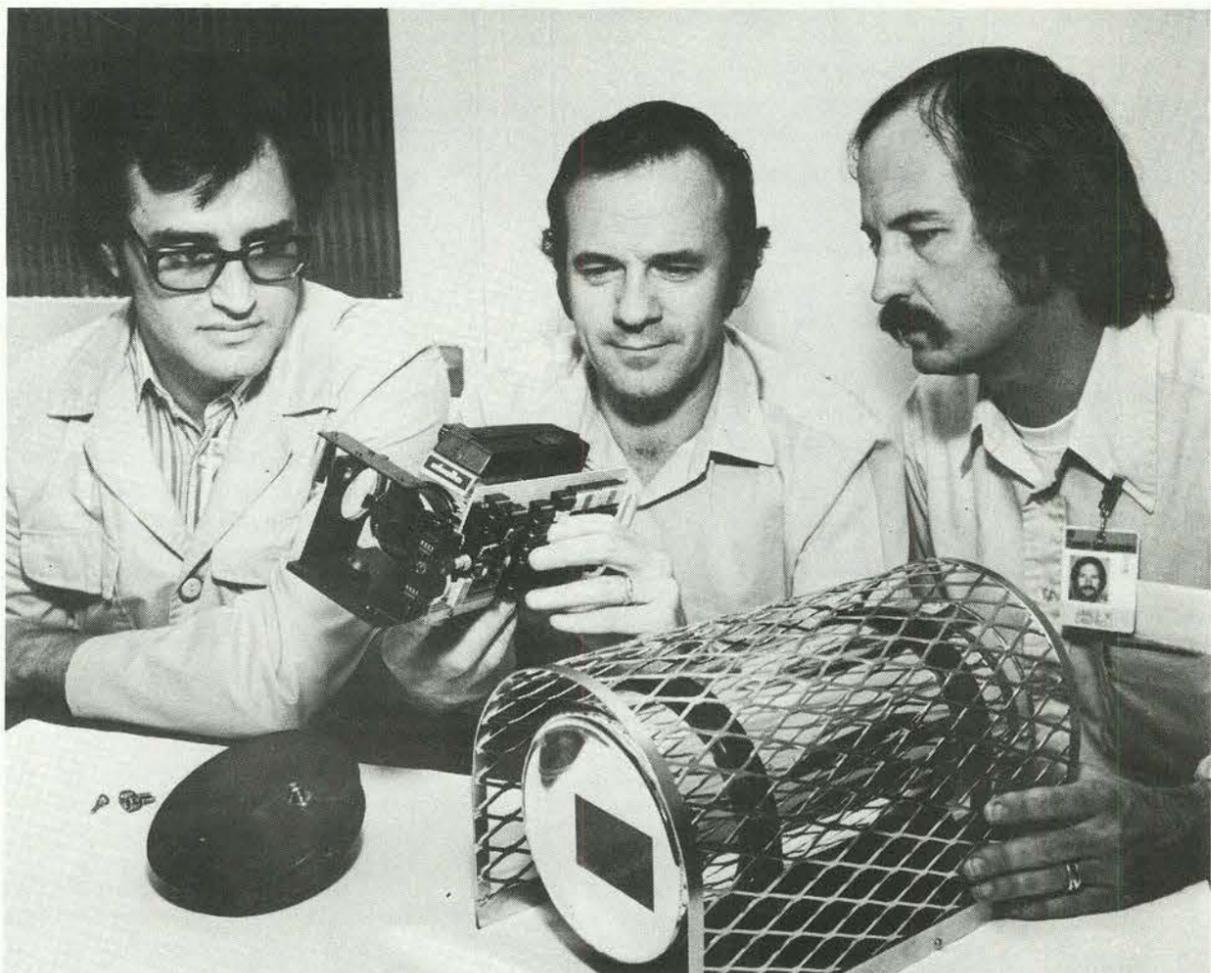
Posters presenting this Statement of Policy are being displayed throughout the Laboratories. Copies of Sandia's Affirmative Action Plan for Handicapped individuals have been distributed to all Directors and are available for review in the Organization 200 office. Briefing sessions for all supervisors are scheduled for the week of January 12, 1976.

Sandia's program is in accordance with U.S. Labor Department regulations implementing the Federal Rehabilitation Act of 1973. "But more important," says President Sparks, "the program reaffirms Sandia's long-standing concern for the handicapped and pledges us to a further commitment on their behalf. Carefully administered," Mr. Sparks concluded, "the program will benefit us all."

Complaint Procedure

Handicapped employees who believe the Laboratories to be in violation of the clause concerning handicapped in the Rehabilitation Act of 1973, Section 503, Public Law 93.112 may file a complaint in writing. Complaints will be given "fair, expeditious, and effective processing," normally within 60 days of filing unless governed by terms of a collective bargaining agreement. If the decision at the completion of the review is not in favor of the employee, the complainant will be informed of the right to file a complaint with the U.S. Department of Labor.

Further details on the procedures for filing a complaint and the information required may be obtained from Organization 211.



NEW SURVEILLANCE CAMERA is displayed by John Aragon (1754), Dick Striker (9622) and Jim Campbell (1754). The tamper-proof unit is designed to monitor nuclear generating plants or nuclear fuel processing and storage areas.

Little Brother

Lab Develops New Surveillance Camera

A tamper-proof surveillance camera, designed to monitor activities in nuclear generating plants or nuclear fuel processing and storage areas, has been developed by System Studies and Engineering Division 1754. Development of the unit was financed by the U.S. Arms Control and Disarmament Agency to meet the needs of the International Atomic Energy Agency.

The IAEA uses such cameras to verify nuclear plant operator's records as part of their responsibility for safeguarding nuclear material under the Non-Proliferation Treaty. As an example, an IAEA inspector might install a camera to record the activity which occurs in a spent fuel storage area between his periodic three month inspections. Since the camera is unattended, it has been made tamper resistant to protect against the falsification of the information it records.

Jim Campbell (1754), project engineer, describes the unit as a commercial super-8mm

movie camera with significant modifications. The entire system is housed in a mirrored glass cylinder, 143 mm in diameter and 312 mm in length whose sensitive finish reveals any tampering. A unique fiber optics "fingerprint" seals the housing.

The camera is set for single frame operation at periodic intervals over a selection range of 10 to 90 minutes in 10-minute increments. A random interval timer — a second option — can operate the camera at unpredictable intervals. A mirror arrangement with a calendar clock superimposes a date-time display upon each exposed film frame. The unit has a capacity of 3600 color or 7200 black and white frames.

Five of the cameras are now being fabricated for installation in a Canadian nuclear generating plant at Douglas Point, Ontario.

R.A. Assink (5811), "Investigation of the Dual Mode Sorption of Ammonia in Polystyrene by NMR," Vol. 13, No. 9, JOURNAL OF POLYMER SCIENCE.

M.A. Gusinow (5215), "Spectral Enhancement of Near UV Xenon Flashlamps," Vol. 14, 2645, APPLIED OPTICS; "The Enhancement of the Near UV Flashlamp Spectra with Special Emphasis on the Iodine Photodissociation Laser," Vol. 15, 190, OPTICS COMMUNICATIONS.

P.J. Chen and J.W. Nunziato (both 5131), "Linear Theory of Heat Conduction in Chemically Reacting Media," Vol. 22, No. 3-4, ACTA MECHANICA.

R.L. Fox (5641), "Multipoint Distribution Function Hierarchy for Compressible Turbulent Flow," Vol. 18, No. 10, THE PHYSICS OF FLUIDS.

B. Stiefeld (1736), "An Interactive/Graphics General-Purpose NDE Laboratory Tool," Vol. 63, No. 10, Proceedings of the IEEE, special issue on Laboratory Automation.

F.L. Vook (5110), et al, "Report to the American Physical Society by the Study Group on Physics Problems Relating to Energy Technologies: Radiation Effects on Materials," Vol. 47, Supplement No. 3, REVIEW OF MODERN PHYSICS.

J.S. Cooper (2131) and L.T. James (1712), "Location Estimation and Guidance Using Radar Imagery," Vol. AES-11, No. 6, IEEE Transactions on AEROSPACE AND ELECTRONIC SYSTEMS.

J.R. Asay (5167) and D.B. Hayes (2513), "Shock-Compression and Release Behavior Near Melt States in Aluminum," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

M.A. Gusinow (5215), "Spectral Efficiency of

Authors

Pulsed High-Current Flashlamps," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

F.M. Bacon (2412), "Vacuum Arc Anode Plasma. 1. Spectroscopic Investigation," and F.M. Bacon and H.A. Watts (2642), "Vacuum Arc Anode Plasma. 11. Collisional-Radiative Model and Comparison with Experiment," Vol. 26, No. 11, JOURNAL OF APPLIED PHYSICS.

I.J. Fritz (5132), "Ultrasonic Attenuation and Mechanism for the 250°K Antiferrodistortive Transition in BaMnF₂," Vol. 35, No. 22, PHYSICAL REVIEW LETTERS.

J.G. Kelly, S.A. Goldstein and D.W. Swain (all

5242), "Influence of Anode Composition on the Electrical Properties of Relativistic Electron-Beam Diodes," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

S.M. Myers and S.T. Picraux (both 5111), "Enhanced Diffusion of An in Al Under High-Flux Heavy-Ion Irradiation," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

G.E. Pike (5155) and J.N. Sweet (2431), "Electrical Characteristics of Metal/Si-Ge Contacts," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

A.W. Johnson (5216) and J.B. Gerardo (5210), "Xenon-Dimer-Laser Net-Gain Measurements," Vol. 46, No. 11, JOURNAL OF APPLIED PHYSICS.

G.T. Noles (5824) and M.L. Lieberman (5731), "Gas Chromatographic Analyses of the Products Obtained on Pyrolysis of Methane During Chemical Vapor Deposition of Carbon," Vol. 114, No. 1, JOURNAL OF CHROMATOGRAPHY.

J.S. Pearlman and J.P. Anthes (both 5214), "Reduction of Classical Thermal Conductivity Under the Influence of High-Power Lasers," Vol. 27, No. 11, APPLIED PHYSICS LETTERS.

J.Q. Searcy (2515), "A Kinetic Model for Clustering of Water on Hydrated Protons in a Supersonic Free Jet Expansion," Vol. 63, No. 10, THE JOURNAL OF CHEMICAL PHYSICS.

Review

Sandia in '75

January

The first of several stories on reactor waste credits Bob Dosch (5824) for a process which turns the waste material into a stable ceramic. The process also separates cesium, strontium, and the transuranic elements (the long-lived ones) from low-level wastes, thus making ultimate disposal easier.

A March story discusses thermoradiation, a Sandia-developed technology which uses moderate amounts of heat and radiation to sterilize sewage for use as fertilizer. Jack Sivinski (5250) sees thermoradiation as a promising answer to two environmental problems — disposal of sewage sludge and utilization of certain radioactive wastes.

A story in May deals with the possible use of underground salt beds as a final repository for high-level nuclear reactor wastes. Wendell Weart heads the ERDA-sponsored program.

By October a new organization, Waste Management and Environmental Programs Department 5440, under Jack Sivinski, was created to coordinate the thermoradiation and solidification programs (as well as others involving utilization of nuclear wastes). Beneficial Uses Program became the term encompassing all these activities.

* * *

In January and again in December, a Sandia team went to Canada's Cape Parry to launch rockets for magnetosphere studies near the magnetic pole. Sandia payloads contained measurement devices and a LASL-designed barium jet generator. The project, code-named Tordo in January and Periquito in December, was headed by LASL.

* * *

A 150-lb. lava rock, heated to 1400°C, was converted into magma. A Sandia-designed heat transfer unit inserted into the molten lava operated successfully for 24 hours. "The project suggested," says John Colp (now 5715), "that usable energy could be extracted from the magma which makes up the earth's core."

February

ERDA (Energy Research and Development Administration) became a reality Jan. 19. The new organization, headed by Dr. Robert C. Seamans Jr., includes AEC plus energy-concerned agencies of other federal groups. ERDA's mission: to guide and promote energy R & D to meet immediate



ERDA's Seamans visits Sandia.

and long-range needs. Dr. Seamans toured the Labs in July and again in October.

* * *

A new Labs organization began instrumenting a coal gasification experiment near Hanna, Wyo. Purpose is to help engineers "understand what happens during an underground burn," said David Northrop (5732). By injecting air and oxygen into a coal seam and igniting it, the coal burns and produces a combustible gas mixture.

An August story quotes Hap Stoller (5730): the project is "going well." Two million cubic feet of gas per day was being produced. The Geo Energy Technology Department continues to concentrate on the instrumentation necessary for *in situ* diagnostics.

March

Sandia Livermore is performing a study of radiation damage in fiber optics for Kirtland's Air Force Weapons Lab. Ed Barsis (8342) heads the study, which will determine the extent and cause of radiation-induced damage to the bundles of flexible glass or plastic fibers used in place of some hard wire transmission links.

April

If the nation is to achieve energy self-sufficiency, material technology problems must be solved. That's the conclusion of a National Research Council group chaired by Dick Claassen (5800). The group's report is titled *Materials Technology in the Near-Term Energy Program*.

May

Labs scientists (Bob Gerber, Ed Patterson, Jim Hoffman, Gary Tisone, all 5212) have produced a 4.2 kilojoule pulse of laser energy with an electron-beam-driven hydrogen-fluoride laser, making it the most energetic pulsed laser yet achieved.

* * *

If a CTR (controlled thermonuclear reactor) is to become a reality, some means of containing energized nuclear particles must be found. A Sandia Livermore study of this "first wall" problem is funded by ERDA. Walt Bauer (8334) and George Thomas (8313) head the study, which uses a 450 kV positive ion accelerator to bombard potential wall materials.

June

A new directorate, Nuclear Fuel Cycle Programs 5400, was created to coordinate Labs' activities in reactor safety, waste management, transportation of nuclear fuels, and regulation of the commercial nuclear power fuel cycle. The directorate, headed by Bill Snyder, now includes four departments and over 100 Sandians.

* * *

Ray Rychnovsky's (8158) parachute goes up before it goes down. After release from the aircraft, the specially designed chute lifts the weapon prototype as much as 30 metres above release level. A conventional chute then deploys to effect a landing.

* * *

The Sandia Retirement Plan was amended to incorporate the Bell System benefit structure and to eliminate future employee contributions to the Plan.

July

The world's largest seismometer went into operation in Coyote Canyon. Called a laser strain seismometer, the instrument uses a frequency-stabilized laser to create a beam of light through a mile-long (1600 metre) six-inch pipe. Ben Benjamin (1123) and Wendell Weart (1140) headed the installation project. The instrument measures earth movements caused by underground tests at NTS as well as by natural phenomena.

* * *

Four new drill bits are under development. One uses high voltage spark discharges to chip rocks; another breaks the rock by firing small projectiles into it. The other two would lengthen bit life. One permits a roller-cone bit to be folded and removed while another, from a 10 or 12-bit magazine, replaces it. The second has cutting surfaces on a chain which can be advanced to bring new cutting surfaces into position. Drilling Research Division 5718 under Max Newsom has overall responsibility for the program.

* * *

The Coronado Club celebrated its 25th Anniversary with a series of special events: a fifties dance, a sports night picnic, bingo, a cocktail party, and the Big Birthday Ball featuring Johnny Ray and the Inkspots.

August

Area III was selected as site for a five megawatt thermal Solar Test Facility. It will be used to test components, such as collectors and receivers, for the eventual 10 megawatt electric facility (site as yet unknown) for which Sandia Livermore is technical manager. The five megawatt facility will be operated by John Otts' Solar Central Receiver Test Division 9336.

* * *

Three hundred college students and their 40 exhibits and working models of new ideas for producing energy from sun and wind were brought to Sandia by Glen Brandvold (5710). Called SCORE (Student Competition on Relevant Engineering), the event was the first of its kind.

September

A huge balloon, launched from Holloman AFB, carried atmospheric measurement devices. Twenty kinds of measurements were taken during the 32-hour flight of Stratcom VI. Sandia's contribution to the four-agency undertaking was directed by Instruments and Sensors Division 1255, with Preston Herrington as project engineer. Frank Hudson (5443) was scientific director.

* * *

A new training program, aimed at qualifying represented Sandians for staff positions, was announced. Combined with academic work under the Educational Aids Program the MAS/MLS Trainee Program includes graduate study and relevant on-the-job experience.



Half a dozen former B-17 pilots and crew members shared their WWII experiences aboard the legendary bombers. Over 20 Sandians responded to the ad which prompted the story.

October

The First International Conference on Electron Beam Research and Technology, hosted by Sandia and ERDA, was attended by 200 scientists from all major nations. Gerry Yonas (5240), conference chairman, noted that Sandia is moving rapidly ahead with its e-beam research, specifically that Proto I is operational and Proto II is due to be on-line next spring.

* * *

Sandia was awarded \$1.6 million to perform chemical studies for ERDA's new SYNTHOIL process. SYNTHOIL is a coal liquefaction process — coal is subjected to heat and pressure and to small amounts of hydrogen and a catalyst — which produces a fuel oil.

* * *

The new Affirmative Action Plan for 1976 was announced by President Sparks and Bob Garcia, Special Assistant for Equal Opportunity.

* * *

Sandia has significantly reduced its energy consumption by simply turning equipment off when not needed. The Facilities Energy Conservation Committee, headed by Harry Pastorius (9740), reports a savings of \$173,000 for FY '75 over FY '74.

* * *

The popularity of commuting by bike, bus, or car pool reflects 50-60¢/gallon gas. Some 1800 Sandians habitually use one of these alternatives to the single-driven car, a recent survey disclosed. Altogether, some 25,000 miles a day are saved by the three alternatives.

* * *

The one-and-a-half year old Retiree Job Reference Service proved valuable to nearly all the Sandians who used the service to locate the kind of help they needed from Sandia/ERDA retirees. About 45 retirees have skill resumés on file in the LAB NEWS office.

November

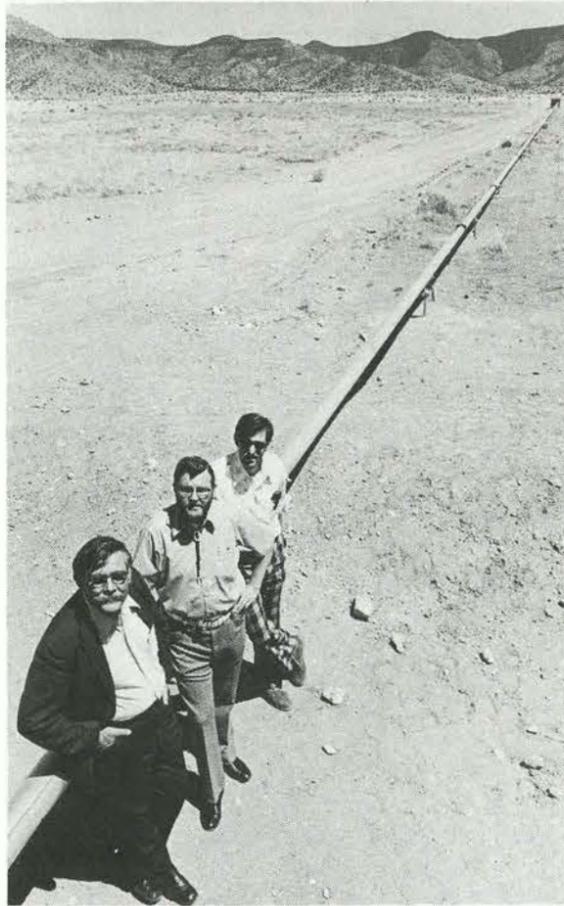
Sandia's newest pulsed reactor, SPR III, has completed criticality testing. Its neutron output gives SPR III the highest combination of exposure rate and chamber volume of any fast burst reactor in the USA.

December

Sandia will manage a major segment of ERDA's National Photovoltaic Conversion Program, an effort to develop better methods of converting sunlight directly to electricity. Don Schueler (5719) will direct the project, funded at \$2½ million.

* * *

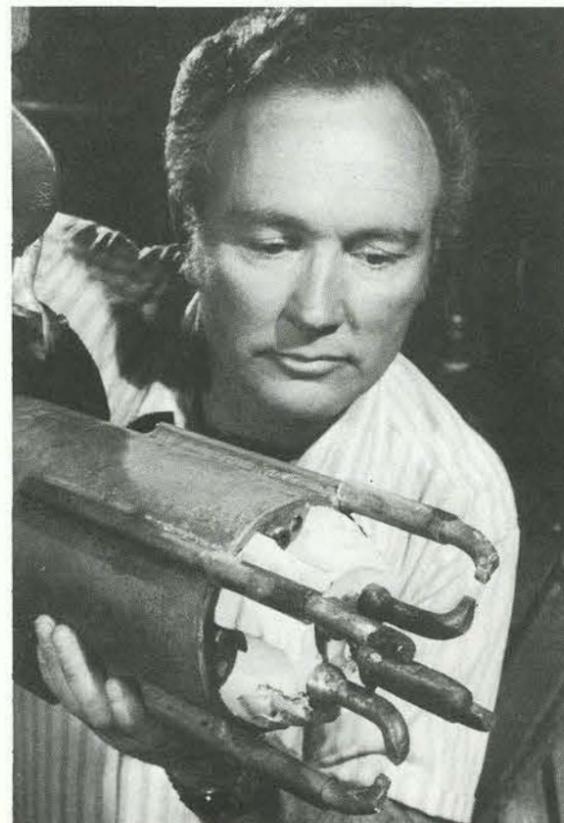
Sandia Livermore weapon engineers recovered — intact — a high performance re-entry vehicle after flight. A special mass-jettison technique, developed by a group under Ed English (8362), slowed the vehicle down to the point that drogue and main chutes could be deployed to provide a soft landing.



Laser strain seismometer



Photovoltaic conversion program



Spark gap drilling bit

feed **li**back

Q. Why are the stock rooms in buildings 801 and 880 occasionally closed during lunch periods? Since we are on staggered lunch periods, there should be access all day long.

A. The closing of the self-service stockrooms in Buildings 802 and 880 during the stockkeepers' lunch period has been reviewed. In the future, all self-service stockrooms will remain open during the stockkeepers' lunch period; however, the stockkeepers will not be available to assist users during their lunch period.

L.S. Conterno — 3700

Q. Recently I saw a commercial on TV which advertised Western Union "mailgrams." Mailgrams are not as fast as regular telegrams but are faster than the regular mail with a substantial cost saving over that of a telegram. With the great volume of telegrams being sent by Sandia, I wonder if there was some way to take advantage of this cost saving device?

A. Thank you for your suggestion. Mailgrams have been used in the Communications Center for approximately two years. It is the responsibility of the senior clerk in the Com Center to select the method of transmission. If a message doesn't need a prompt reply, it would normally be sent as a Mailgram.

L.E. Hollingsworth — 2600

Q. Sandia has a number of programs whereby a person can improve his status. I'm thinking specifically of the MAS/MLS and the ESA/EDA programs.

I have yet to hear of a program by which one who is ESA or EDA can improve his status. Does such a program exist? If not, is one being considered?

A. Sandia has a way to provide ESA's/EDA's with the theoretical skills necessary to handle professional level engineering assignments. The Educational Aids Program "... is to provide opportunity for ... self development by taking courses or achieving degrees that are related to the work of the Laboratories." Sandia pays the tuition, and under certain conditions, academic fees and time off the job, with pay, are provided.

If you are interested in extending your education to prepare yourself for the types of assignments that can lead to possible reclassification to staff associate or selection to the MAS or MLS trainee program, I suggest you contact the staff of the Education and Training Department or your personnel representative. They will assist you in planning a program to meet your goals. You should discuss your career goals with your supervisor who may be helpful in your achieving them. It is important, however, for you to recognize that education is merely one criteria that is examined in advancing individuals. Performance on the job and demonstrated ability to perform at the higher level are criteria that are also carefully considered in any advancement.

R. J. Edelman — 4200

Out-of-Hours Courses

Spring '76 Out-of-Hours course offerings are listed in the blue catalogs now available at each Tech Area gate. Registration period ends Jan. 16, and classes begin Feb. 2.

Retiring



Patricio Garcia (3647)



Della Ortiz (9631)



Ted Thomas (3171)

Credit Union Reporter

By Clarence Sandy, VP,
Board of Directors



During the past two months, your Credit Union Board of Directors has made several changes to existing policies which we describe here.

Loans to minors — This action provides a method of establishing a credit rating for a younger person. It allows dependent children of members, including stepchildren and adopted children who are at least 16 years of age and reside at home, to open a primary account at the Credit Union. All loans to these dependent members, except share-secured loans, must be cosigned by the member parents or member guardians.

FHA Title I loans — The maximum loan has been raised from \$5000 to \$10,000 and the length of time for repayment has been increased from 5 years to 10 years. A mortgage is required for any loan over \$5,000.

Real estate loans — The interest rate on real estate loans drops from 9.4% to 9.0% effective January 3, 1976. At the same time the maximum amount allowed on a real estate

loan is increased from \$35,000 to \$50,000. The length of term for a second mortgage is increased from five years to ten years. On January 3, 1976, all outstanding real estate loans at the old interest of 9.4% will be automatically placed under the new 9.0% rate. No action is required by the member.

Field of membership — Effective December 18, 1975, the National Credit Union Administration approved an amendment to our charter. On that date, our field of membership was changed to permit unremarried spouses of deceased members to become members in their own right with full membership privileges. This provision is not retroactive; thus unremarried spouses of deceased members who died before December 18, 1975, are not eligible. In the event of later remarriage to a person outside the field of membership, an account of this type would have to be closed.

* * *

Annual Meeting — The 28th Annual Meeting of the Credit Union will be held Wednesday, January 21. The meeting will be at the Coronado Club — starting time 5:15 p.m. There will be refreshments, door prizes for all and drawings for two color television sets. At the meeting, elections will be held to fill four board member openings and one opening on the Credit Committee.

Speakers

C.S. Johnson (9421), "The End of the Golden Age of Energy," UNM Spurs convention, Nov. 8, Albuquerque.

H.H. Patterson (1730), "Mexico and the Sea of Cortez," Rio Grande Lions Club, Nov. 14, Albuquerque.

G.V. Barton (5711), "Solar Energy Research at Sandia," UNM socio-economic information class, Nov. 18, Albuquerque.

J. Philbin (5421), "Reactor Safety," Optimist Club, Dec. 4, Albuquerque.

D.F. McVey, W.B. Pepper (both 1332), and J.F. Reed (1334), "A Parametric Wind Tunnel Study of Ribbon Parachutes," AIAA 5th Aerodynamic Deceleration Systems Conference, Nov. 17-19, Albuquerque.

E.D. Graham (2116), "Microwave Semiconductor Devices and Radiation Effects," Graduate EE Seminar at Mississippi State Univ., Nov. 20, State College, Miss.

H.J. Rack (5832), "The Micromechanics of Fracture in an Unaged Beta Titanium Alloy," Material Science Colloquia, NMIMT, Nov. 25, Socorro.

A. Stephenson (9473), "Full-Scale Tornado - Missile Impact Tests Using a Rocket Launcher," Second ASCE Specialty Conference on Structural Design of Nuclear Plant Facilities, Dec. 8, New Orleans, La.

L.D. Bertholf (5162), invited paper, "Numerical Methods for Nonlinear Stress Wave Propagation"; R.E. Jones (2642), "The QMESH Mesh Generation Package"; L.F. Shampine (5122) and R.J. Thompson (5121), "An Efficient Method for the Numerical Solution of One-Phase Stefan Problems," ACM-SIGNUM Meeting on Software for Partial Differential Equations, Dec. 8-9, Moffet Field Naval Air Station, Calif.

E.L. Venturini (5132) and J.A. Borders (5111), "Effects of Ion Implantation on Amorphous Gd-Co"; J.E. Schirber (5150), "Pressure Dependence of the Electronic Structure of Nickel"; J.P. Van Dyke and W.J. Camp (both 5151), "Series Studies of Critical Exponents in Continuous Dimensions"; E.L. Venturini (5132), "Effects of Implantation of an Amorphous Ferrimagnet"; D.M. Follstaedt (5151), W.J. Meyer (2112), D.C. Barham (5151) and A. Narath (5000), "Nuclear Resonance of Ytterbium Local Moments in Gold"; J.N. Sweet, J.K. Maurin, J.R. Adams (all 2431), and D.H. Schroeder (2442), "Fabrication of 2-4 um Magnetic Bubble Memories With Electron Beam Negative Resist Lithography," 21st Annual Conference on Magnetism and Magnetic Materials, Dec. 9-12, Philadelphia, Pa.

C.P. Ballard (5846), invited paper, "Glass-Ceramic

Coatings for High-Temperature Applications"; R.J. Eagan (5846), invited paper, "Glass Ceramics for Sealing to Metals," Materials Science Seminar, Dec. 12, LASL.

H.M. Bivens (2355), invited paper, "The Use and Misuse of Statistics by Engineers," Albuquerque Chapter of American Statistical Association, Dec. 17.

E.D. Jones (5214), "Mode-Locking and the Iodine-Photodissociation Laser," Special Seminar, Physics Dept. Naval Research Laboratory, Washington, D.C., Dec. 4; and Special Seminar, Div. of Physics, National Research Council of Canada, Dec. 5, Ottawa.

C.C. Carson (1313), "A Terrain Model for Use in the Study of Mobile Air-Defense Systems," Military Operations Research Society Symposium, Dec. 16-18, FBI Academy, Quantico, Va.

J.F. Ney (1754), "Protecting Plutonium: Physical Safeguards," AIF Workshop, The Nuclear Debate: Basic Issues for 1976, Oct. 29, Boston, Mass.

J.L. Colp (5715), "Can the Dream of Using Magma Energy Come True?" University of Texas, Center for Energy Studies, Nov. 24, Austin.

W.Y. Velez (5121), "Prime Ideal Decomposition in Radical Extensions," 13th Holiday Symposium, Dec. 27-31, NMSU.

J.W. Nunziato (5131), D.R. Hardesty (8115) and J.E. Kennedy (5131), "On Shock Initiation of Detonation in Explosives"; D.B. Hayes (2513), "A Theoretical Criterion for Shock Induced Initiation of High Explosives"; J. Lipkin (5162) and J. R. Asay (5167), "Reshock and Release of Shock Loaded 6061-T6 Aluminum"; K.W. Schuler (5163), P.C. Lysne (5131) and A.L. Stevens (5163), "Shock Properties of Oil Shale"; A.L. Stevens, P.C. Lysne and G.B. Griswold (5731), "Rock Springs Oil Shale Fracturization Experiment"; P.C. Lysne, "Polarization of Ferroelectric Ceramics by Shock Waves"; P.L. Stanton (5131), "The Acceleration of Thin Flyers by Exploding Foils"; R.A. Graham (5131) and J.R. Asay (5167), "Piezoelectric Rate Coupling—A New Electrical to Mechanical Coupling for Shock Waves"; J.R. Asay, "Release Wave Measurements in Bismuth Undergoing Polymorphic and Melt Transition"; D.W. Palmer (2431), "Quantum Interference in Single Superconducting-Normal Metal Interfaces"; D.W. Palmer, "Thermal Properties of Superconducting Proximity Effect Fridge"; R.W. Rohde and T.V. Nordstrom (both 5832), "The Effect of Microstructure on the Dynamic Yielding of Iron," Meeting of the American Physical Society, Dec. 29-31, Pasadena, Calif.

2nd Residence

That Cabin In The Wilds: Fun or Folly?

*"You'll see a smiling face,
a fireplace, a cozy room,
A little nest that's nestled
where the roses bloom . . ."*

Under the Labs' vacation and holiday plan, we Sandians have a fair amount of time off the job. And we're fortunate in living in a part of the country where, within a few hours drive of Albuquerque, we have mountains, streams, forests and an abundance of outdoor recreational possibilities. Many Sandians have taken the step that most of us have thought about at one time or another: the building or purchase of a cabin.

In principle, a second residence is appealing. Tucked away in some woody glade, it offers cool weekends in summer, pleasant hikes through the fallen leaves of autumn and, for skiers, a season of greater challenge and better snow than may be found around Albuquerque. Children, it is felt, grow up to be sturdy and self-reliant in the more primitive setting (though the logic of this is not entirely self-evident) and, further, they much prefer the bucolic to the urban environment.

True? Or is this the glib fiction of the land hustler? LAB NEWS talked to a number of Sandians who have cabins, and we asked for their unvarnished opinions on the subject.

Jim Krone (2643) built a large (1400 sq. ft.) cabin last year just four miles down the road from Taos Ski Valley.

"Before we took the big step of building, we bought a used house trailer for \$1200 and set it up in a trailer park in Taos. We wanted to give the second residence idea a trial period.

"It worked. After a ski season of weekend commuting we still wanted to build. We got the land and decided on a kit-house offered by an outfit in Washington state. Financing is tough. The banks are willing to advance money on something already built, but not construction money.

"Our biggest plus was getting two brothers who work here at Sandia — Larry (2321) and Paul Miller (3171) — to take charge of construction. The three of us took two weeks vacation in early summer and devoted the entire period to a concentrated effort to get the basic house up. I didn't think I'd survive those 18-hour days, but I did. By last winter we were able to move in. It wasn't totally complete, in fact it still isn't, but it was livable.

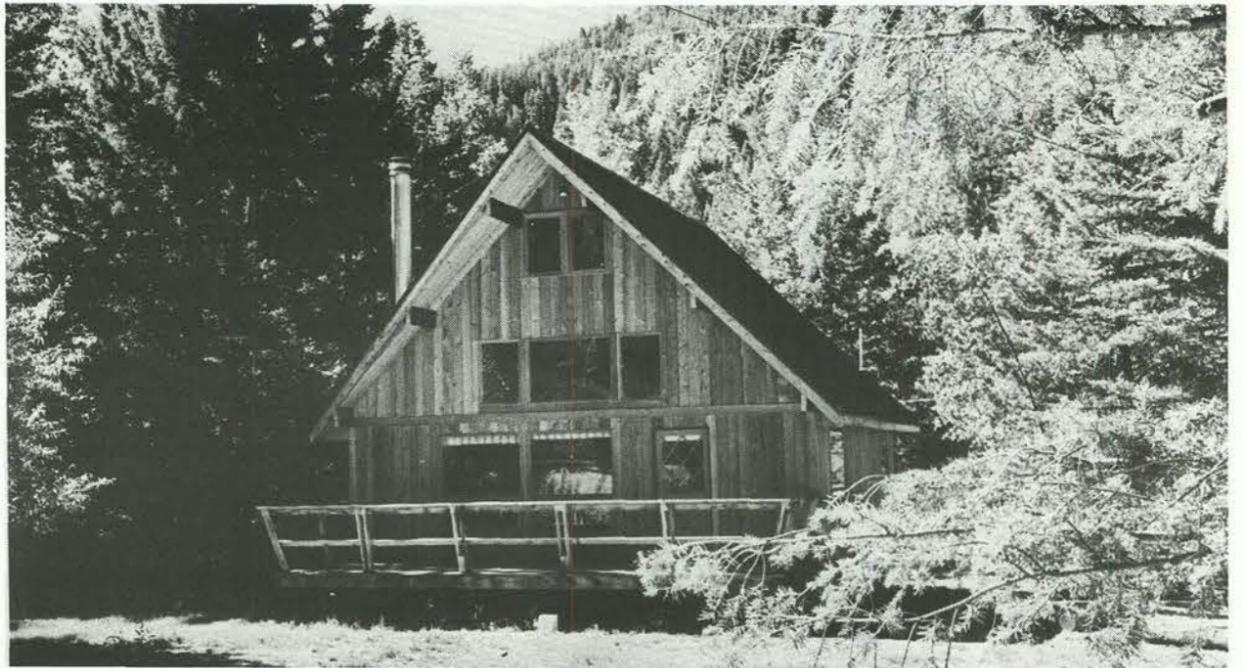
"Sold the trailer for a profit. Because we're in a forest, I thought fire insurance would be prohibitive, but it isn't. It's high, but less than twice what I pay in the city. Fuel costs (electric) last winter averaged \$50/month, but that includes keeping the place at 40° when we weren't there. The biggest item now is that season pass for the ski lifts at Taos — \$750 for the family.

"Haven't missed more than a weekend or two in the last year. We take off Friday after work, come back Sunday evening. Martha and the three boys really enjoy the cabin and our enthusiasm for it is still high. My Volvo gets us in there even when the snow is deep.

"Vandalism? None, but there have been instances in other places in that valley. We're not too far from the condominium and its resident manager, and that may be a factor. Also, our boys have made quite a few friends in the nearest village.

* * *

Phil Owens (9633) was more interested in hunting than skiing when he built his cabin a few miles west of Torreon off S. Hwy. 14.



JIM KRONE's (2643) cabin is near Taos Ski Valley.



PHIL OWENS (9633) built his in the Manzanos near the village of Torreon.

"We picked up about 30 acres back in 1960 near the old Spanish village of Torreon in the Manzanos. You know, that land has really increased in value many-fold since then. My son and I enjoyed hunting and the area has a fair amount of deer and small game. A small creek runs along one side of the property, which we may stock with fish.

"At an auction we bid on a 600 square-foot 'shell home' — just the outside walls, roof and floor — and had a house mover set it on blocks, then we finished the foundation. We never did have a great amount of money tied up in the place.

"Finished off the inside ourselves over the next year or so. Had a well dug — 65 feet — with a windmill to pump water, so that we have inside plumbing. We've got a gas stove (propane), water heater, and refrigerator. No electricity, so we use Coleman lanterns. It's very livable.

"My son's grown up now, but Sylvia and I still go down there about every weekend. We're only an hour and a quarter from the city. She likes country living, and I keep busy fixing the fence or doing something on the house. Picked up a battery TV this year to watch the football games.

"Taxes are low — \$29 a year — and insurance is nominal, so we don't have much expense."

"We've had a few break-ins over the years, but we don't have anything there of high value. And someone threw a rock through the front windows once.

"We're thinking about using the place during retirement. We're getting electricity and that will make it completely modern. Country living is not for everyone, but we sure enjoy it."

* * *

Paul Souder (4362) has an arrangement



PAUL (4362) and KATHY SOUDER deposit their house trailer each fall in this trailer park near Purgatory ski area.

which would seem to offer many of the attractions of a cabin with few of the liabilities and expenses.

"Every fall, just before ski season, I hitch up my truck to our 18-foot house trailer and haul it to a trailer park just north of Durango. We hook up electricity, propane and plumbing, and it's ready to be lived in for another season.

"I bought the trailer, used, for \$500 in 1967. The trailer park fee, \$3.75 per night, is charged only when we occupy the trailer. It includes use of the park's heated toilet and shower. And that's it. We really aren't looking at a great deal of money. No insurance, no property taxes, and in the trailer park you don't have to worry a great deal about break-ins or vandalism. And I use the trailer for hunting and camping in the off-season.

"Kay and the girls and I make it up to Purgatory every other weekend. The drive is a drag. It's true the trailer doesn't offer all the amenities of a rustic cabin — like a fireplace for instance. Still, you can't beat the skiing and that's our primary interest." •js

MILEPOSTS

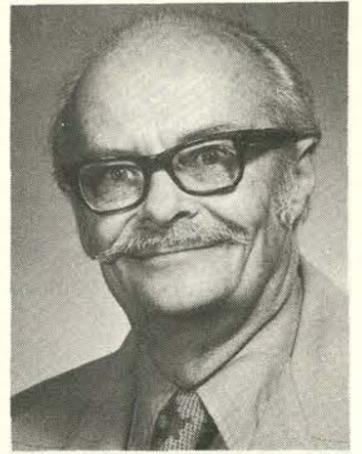
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Ron Husa - 2117

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Vern Henning - 4213

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Neal Carpenter - 2351

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Larry O'Connor - 1536

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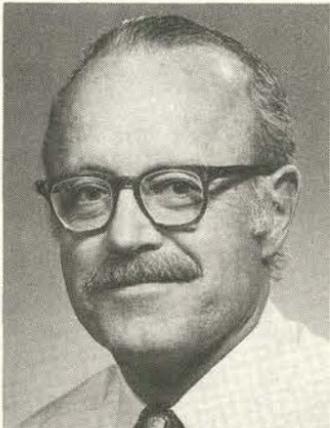
Bennie Montoya - 3613

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Aileen George - 3734

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Hal Baxter - 9753

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Roy Jaramillo - 3623

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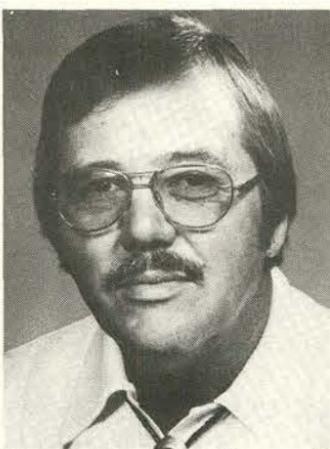
Wesley Pfarner - 1241

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Phil Arnold - 1733

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Charley Hines - 3171

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David Gonzales - 3616

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Nell Norton - 3155

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Audrey Kroesche - 3171

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Richard West - 2315

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G.R. Vaughan - 9654

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William Elskes - 9711

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Know Your Moles

By Dr. A. S. Verdesca,
WE Medical Service

"Skin tumor" sounds ominous, yet in the great majority of cases such lesions are benign. In fact there are very few adults who do not have skin tumors of some kind.

The misconception arises because most people think that "tumor" means "cancer," when all it means is swelling.

Perhaps the most common benign skin tumor is a seborrheic keratosis. It can occur virtually anywhere on the body, on parts that may or may not be exposed to the sun, which is often helpful in distinguishing it from the more serious senile or actinic keratosis. Even though they can occur anywhere, seborrheic keratoses are especially common on the trunk, arms, neck, and scalp. They are quite unusual below the hip area.

Although they eventually have a typical brownish-grayish-blackish color and a greasy, warty appearance, seborrheic keratoses ordinarily start as a slight yellowish or brownish, somewhat scaly, small area of the skin. Even in their early stages, they feel greasy.

These seborrheic keratoses are often multiple, slow to enlarge, and usually smaller than one half inch in diameter. Not infrequently, pieces of lesions or the whole lesion may fall off, only to recur in a few weeks or months. The important thing to remember about these is they are benign and require no medical treatment. Some people prefer to have them removed for cosmetic purposes, which is usually not a major procedure.

The second large category of keratoses is senile or actinic keratosis (actinic means exposure to the sun's rays). Although such lesions can occur with aging, the great majority are brought on by years of exposure to sunlight. This is why they are almost invariably seen in the forearm or hand area, and on the forehead or neck.

These, also, are brownish or grayish raised lesions when first developed but they always lack that peculiar appearance and feel of the

seborrheic keratosis.

Senile keratoses are not cancerous lesions. Even though most dermatologists recommend removal, it is not so much because of the lesions themselves but rather their potential for becoming malignant. Probably far fewer than half of such lesions would become malignant if left alone. Dermatologists, however, do not plan percentages; they recommend removal, usually a simple procedure.

Even in the few cases which have developed a true cancer, the malignancy is normally low grade and has a very high cure rate. These skin cancers, called squamous cell epitheliomas, can if neglected spread elsewhere in the body.

Another type of skin cancer is very unusual in its behavior. It is called a basal cell epithelioma and in contrast to all other body cancers, it does not spread to other parts of the body even if neglected. However, basal cell epithelioma can get very large and the underlying skin and even bones may be eroded. So, of two skin cancers, the squamous cell type is of low malignancy and the basal cell type does not spread at all.

There is, however, one dreaded skin cancer which can spread even though the original skin lesion looks insignificant. Malignant melanoma usually occurs on exposed surfaces of the body and often looks like flat, large freckles. Generally, scattered black nodules appear on their surface and frequently these exhibit a peculiar rainbow of colors as they grow. They can be bluish, reddish or purplish — even an opalescent blue-gray, and, sometimes, even white. These are the notorious skin lesions we are warned about when we read of the changing size or color of skin moles. But if diagnosed and treated in time, even malignant melanoma can be cured.

Most skin lesions are benign and those malignant few are usually of low grade; because there is the possibility that a rare skin lesion may be serious, it is always prudent to see your doctor about any new skin growth.

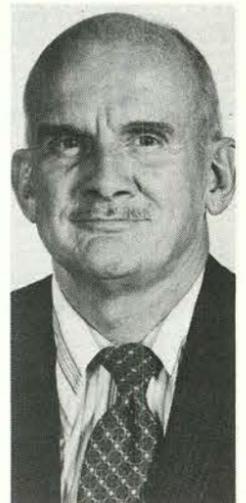
Events Calendar

- Jan. 9-10** — Albuquerque Symphony Orchestra: Florence Quivar, mezzo-soprano, 8:15 p.m., Popejoy.
- Jan. 10** — Ski Touring Club, 7-Springs Fish Hatchery, call Wolforn, 299-5851.
- Jan. 10, 13, 15-16, 20-21** — Hockey at Tingley Coliseum, 7:30 p.m.
- Jan. 11** — NM Mt. Club, Del Agua Trail, Sandias, hike 4 miles, 10 a.m., Eastdale.
- Jan. 14** — Popejoy Travel Series: "Brawny Australia," 7:30 p.m., Popejoy.
- Jan. 17** — NM Mt. Club, Rio Grande Trail from Cochiti, hike 6-8 miles, 8 a.m., Gulf Mart.
- Jan. 18** — Ski Touring Club, Albuquerque Avalanche Race on Sandia Crest, call Guy Coburn, 268-6844.
- Jan. 18 through Feb. 13** — Lovelace-Bataan Medical Center: Art Show by Dorothy Harroun, 2-4 p.m.
- Jan. 18** — Road Runners meet at Rio Grande Park at 1:30 for various events.
- Jan. 22-25** — Classics Theater: "The Crucible" by Arthur Miller, 8:15 p.m., 25th 2:15 p.m., Popejoy.
- Jan. 23** — Basketball, UNM vs. Arizona State, 7:30 p.m., UNM Arena.
- Jan. 24** — Basketball, UNM vs. Arizona, 7:30 p.m., UNM Arena.

Death

John Eckhart, manager of Upper Atmospheric Projects Department 1250, died Dec. 18 after an illness. He was 52.

He had worked at the Laboratories since November 1948. Survivors include his widow, three sons and a daughter.



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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.

TRANSPORTATION

- '70 FORD Galaxie 500 V8, 4-dr. sedan, AC, PS, AT, \$1000. Pafford, 298-8913.
- '69 CHEV. Malibu, 2-dr., HT, V8, \$900. Wallace, 294-2870.
- '63 TR-4 convertible, elect. overdrive, all white. Dean, 296-3264.
- '73 MAZDA RX-2, 4-dr., AM/FM radio, disc brakes, 18-24 mpg, 30,000 miles, \$1750. Roth, 877-4997.
- '61 FORD wagon, new tires, battery, muffler & distributor, \$150 cash. Karnowsky, 255-4045.
- '68 JEEP Wagoneer, 4-WD, 350-V8, PS, PB, AT, M&S steel radial tires, new paint. Abbott, 298-2039.

- '75 YAMAHA RD-350 w/windshield, fairing, crash bars, saddlebags, backrest, rack, helmet box & air horns. Campbell, 293-3115
- '74 YAMAHA TX-650, \$1250; '60 VW dune buggy, \$250. Weatherbee, 869-2849.
- '71 HARLEY DAVIDSON, 22,000 miles, full dress w/many extras, \$2500 or best offer; '73 Suzuki, 8000 miles. Miller, 877-6610 or 296-3432.
- MOTORCYCLE, BMW R60/5, '72; Honda, CB200, '75. Shane, 296-4430.

MISCELLANEOUS

- BAGS, TRASH, plastic, 30-gal, city-approved; \$4/50-bag box. LAB NEWS, 832-20.
- SKIS, 7 pairs, boots, bindings, poles, many different sizes. Montoya, 883-9115.
- KODAK XL 330 movie camera, indoor/outdoor, 1 yr. old, retails new \$117.50, sell \$75. Silva, 255-1710 or Jewett, 298-2796.
- DINETTE w/6 chairs; pink drapes, 2 pair, \$20; pig, 250 lbs.; trade twin maple for bunk beds; need freezer. Chavez 867-2786.
- FIVE 800 x 16.5 Goodyear 8-ply

- truck tires, 4 3500 miles, 1 new, retail \$400, sell for \$310. Jones, 298-3165.
- TEXAS Instruments SR-50, \$60; Hart Freestyle skis, 200cm, \$55, used 5 times. Healer, 298-6967.
- RAILROAD steel box car, insulated, 8'x40', \$1250. Jaramillo, 865-7081.
- GE built-in dishwasher, \$25; Gardner turntable, \$15. Reif, 299-4705.
- DARKROOM equipment, Simon Omega B-22 enlarger, everything needed for b&w processing & printing, best offer. Kramer, 898-7149.
- OVERHEAD projector, 3M model 66, never used, lightweight, \$120. Cooper, 881-2048.
- GARAGE door, wooden, 7'x9', 5-piece overhead roll type, all hardware included. Dean, 296-3264.
- CATTLE rack, fits into long wide bed of pickup, 1 1/2" pipe construction, \$100 or best offer. Houghton, 299-3386.
- LARGE oil painting by J.R. Willis, Appraised at \$3000, price reasonable, Wilson, 256-3857.
- BELL & HOWELL auto. slide projector \$50; Viking stereo tape deck, \$65, 6500 Cochiti Rd. SE, SP-56. Hiltunen.
- BED FRAME, steel, adjustable

- from twin to full width, matching twin headboard, all for \$9. Joseph, 299-6989.
- BED, Queen size, walnut cannon ball frame, mattress, springs, sheets, make offer. Hollenbeck, 298-6533, 881-5081 after 5.
- PIGEONS, English Trumpeters, West of England, Homers. Clark, 296-4541.
- MATTRESS/box spring, full size; 2 full size bed frames. Collier, 265-6873 after 6.
- 2 EA. 7:00-13 Goodyear studded snow tires, \$15 ea.; 2 ea. 14" 4-hole wheels, \$10 ea. Wilkinson, 299-8327.
- SPANISH style dinette set, 6 chairs, 1 leaf, mottled colors of burgundy & gold. Gutierrez, 821-4512.
- 16 FT. fiberglass Lonestar boat w/45 hp Johnson & 5 hp Sea King outboard & trailer. \$1200. Jones, 255-7696.
- CLARINET, Bundy w/case & stand, \$75. Willems, 298-7261.
- SERVICE manual, '59 Olds, \$7. Acton, 299-3276.

REAL ESTATE

- 2-BDR., Condominium, 1-yr old, 1 1/2-baths, drapes, dishwasher, disposal & range, landscaped, patio area 12x21,

- single car garage, pool, \$24,000. Brensinger, 821-9572.
- 3-BDR. house, 1 1/2-baths, carpet, paneled LR, fenced back, carport, cinderblock second bldg. for workshop storage, near shopping, schools. Thompson, 298-5800.
- LOT in Lake Havasu, Arizona, good location, near Country Club & golf course, for further info. call Noel, 298-2142.

FOR RENT

- FURNISHED adobe home in North Valley, 2100 sq. ft., available to July 1, \$300/mo. Brice, 266-4807 after 5.
- CONDOMINIUM Purgatory Ski Basin, 1-bdr., equipped kitchen, fireplace, sleeps 6, ski to lifts & your door, Reservations. Smatana, 299-6278.

WANTED

- SERVICE manual, '66 VW Fast or Sq. Back. Acton, 299-3276.
- AQUARIUM, 10 gal. w/stand & light. Jacklin, 298-3046 after 5.
- USED Reg 8 movie camera. Miller, 255-7716.
- SUBMARINERS who fought in the Great War, WWII, for Lab News, call John, 4-1053.

●CRAB●C-CLUB●JEREMIAH●ASTRONAUT●GYMNASTICS●RUSTY●DENNY●ANNIE●

FRIDAY	SATURDAY
9 — HAPPY HOUR ROAST BEEF BUFFET Adults \$3.25 Under 12 1.92 MIDNIGHT SPECIAL Denny in Lounge	10 — SOUL SESSION JIMSON 8:30 - 12:30 Members Free Guests \$1
16 — HAPPY HOUR BUDGET BUFFET Adults \$2.60 Under 12 1.50 3 OF US & JEREMIAH Annie Ashworth in Lounge	17 — KING CRAB FEAST NATURAL PERSUASION 8:30 - 12:30 Members \$5.75 Guests 6.35 Cocktails @ 6 Dinner @ 7

SOME — may call it Invasion of the Giant Arthropods. But we'll call it the Alaskan King Crab Feast. Every crabber attending gets a full pound of king crableg — delectable dining that. Following the feasting, Natual Persuasion will play music. The package for \$5.75 (guests \$6.35), the date the 17th, and the deadline *tomorrow*.

FOLKS — watching expenses these days can rejoice next Friday when the second Budget Buffet appears before your eyes — and your teeth. Beef tacos, refried beans (because they taste good that way, *not* because the chef couldn't fry them right the first time), salad, relishes, and more for \$2.60. Jeremiah was a bullfrog — remember that one? He and three non-frogs will play Music for Table Hopping. Later in the Lounge it's Annie Ashworth; she plays and sings, sometimes simultaneously.

CARVE — that roast beef, bake that potato, mix those vegetables, toss that salad (not at me, blockhead)! That's Dave Foster masterminding the big Roast Beef Buffet tonight. Midnight Special returns for dancing; so does Denny; he now knows the meaning of Double Digit Inflation — got two fingers pinched in his capo.

OUT — in back of the Club, on Club-owned, currently unused land, is space for



four high quality tennis courts. The Club Board wants to know: should we? We could hire a professional tennis coach and staff. We could use the present shower and dressing facilities. Courts obviously involve a major expense, but sharing costs by users (current and future) would keep individual expenditures low *if there are enough Club members — or potential Club members — interested*. If you or members of your family are interested, please fill out the form below and mail it to the Club during January.

GREAT — way to get to the games, those Lobo buses. If you don't have a bus season ticket, get one. If you're going to just dribble into a few, get a ticket for each one early in the week. Buses are cheaper, easier, and much more fun.

CAREERS — as professional dancers aren't guaranteed, but those dance teachers will do their best. They use a teaching technique called the rhythm method — it's quite productive. Now is positively your last chance to sign up — \$20 for one, \$35 for two, six lessons on six Thursdays, 7:30 each night, beginning the 15th. Remember, Hollywood needs successors to Rogers and Astaire; you maybe?

BUT — for real adventures among the stars, you have to be a Sanadoe. They'll hear Astronaut Harrison Schmidt discuss the moon on the 13th at 1:15 earth time. Reservations *today* with Sandra Ruth, 294-2090.

OTHERS — like Wolfpackers (other Club members invited too) can meet and watch and applaud Rusty Mitchell and the UNM Men's Gymnastics Team at 7:30 on the 13th. Packers who think they know everything about bars may find the uneven parallel ones intoxicating watching.

SIMPLY — great films coming up on the 20th at 7 at the Ski Club's monthly ode-to-snow: one on helicopter skiing at the Bugaboos in British Columbia, another from Canada's Monoshees, others from Jackson Hole and from Copper Mountain. Watch till your eyes glaze, then ski till your knees lock.

CHISEL — on your 1040 to make it to Rio, Tahiti, and/or Hawaii? Not necessary. The package deals in "Super 76" make travel easy, fun, and inexpensive. The Rio de Janeiro trip is April 18-25; \$699 includes RT jet, six nights at the new Rio Sheraton, all breakfasts, six dinners at various restaurants, transfers, tips, taxes. The Tahiti trip is April 26-May 3; \$685 includes RT jet, seven nights and a cocktail party at a Papeete hotel, transfers, tips, taxes. The Hawaii trip is now May 14-21; \$449 gives you RT jet, four nights at the Ala Moana or the Hale Makai Hotel, three nights at the Outrigger in Kihei (Maui), inter-island flights, tours, transfers, tips, taxes.

Rio Pre-Trip meeting is 7:30 on the 12th. Hawaii/Tahiti Pre-Trip is 7:30 on the 21st. They're free — stop in and be enchanted.

MORE INFO — 265-6791.

C-Club Tennis Interest Survey

I/We would support a tennis program at the C-Club. Specifically (check one or more):
 I/We would likely play about _____ recreational games a month maximum, _____ minimum.
 I/We would be interested in lessons from a professional tennis coach for:
 _____ self _____ spouse _____ children.
 I/We would enjoy competing in tennis tournaments.

I am/We are aware that reasonable court fees and/or monthly dues would be charged for the use of tennis facilities.

Name _____ Org. _____
 Number of current tennis playing adults in family _____ Coronado Club member? _____
 Number of current tennis playing children in family _____ Yes _____ No
 Number of potential tennis playing adults in family _____ If no, would you become a
 Number of potential tennis playing children in family _____ member of the Club in order to
 become eligible for the use of
 tennis facilities?
 _____ Yes _____ No

MAIL COMPLETED SURVEY BY INTER-OFFICE MAIL TO:
 TENNIS, CORONADO CLUB

●BARS●MIDNIGHT SPECIAL●HAWAII●GYMNASTICS●

Take Note

Ninety-seven needy kids were fitted with new shoes for Christmas thanks to the efforts of Sandians in Departments 1210, 1220 and 1230. The children were selected by teachers at Dolores Gonzales and Longfellow elementary schools. Kinney's Shoe Stores provided the shoes at a discount. The project raised \$899.50.

Project chairman Joe Muench (1222) reports that the Shoes for Kids project has provided shoes for about 100 youngsters each Christmas for 18 years. Co-chairmen were Mel Olman (1223) and Dick Vivian (1211).

Joel Lipkin of Code Development Division 5162 left last week for England where he will be on temporary assignment for a year. He will do research in solid dynamics at Oxford University as a research fellow. Joel has been at Sandia for five years. He holds Master's and PhD degrees in solid mechanics from Brown University.

The First and Only LAB NEWS Poetry Reading Marathon, alas, will never be. Since there was underwhelming response (not a single entry), FOLNPRM is hereby cancelled. Closet poets, where are you now that we need you?

DMV says you have to return those mail order renewals for your '76 auto registration by Feb. 15. "Any registration forms received after Feb. 15 will be returned to the motorist with instructions to register at the local field office." Translation: you'll be standing in a long, long line if you don't mail those forms in before the deadline.

The local ASME and AIAA chapters will hear astronaut Harrison Schmidt discuss "The Solar Alternative" at their joint meeting Jan. 14 at the KAFB-East Officers Club. The public is invited to cocktails at 6:30, shrimp peel at 7, program at 8; the cost: \$5.75. Reserve with Ed Barkocy (4-4840) by Jan. 12.