

Cruise Missile Warhead Program Planned

President Sparks revealed last week the DOD request for preliminary engineering development (Phase 3) of a major new weapon — the W80 warhead for common application to the three versions of the cruise missile. Making the announcement, Mr. Sparks noted, "The W80 is a complex system that offers significant challenge. Many groups in the Labs will be involved in the program. This is major work to which we will devote our best effort."

The cruise missile has been the subject of considerable press coverage in recent months. It is, essentially, a guided missile powered by a jet engine that flies low — to escape radar detection — and long — up to 2000 miles. Key element is its terrain matching guidance system that gives it phenomenal accuracy. For military planners such accuracy means, among other things, increased flexibility in mission planning because of the high certainty that the target will receive virtually a direct hit.

For the W80, the cruise missile appears in three configurations. The Navy has a subsonic version, called Tomahawk, that is launched through the torpedo tubes of a submerged submarine. Upon reaching the water surface, wings and control surfaces deploy and the air-breathing jet engine is then ignited. This missile may also be ship-launched. The Air Force has two versions, a subsonic air-launched missile (ALCM) to be carried internally by the B-1 and B-52, and a supersonic version called SRAM-B (short range attack missile) that would be carried internally by the B-1.

At the Labs, warhead work will be centered in Bob Peurifoy's Weapon Systems Development directorate (4300). W80 project assignments are now under consideration and will be announced at a later date.

Sandia to Host Wind Turbine Meet May 18-20

Sponsored by ERDA and hosted by Sandia Laboratories, a technology transfer workshop on the vertical axis wind turbine is scheduled at the Albuquerque Inn May 18-20. More than 800 invitations to attend have been mailed to representatives of industry, government and educational agencies, according to Lyle Wetherholt (5700), workshop coordinator.

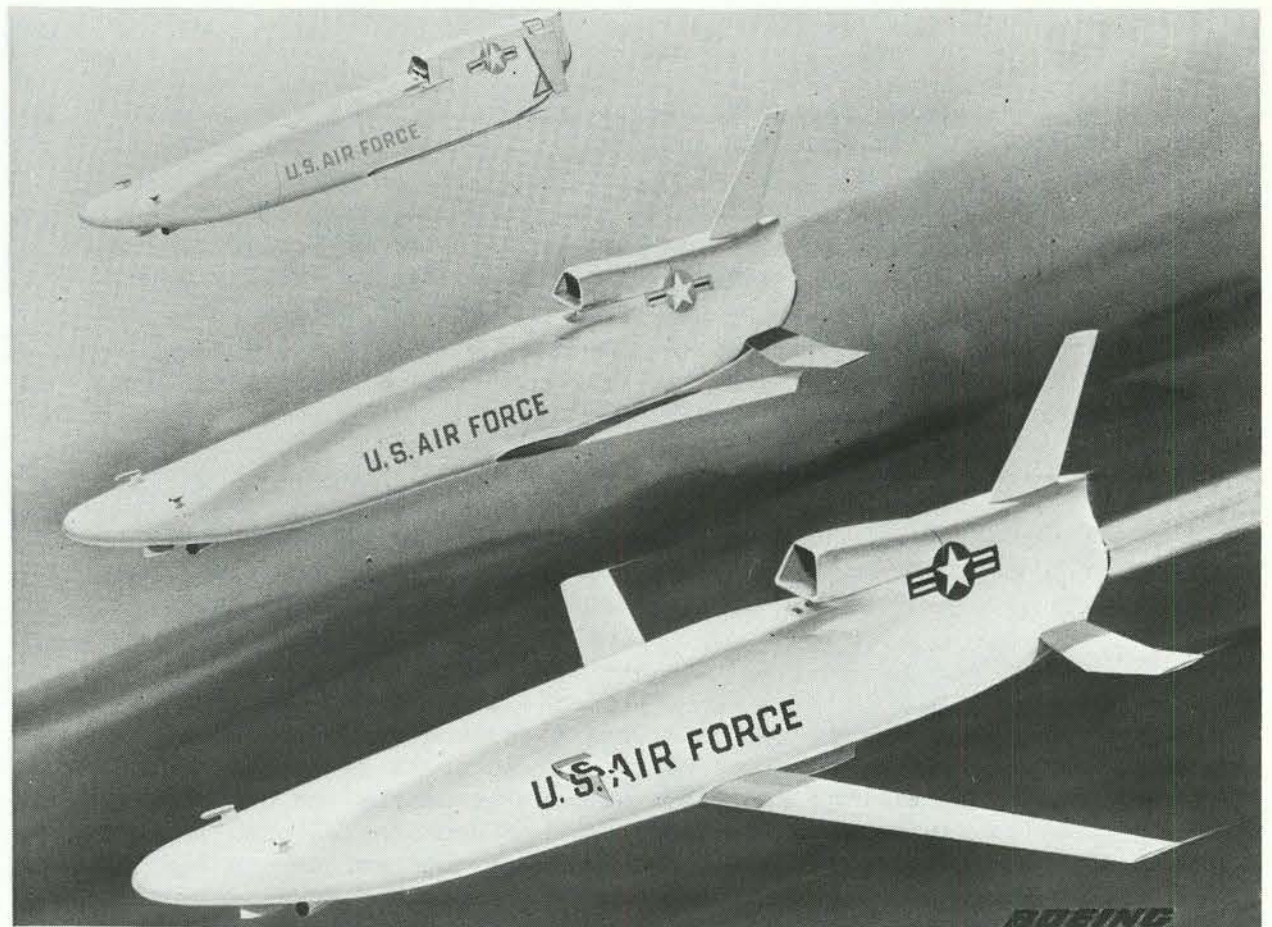
Louis Divone, chief of ERDA's Wind Energy Conversion Branch, is workshop chairman.

At the meeting vertical axis wind turbine programs will be reviewed, and technical details of structure, electrical systems, aerodynamic characteristics and performance will be presented in general sessions and in individual working groups.

Al Narath (5000) will open the workshop. Other Sandians presenting technical papers:

Dick Braasch, Emil Kadlec, Robert Reuter and Anthony Veneruso (all 5715).

William Sullivan (1344), James Banas (5742), Ben Blackwell (1333), Robert Sheldahl (1333), Larry Weingarten (1344), Johnny Biffle (1341), Ronald Rodeman (1341), Lou Feltz (1324) and Jack Reed (5443).



CRUISE MISSILE — One of three versions of the cruise missile, the air-launched cruise missile (ALCM) deploys wings and control surfaces as shown following launch. Air Force SRAM-B and Navy Tomahawk, as well as ALCM, will carry common warhead — the W80. Warhead is focus of new work at Sandia Labs.

LAB NEWS

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

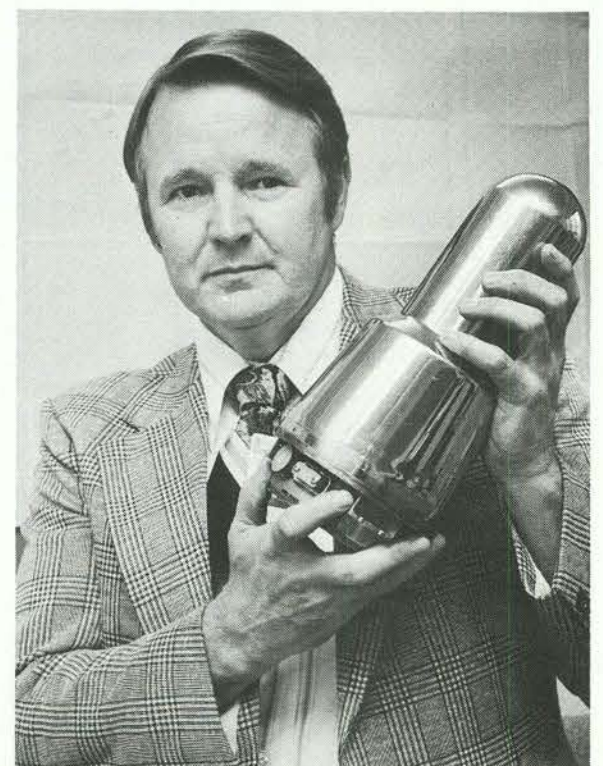
\$35 Million Underrun

Mk 3 AF&F Production Completed

A major weapons project at Sandia, started at the Labs 10 years ago, recently noted the completion of production. It is the MK 3 arming, fuzing and firing package for the Navy's Poseidon Fleet Ballistic Missile, and a measure of project success is seen in the Navy's request that Sandia perform similar work on their Trident missile system.

Much relating to the MK 3 AF&F is noteworthy. Director of Weapon Systems Development (4300) Bob Peurifoy comments, "The MK 3 was a difficult and unusual task for us, but a short four years after we started, the first production units came out of Bendix. And since that time production has stayed on schedule.

"Further, and this is rare nowadays, the total production cost to the Navy is some \$35 million less than we estimated eight years ago. The reliability of the AF&F is a well-documented 99%, and in the many flight tests — more than 100 — our system has performed with universal success. Literally hundreds of Sandians worked on different aspects of the MK 3. To each I'd like to say 'thanks and well done.'"



Bob Peurifoy and Mk 3 AF&F

Afterthoughts

Meter/metre--Slowly, inexorably we're going metric. The movement is underway, but its momentum suffers from a trifling distraction: is it meter, or metre? (liter, or litre?). Sandia officially professes -re, though many Sandians use -er without giving it a second thought. Webster supports -er as customary in the US (caliber, specter, somber, fiber, luster), but the more English -re may have been selected by authority to differentiate metre from the instrument that measures quantity--gas meter, water meter, etc. Whatever the background, there is obvious need for a pronouncement ex cathedra that will settle meter/metre once and for all.

* * *

Look Ma--Speaking of the Labs conversion to SI, LAB NEWS recently grappled (unsuccessfully) with a metric conversion in its classified ads. The ad appeared under Transportation: Mule 14½ hands.

* * *

Bookstand economics--The 802 paperback bookstand was operated by people from LAB NEWS and other organizations to raise money for the South Highway 14 Village Project, which helps nearly one hundred poor families living along that route. The bookstand closed in the wake of some dismal arithmetic concerning its operation: in the first two weeks of April, 181 books were disposed of by actual count; since the average price is 40¢, the return should be \$72.40; actual return was \$23.75; shortage \$48.65. The Project buys books at 15¢ each. The return on the 802 stand averaged out to 13¢ per book, a loss of 2¢ per book. Looks like someone out there developed an acute case of self-inflicted charity.

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Higher education--"I have often said that the use of a university is to make young gentlemen as unlike their fathers as possible."
Woodrow Wilson, The New Democracy *js

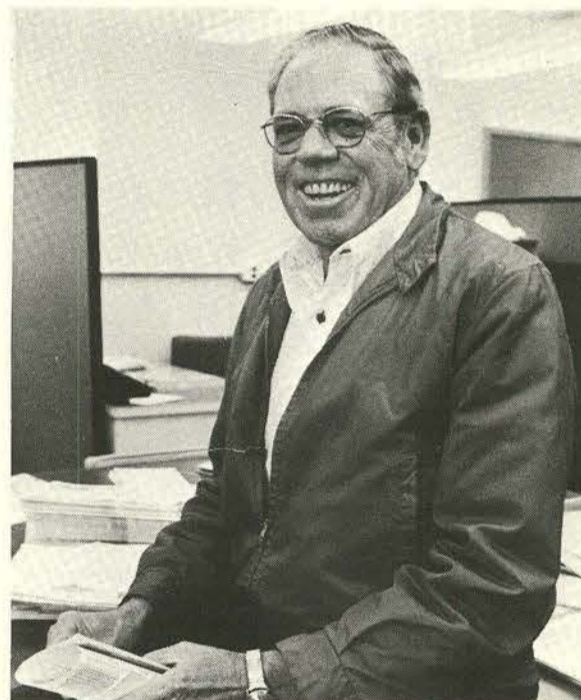
Retiring



Mary Woods (1311)



Josephine Trujillo (3613)



Vernon Moore (9550)



Mary Bordenave (9511)

Group Will Study Weapons Complex

A. Dodd Starbird, ERDA's AA for National Security, has initiated a review of the weapons complex whose aim is to "... consider carefully how we can do better with the resources that are likely to be made available to us." Overall goal of the review is to ensure that the organization, procedures, and method of operation of the weapons complex bring about the most effective and

highest quality weapon program. The study is an outgrowth of the DOD/ERDA study, now in the White House, on the future of the weapon labs.

The review, titled Effectiveness and Responsiveness Review, is being directed by ex-Sandian Gordon Moe who is Mr. Starbird's Technical Assistant. He reports that it will be principally conducted by working groups from the three weapon labs (Sandia, LASL, and LLL), ALO, NVO and the production complex. ERDA's Division of Military Application will also participate.

Howard Stump of the 4010 Management Staff is spending full time on the study; he is a member of Mr. Moe's ANS staff and will work out of Albuquerque. Other Sandians participating: on the Production Working Group, Jim Arthur (4370), Jim Barham (8360), Luke Heilman (9500), and Charles Tapp (2150); on the R&D Working Group, Byron Murphey (8300), Bob Peurifoy (4300), and Don Shuster (1300). Additional Sandians may become involved as the working groups organize specific assignments.

The two working groups will prepare action proposals (rather than a final report) which will, in turn, be considered by a group of senior weapon complex managers. That group, chaired by Maj. Gen. Bratton of DMA and including President Sparks, will comment on the proposals before their final submission to Mr. Starbird.

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ALBUQUERQUE, NEW MEXICO
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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
&

lorena schneider reports on livermore

Take Note

ERDA has been awarded a patent for a lifting parachute invented by Ray Rychnovsky (8158) — see June 27, 1975, LAB NEWS article. The main advantage of the lifting parachute is that it allows a second chute to be used — one which couldn't survive the shock of ejection from a fast moving aircraft but which can slow down the payload enough to prevent damage upon impact. Primary value is with payloads of munitions, mines, sensors, and other cargos dropped from low altitudes, although other applications may result from further study.

Ray joined Sandia in Albuquerque in June 1957 and transferred to Livermore in 1963. He has a BS degree in mechanical engineering from Iowa State University and an MS in civil engineering from San Jose State University.

Gertrude Williams (8212) coordinated a workshop on Career Planning for Women and Minorities during the recent Conference on Career Planning sponsored by the American Society for Engineering Education and the American Society for Training and Development. The first conference of its kind held in the Bay Area, the program focused on available resources and discussed problems in establishing career centers. Al Artiaga (211) was a workshop panelist.

Speakers

Jim Shelby (8334), "Structural Implications of Gas Diffusion Studies," G.W. Morey Award Lecture; Jim Shelby and Pete Mattern (both 8334) and Dave Ottesen (8313), "Hydrogen Reactions with Vitreous Silica"; Jim Shelby (8334) and R.J. Eagan (5846), "Properties and Structure of Sodium Aluminosilicate Glasses"; Pete Mattern and Jim Shelby (both 8334) and Dave Ottesen (8313), "Hydrogen Reactions with Vitreous Silica"; and Chuck Hartwig (8342), "The Observation of Radiation Formed Hydroxyls, Deuterioxylys, Hydrides and Deuterides in Silica with Raman Spectroscopy," American Ceramic Society Glass Division Annual Meeting, Oct. 8-10, Pocono Manor, Pa.

Jack Dini and Rudy Johnson (both 8312), "Electrochemical Joining Technology," and "Joining by Plating," Advanced Welding and Brazing Workshop sponsored by Society of Manufacturing Engineers and ERDA, Oct. 28, Chicago, Ill.

Ray Rychnovsky (8158), "A Lifting Parachute for Very Low-Altitude, Very High-Speed Deliveries"; and Roger Everett (8157) and Ray Rychnovsky, "Wind Tunnel Tests to Evaluate a Lifting Transonic Parachute," Fifth Aerodynamic Deceleration Systems Conference, American Institute of Aeronautics and Astronautics, Nov. 17-19, Albuquerque, N. Mex.

Dan Hartley (8115), "Internal Combustion Engine Research in United States and Europe," Technical Seminar Series, University of Illinois, Nov. 18, Chicago Circle, Ill.

Tony Zuppero (8342), "Some Economic Aspects of Laser Isotope Separation," Electro-Optical Systems Design Conference, sponsored by Laser Institute of America and Society of Photographic Scientists and Engineers, Nov. 11-13, Anaheim, Calif.

Steve Robinson (8314), "Use of Mild Steels for Hydrogen Containment"; John Brooks and Anton West (both 8314), "Hydrogen Compatibility of Austenitic Stainless Steel Weldments"; Bill Swansiger (8334) and Joe Darginis and Carl Schoenfelder (both 8313), "Hydrogen Permeation in Pd-Cr Alloys"; Walt Bauer (8334), "The Effects of Hydrogen and Helium Bombardment on Metal Surfaces"; John Smugeresky (8312), "Effect of Warm Working on the Mechanical Properties of Beryllium"; and Rand German (8312) and Z.A. Munir (UC/Davis), "Sintering by Simultaneous Independent Mechanisms," 1975 Material Science Symposium jointly sponsored by AIME and ASM, Nov. 9-13, Cincinnati, Ohio.

Sympathy

To Bert Folks (8412) on the death of his father in Converse, La., April 6.

To Gladys Kimberling (8264) on the death of her father in Livermore, April 13.

To Dave Timmer (8168) on the death of his father in Dayton, Ohio, April 11.

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On the Carpet

Bedford Combines Weapons & Rugs

For something to do while watching TV, Bob Bedford (8181) began making hooked (tufted) rugs. "No one makes fun of Rosie Grier, the 300-pound football player who does needlepoint, so I figured I was safe," comments Bob.

Some of the brightly colored rugs, those hanging in his office in Post Development Testing Division, reflect SLL's weapon programs over the past 15 years. For Bob, they bring back memories of his involvement in the development of telemetry systems and the joint test assembly effort.

Bob's first rug came from a standard crafts kit where you simply follow numbers and colors. Looking for more of a challenge, he did his own design and tried the Sandia thunderbird emblem. Later, on a business trip to Pantex, he saw the logo of the Lance program and designed and hooked a weapons related rug, the first of many.

Although some are done free-hand, Bob usually uses an overhead projector to produce the rug design. With a marking pen, he traces the outline onto burlap stretched and stapled over a frame about three by four feet. The looping is then pulled through, with small detail worked in first. A fluffy appearance is

attained by cutting the loops like shag. Each rug takes over 17 skeins of rug yarn and about 30 hours to complete. Bob says he and his wife often collaborate on colors because she is better at blending colors.

"My favorite design is the Poseidon. It was the most difficult to make because of the narrow lines for the meridians," notes Bob. "The detail requires the stitches to be extremely tight, causing a tendency to interweave colors which only unlooping can correct."

Bob's work in SLL weapons programs has included participation in a Spartan flight test conducted in Kwajalein, and he was also at Cape Kennedy for many of the Poseidon flights. During one of these trips he saw a manned space launch and several Minutemen firings.

"Friends call me the 'happy hooker,' but the rugs mean and say a great deal to me," says Bob. "My wife feels they are inheritances to pass on to our grandchildren — something unique from their grandfather."

The rugs will be on display in the lobby of Bldg. 911 during SLL's Family Day on May 8. Bob also plans to exhibit his rugs at this year's Alameda County Fair.



RUGS by Bob Bedford (8181). Look for them displayed as wall hangings as you enter SLL's Building 911 lobby on Family Day, May 8.



BROTHERHOOD AWARENESS PROCLAMATION by New Mexico Governor Jerry Apodaca is read by President Sparks and Bob Garcia, Special Assistant on Equal Opportunity (200). Conference is slated for May 7 and 8 at Albuquerque High School.

Credit Union REPORTER

By Otis Cox, Chairman,
Education Committee

Student Loan Program

Following a lengthy discussion of the Federal Insured Student Loan Program, the Board of Directors has elected to suspend Credit Union participation until such time as the present law is amended to give lenders more authority to administer the program effectively. While not the Credit Union's specific task, nor its problem, the Board is extremely concerned about potential losses (to be recovered from the federal government, we hope) and about data from other lenders concerning high delinquency and losses, particularly from bankruptcy. It was not the intention of the student loan program to encourage young people to ignore or cancel their debts.

At the request of the Board, Congressman Manual Lujan introduced a bill providing some additional authority to lenders, and other bills are pending concerning the problem of bankruptcy. In the meantime, the Operations Committee is working on a supplementary student loan program to be presented to the Board of Directors. When approved, members will be notified through the LAB NEWS.

Personal Involvement

Brotherhood Awareness '76

Sandians are invited to the Fifth Annual Brotherhood Awareness Conference May 7-8 at the new Albuquerque High School. Conceived by Alianza leader Reis Tijerina in 1972, earlier Brotherhood Awareness conferences brought together a wide range of the state's citizens.

This year's conference is no exception. Well known New Mexicans will participate with the New Mexico public in seven workshops dealing with brotherhood — between old and young, between males and females, within the family, within an organization (Sandia VP Ray Powell is a leader of this one), in education across racial and cultural barriers, and as a concern for the environment. So the conference promotes not only awareness but involvement as well.

There's entertainment too; in fact, Friday evening (from 6:30 on) is filled with drums, bugles, folk songs, Mexican dancers, Scottish dancers and bagpipes, black choral groups, and female barbershop singers.

Saturday's workshops are preceded by Mayor Harry Kinney's welcome, a brief message from Reies Tijerina himself, and a keynote address by The Rt. Rev. Richard Trelease, Jr., Bishop of the Episcopal Diocese of the Rio Grande.

Sandia President Morgan Sparks is General Chairman of this year's conference. Tom Robles, District Director of the EEOC, is chairman of the Conference Steering Committee, which put the whole thing together.

Marie Iverson (211) at 4-8925 has copies

of the Conference program and more information.

Feel good for a change — come out for Brotherhood Awareness this year (it's free).

ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD— JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING MAR '76

ELECTRICITY	BASE PERIOD	92276 MWH	
	1976	75304 MWH	18.4% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD	224583 BBLs	
	1976	195488 BBLs	13.0% SAVED
VEHICLE MILES	BASE PERIOD	2468 MI.	
	1976	2035 MI.	17.5% SAVED



BERT VENDEL from ERDA's Transportation Safeguards Division kicked the tires, said "I'll take it," and Ed Bruce of Transportation Division 1714 hands him the keys. Trailer is special Safe Secure Trailer designed for ERDA/ALO in Ed's group for shipments of nuclear material, represents first of production run involving Rockwell Rocky Flats, Bendix Kansas City, and a number of commercial contractors. The big White tractor is also part of Safeguards' transportation program.

Speakers

J.M. Hueter (4231), "Creative Problem Solving - By the Stretch of the Imagination," Junior League of Albuquerque Provisionals training workshop, March 16, Albuquerque.

L.S. Nelson (5824), "Metal Droplet Combustion," March 1, NMIMT Chemistry Club.

H.C. Monteith (5413), "ESP Research in Russia, England and America," Cleveland Jr. High science class, March 4; and "The Ancients' View of the Human Aura," March 8, St. Pius X High School science class.

A.D. Swain (1222), "Design of Industrial Jobs a Worker CAN and WILL Do," Albuquerque Chapter, National Association of Accountants, March 9.

R.W. Harrigan (5712), "Solar Energy Research," UNM Civil Engineering Club, March 10.

R.P. Stromberg (5711), "The Solar Energy Rebate Law," N.M. Solar Energy Association panel, March 12; and "Solar Energy Research," Purchasing Management Association of N.M., March 17.

L.P. Robertson (4232), "Brasil—A Sleeping Giant," Northeast Heights Civitan Club, March 16.

M.W. Edenburn (5712), "Solar Energy Research," Los Altos Civitan Club, March 25.

A.F. Veneruso (5715), "Wind Energy Research," Freedom High School class, March 29.

R.A. Holloway (9623), "Mastering Metrics," Shrine Caravan Club, March 29.

W.E. Warren (5121), "Plastic Yielding Through a Two-Material Interface from Cracks Under Antiplane Deformation," UNM ME Colloquium, March 8.

B.L. Butler (5844), "Solar Reflector Analysis Using Laser Ray-Trace," Graduate & Faculty Seminar, NMIMT, March 23, Socorro.

B.T. Kenna (5824), "Proposed Investigation of Waste Form Durability for Sea Bed Disposal," Seabed Disposal Workshop, March 26-28, Denver, Colo.

R.E. Whan (5822), "Technical Careers for Women," Symposium on Opportunities for Women in Science and Engineering, UNM, March 27, Albuquerque.

J. Hudson (2641), "Minicomputer Front End," AESOP/SCIE, April 1, Washington, D.C.

P.J. Slater and W.Y. Velez (both 5121), "Permutations of the Positive Integers with Restrictions on Successive Differences," Annual Meeting of the Southwestern Section of the Mathematical Association of America, April 2-3, Portales, N.M.

H.O. Pierson (5834), "Titanium Carbonitrides by Chemical Vapor Deposition"; G.J. Kominiak and D.M. Mattox (both 5834), "Reactive Plasma Cleaning and Aluminum Coating of Steel," International Conference on Metallurgical Coatings, American Vacuum Society, April 5-8, San Francisco.

J.O. Harris and J.T. Cutchen (both 2521), "Protection from Retinal Burns and Flashblindness Due to Atomic Flash," NATO/AGARD Aerospace Medical Panel Meeting, April 5-9, Copenhagen, Denmark.

G.J. Lockwood (5232) and G.H. Miller (5216), "Experimental Apparatus for Measuring Cross Sections of Importance to Nuclear Pumping"; D.A. McArthur (5423), "Fission Fragment Pumping of CO Gas Mixtures: Experiments, and Unresolved Physics Questions"; D.A. McArthur and J.V. Walker (5420), "Nuclear-Pumped Laser Concepts for Laser Fusion of Laser-Heated Solenoid Reactors"; T.R. Schmidt (5422), "Reactor Analysis for Large Nuclear Driven Lasers"; P.B. Tollefsrud (5230A), "A High Energy Flowing Nuclear Laser," Nuclear Laser Workshop, Naval Postgraduate School, April 6-8, Monterey, Calif.

N.J. DeLollis (5813), "Aging Characteristics of Electrically Conductive Adhesives," 21st National SAMPE Symposium on Bicentennial of Materials Progress, April 6-8, Los Angeles.

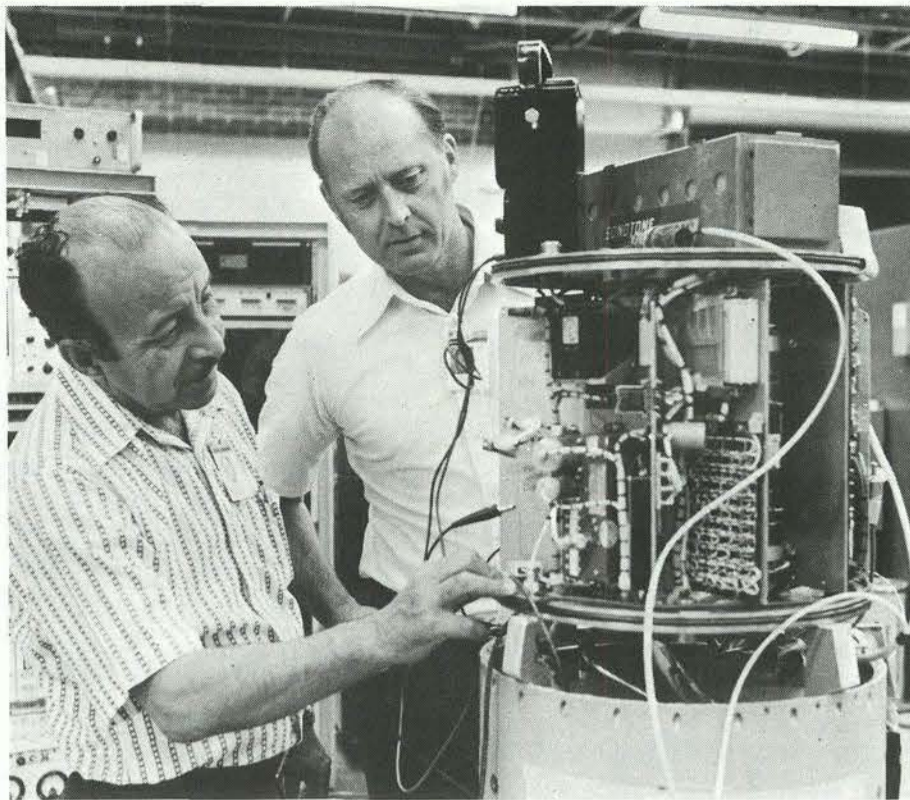
W.K. Tucker and W.B. Leisher (both 5233), "Increased Power Plant Efficiency Using Flux Compression," 1976 IEEE Region 6 Annual Conference, April 7-9, Tucson.

J.A. Leonard (5712), "Solar Total Energy at Sandia Labs," 13th Space Congress, Canaveral Council of Technical Societies, April 7-9, Cocoa Beach, Fla.

G.C. Tisone, J.M. Hoffman (both 5212), and A.K. Hays (5215), "Recent Studies of Rare-Gas-Halogen Laser Systems at Sandia," LASL LIS Conference, April 13-14, Albuquerque.

H.M. Bivens, G.W. Smith and D.H. Jensen (all 2355), "Pulsed Neutron Uranium Borehole Logging with Epithermal Neutron Dieaway"; M.M. Newsom (5718), "New Tools for Exploratory Drilling," International Symposium on Exploration of Uranium Ore Deposits, March 29-April 2, Mexico City.

W. Herrmann (5160), "Structured Programming Approach to Problems in Continuum Mechanics"; R.T. Walsh (5166), "An Application of PASCAL to the Design of a Large Scientific Software Package," Third ICASE Conference on Scientific Computing: Computer Sciences and Scientific Computing, April 1-2, Fort Magruder, Williamsburg, Va.



ZERO-G EXPERIMENT is readied as a rocket payload by Murph Martinez and Wayne Lathrop (both 1326). The device, to be carried to an altitude of about 300 kilometers (186 miles) by a Black Brant rocket, will examine the behavior of superfluid liquid helium under zero-G conditions. It is one of a series of rocket launches scheduled by Sandia from Kauai May 14-June 2.

Sandia to Launch Cosmic Research Rockets from Kauai

Sandia will launch five cosmic research rockets from Barking Sands Test Range on Kauai May 14-June 2.

Various experiments will examine so-called black holes in the universe, record stellar x-ray emissions from distant constellations, examine zero-G effects on liquid helium, and inject an ionized barium cloud into the earth's own magnetosphere. A number of international agencies are cooperating in the effort. Four of the rockets will climb to altitudes above 300 kilometers (186 miles).

Sandia is providing the rocket systems, payload design and integration, attitude control systems, telemetry, aeroballistics, recovery systems, and range operations and support. Morgan Kramm, manager of Exploratory Systems Department 1320, is project manager.

A cosmic ray working group from Leiden University, Netherlands, and Nagoya University, Japan, is reimbursing Sandia for mounting an experiment called LEINAX-4. The research team is supplying instrumentation — an x-ray telescope and proportional counters — that will gather x-ray data from scans of a large area of the universe. Sandia is supplying a Terrier-Sandhawk rocket and all other systems for the experiment.

LLL instrumentation aboard another Terrier-Sandhawk will look at a massive black hole in the globular cluster NGC-6624 which uniquely (according to satellite data) emits an x-ray flux about every four hours, suggesting a star orbiting the black hole. An instrument incorporating large area, thin window proportional counters will measure both the interstellar absorption and spectral variations from the black hole. To date, there have been no direct measurements substantiating the existence of black holes; all evidence is circumstantial. This experiment, if successful, could verify the black hole's existence.

LASL is supplying instruments for three experiments seeking to find strong x-ray lines from the constellations Puppis A and Cygnus Loop. Positive identification of one or more lines will provide information on source temperature, chemical composition and density of the interstellar medium.

A Black Brant rocket will carry an

experiment to examine the behavior of superfluid (1.7 Kelvin) liquid helium under zero-G conditions. The experiment sponsored by LASL and NASA, will aid in the design of several NASA ultra-low temperature cryogenic systems to be used in space.

The Strypi IV rocket carrying the LASL explosive barium payload to investigate plasma instabilities in the geomagnetic field will also incorporate two other experiments on its second stage. Aerospace Corporation is conducting a very low frequency experiment and the National Research Council of Canada is mounting a thermal ion detector.

A Sandia attitude control system, incorporated into each of the payloads, plays a crucial role in pointing instruments and establishing scan rates. Gyros provide rate and position reference information vital for control of payload maneuvers.

Al Hutters (1248) is responsible for range operations; Jim Davis (1136) for rocket vehicle systems; Ed Hansen (1326), experiment payload systems; Bill Barton (1335), aerodynamics; and Dave McVey (1332), recovery systems.

Authors

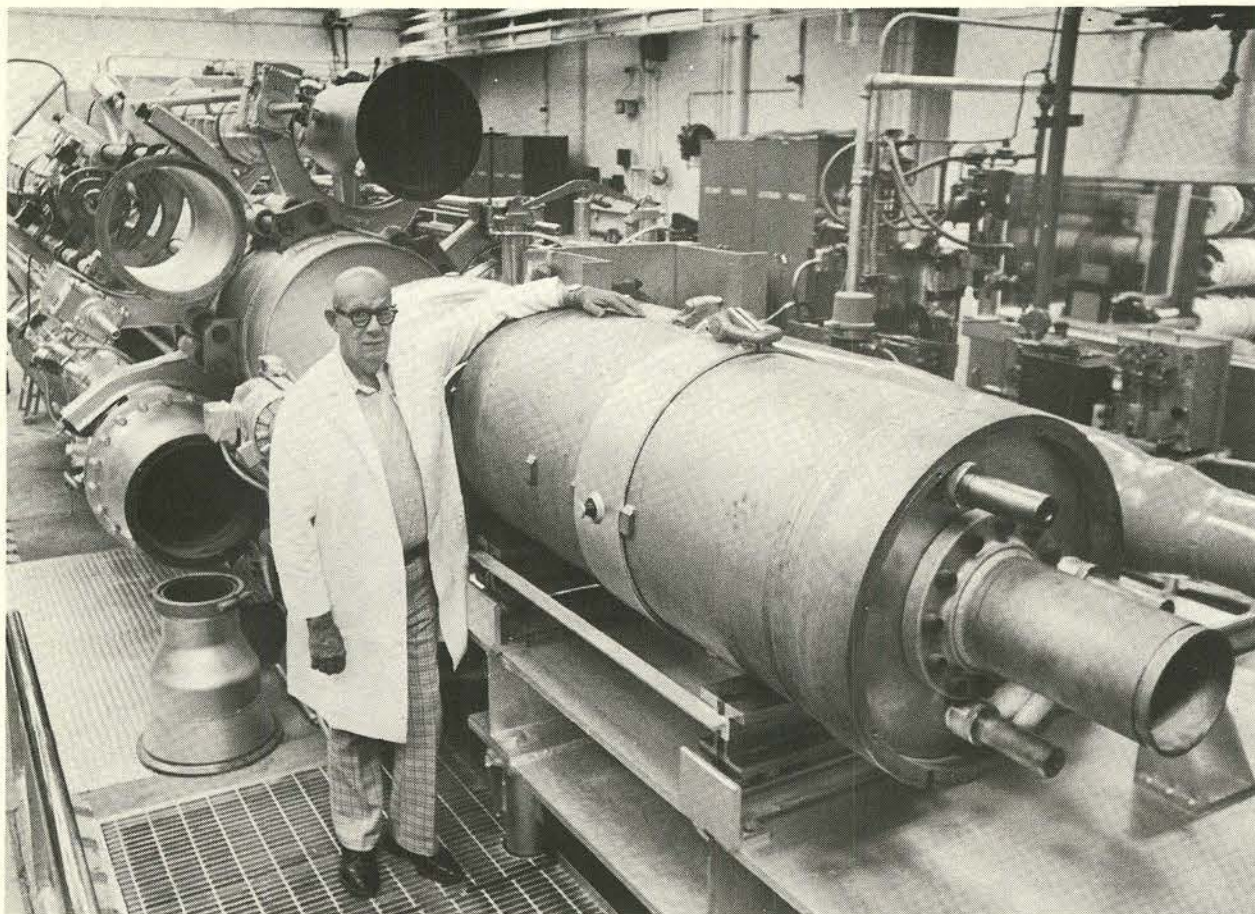
P. J. Feibelman (5151), "Angle-of-Incidence Dependence of Photoemission of a Localized Electron from a Jellium Solid," Vol. 36, No. 4, PHYSICAL REVIEW LETTERS.

J. C. King (2500), guest editor of special issue — RADIATION EFFECTS IN QUARTZ CRYSTALS. J. C. King and H. H. Sander (2141), "Transient Changes in Quartz Resonators Following Exposure to Pulse Ionization"; E. F. Hartman (4312) and J. C. King, "Calculation of Transient Thermal Imbalance Within Crystal Units Following Exposure to Pulse Irradiation," Vol. 26, No. 4, RADIATION EFFECTS.

R. L. Iman (1223) and M. N. Brunden (Upjohn Co.), "A Discounted Least Squares Quadratic Growth Prediction Model for Use in 2 Year Toxicity Studies," Vol. 9, 289-296 (1975), LABORATORY ANIMALS.

M. J. Forrestal (5233), D. C. Bickel (9335) and M. J. Sagartz (5233), "Motion of a Stretched Cable with Small Curvature Carrying an Accelerating Mass," Vol. 12, No. 11 (1975), AIAA JOURNAL.

J. A. Panitz (5114) and J. A. Foesch (2413), "The Areal Detection Efficiency of Channel Electron Multiplier Arrays (CEMAs)," Vol. 47, No. 1, REVIEW OF SCIENTIFIC INSTRUMENTS.



NEW ELECTRIC HEATER, displayed by Cecil Tolbert (1334), was recently installed in Sandia's supersonic wind tunnel facility, Bldg. 865. The new heater, largest of its kind in the world, pulls three megawatts of power to create temperatures up to 1200°F. (649°C.) for maximum runs of one minute. It replaces the old gas-fired one million BTU alumina pebble bed heater which required 24-hour per day operation. Friction in the pebbles resulted in alumina dust in the gas stream. Models were literally sandblasted and delicate instrumentation disturbed. A wider variety of tests, particularly heat transfer studies, may now be conducted in the facility. Jim Reed (1334) is project leader for the new heater.

Recreation Notes

FUN & GAMES

Sandia Runners Assn. — Each year since '74 the Boston Marathon has seen a Sandia participant, and '76 continues the tradition. Irv Hall (1223) made the pilgrimage this time, and by all reports the race earned an unsought distinction. Irv reports that temperatures were in the 90's which, for Boston in April, is unheard of and which, for the 2000-odd runners in the Marathon, imposed a particularly cruel burden. At the medical briefing the day before, the runners were told that heat kills, and some medical people recommended that the Marathon be called off. It wasn't, quite a few collapsed over the 26-mile course but no one died, and Sandia's native son turned in a creditable 3:20 and a 970th place. Says Irv: "At the end, I was beat like I've never been beat — almost blacked out. And some character tripped me early in the race, so both knees were bloody. All I really wanted was to finish." Then, as an afterthought, "But it was fun . . ."

Fitness — You don't have to run marathons to be reasonably fit; indeed, just a few miles daily will do wonders. *Newsweek*, issue of April 19, carries an unusual (for it) editorial by George Will. Entitled "Run For Your Life," the editorial postulates that Americans are healthier than ever but could be much healthier if they chose to be. We overeat, we smoke, many drink too much, and these are all matters of volition. The author sums it up: "But now the nation must deal with the behavioral component in the causes of its worst killer diseases. It is irrational for Americans to spend so much to cope with illness when so much illness is the predictable consequence of habits. They are paying increasing sums of private and public money for 'post facto medicine' that treats the consequences of dumb behavior." Amen.

Musicians — To some it sounds like fiddle practice, to others it's a rare delight: a small group of musicians performing chamber music. Jo Kaestner, wife of Peter (5411), is compiling a Director of Chamber Music Players so that a clarinetist can call up a violinist and one or two others and arrange a session. Generally, these are non-plug-in musicians, and their instruments have a minimum of sequins. If you play such an instrument, call the lady on 265-0283 to ensure that you are included in the Directory.



Boston Marathoner Irv Hall

Take Note

Meals on Wheels needs volunteers to increase its service to convalescents and handicapped persons who live at home but are unable to shop and prepare meals for themselves. Volunteer drivers, in teams of two, work about two hours delivering noon meals to these people. The hot dinners and sack lunches are prepared in the hospital kitchens at Anna Kaseman, Bataan and Presbyterian. One hundred fifty-six Albuquerque residents are receiving this service but there is a waiting list.

If you can give two hours a week, call the Meals on Wheels office, Presbyterian Professional Building, tel. 843-9211, ext. 3822, Mrs. Bev Geck, executive secretary.

The Albuquerque Civic Chorus will present a spring concert in the nave of San Felipe de Neri Church, Old Town, on Saturday, May 15, at 8:15. The program will feature a Mozart vesper service. There is no admission, and the public is invited.

The "Critical Materials Problems in Energy Production" lecture series continues on Thursdays at UNM's Kiva.

"Magnetohydrodynamics" is the subject of two speakers May 6. Prof. H.K. Bowen, MIT, will speak at 3:30 p.m. and Prof. N.J. Grant, MIT, at 5 p.m.

Final two lectures will be presented by Dr. Stuart Nelson, Atomic Energy Establishment, Harwell, U.K., May 13. He will discuss nuclear fission at 3:30 and 5 p.m.

Interested Sandians are invited. For more information, call George Samara (5130), 4-2945.

The Storehouse is a non-computerized giveaway operation that works with poor people on a face-to-face basis. A young couple, for instance, will walk into the Storehouse's shop in the old Albuquerque High School building, perhaps needing clothing for a new baby. Titus Scholl chats with them briefly, leads them over to a clothing rack, and they depart with an armful of stuff. No forms in quintuplicate, no lengthy wait, just a quick response to genuine need. Titus needs volunteer help, especially someone who can repair the many appliances that are donated. Other people are needed as well, for as little as 3 hours one day a week. Call Joan at 294-8694 if you or your group can lend a hand.

State convention of the Air Force Association of New Mexico is scheduled Saturday, May 1, at the KAFB Officer's Club West. Program starts with a luncheon at noon followed by afternoon sessions, then dinner and dancing in the evening. Dinner speaker is Donald Sanders, Deputy Assistant Secretary of Defense, who will discuss the defense budget and congressional action. For reservations call the Officers Club, 265-3488.

May 10 is Open House at the KAFB Pre-School and Kindergarten (both East and West). Interested parents can visit classrooms from 9 to 11:30 (five-year-old kindergarten from 12:30 to 3 as well). For info, call 4-8585 for East, 4-9965 for West.



TYPICAL SANDIA OFFICE at Mail Delivery Time

Project Paper Purge May 10-14

**Throw, Don't Stow
OR
Go Ahead, Defile!**

Paper can be depended upon to 1) Accumulate, and 2) Obsolesce. When it comes to getting rid of the accumulation, inertia takes over — it's easier to stow than to throw.

To help everyone who shares responsibility for a paper repository overcome the inertia, President Sparks is designating May 10-14 as Project Paper Purge Week and May 10 as PPP Day.

The Purge's Pounds-Off Plan urges you to put your desk, files, shelves, and the like on a crash diet designed to maximum weight reduction.

Each Sandia organization will receive detailed instructions on the Purge — how to

I am designating May 10 as "Clean-Out Day" at Sandia Laboratories. Everyone having responsibilities relating to files and records is urged to make a special effort that day to clean out all paper material that has outlived its usefulness. The goal in this campaign . . . is a 20 percent reduction in volume of records and file material. I consider this a conservative figure and one that should be achieved or surpassed in almost every organization. . . . In the spirit of friendly competition, let's see who can do the best job in this important task. I will be very much interested in the results of your efforts.

—Morgan Sparks - 1

calculate before and after cubic footage; how to ensure that classified and unclassified documents never get interchanged; how to separate recyclable stuff from non-recyclable; and where to put the various boxes for pickup.

The most recent purge (in 1972) resulted in a 25 percent decrease in holdings. "This year's goal is a conservative 20 percent," says Purge-man Charlie Hines of Records Management group in 3171. Adds fellow Purger Fred Leckman (also 3171), "But we think most organizations can get rid of a much higher percentage. We're short on space, we're short on storage devices — the Purge eases both problems."

Sympathy

To Mary Santon (3622) on the death of her grandmother in Columbus, Ohio, April 7.



TODAY the National Atomic Museum officially becomes a part of ERDA's Public Affairs Division under George Dennis. Here new director Carrol Canfield checks plans for future outdoor exhibits with ADJ3 John Miller, on loan from the Navy to assist in the Museum's transition from DNA. Above them is a Navy Regulus II target plane. In the background (horizontal), a Polaris A-2, then a Redstone and (painted white) a Minuteman missile.

Up the Street

Artifacts of the Atomic Age

The National Atomic Museum is a one-of-its-kind national resource, a repository for a variety of atomic age artifacts: weapons, missiles, planes, exhibits on nuclear safety, Palomares. An hour-long movie, *Ten Seconds That Shook the World*, gives perspective to the early bombs such as Little Boy and Fat Man.

Carrol Canfield, new museum director, is no newcomer to the Museum — in fact, she worked there for four years when it was a part of Field Command.

What's ahead, Carrol? "We'll redo some of the less complete explanatory signs. We plan to expand our scope to include ERDA's energy-related work. And we're hoping to hire a fulltime historian to do the research

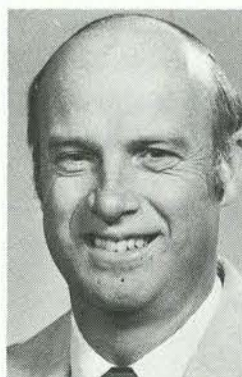
necessary to make us a first-class speciality museum. And maybe, someday, we'll be able to give the *Enola Gay* an appropriate home — that most famous of all B-29's is in storage near Washington now. She belongs here."

The Museum, begun by the Army in 1969 and transferred to DNA when Kirtland took over Sandia Base, is open 9-5 weekdays, noon to 5 weekends.

**PAGE SEVEN
LAB NEWS
APRIL 30, 1976**



Sandian Addresses Defense Board on Weapons



John Kane, supervisor of System Studies Division 1314, recently travelled to Washington, D.C. to address a committee of the Defense Science Board concerning potential vulnerabilities of NATO nuclear weapons to various forms of attack. John's briefing summarized results of studies performed under his direction over the past year. The studies, sponsored by DMA/ERDA, were performed at the request of the Office of the Secretary of Defense.

The Defense Science Board (DSB) is

chaired by Sol Buchsbaum, former Sandia VP and now at Bell Labs. The DSB advises the Director of Defense Research and Engineering (DDR&E) on scientific and technical matters concerning national defense and security. Its work is carried out by committees and panels of experts from government, industry and the academic world.

The committee addressed by John is charged with identifying that research and development needed to meet the modernization goals of our theatre nuclear forces. Sandia EVP Jack Howard has served as senior advisor to the committee since its inception and in recent months has been represented on the committee by Andy Lieber, Systems Studies Department Manager 1310.

MILEPOSTS

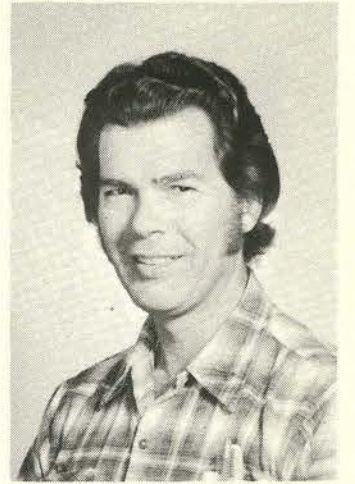
LAB NEWS

April 1976



Fred Harrison - 9516

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Roque Feliciano - 9473

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Jerry Jercinovic - 9540

30



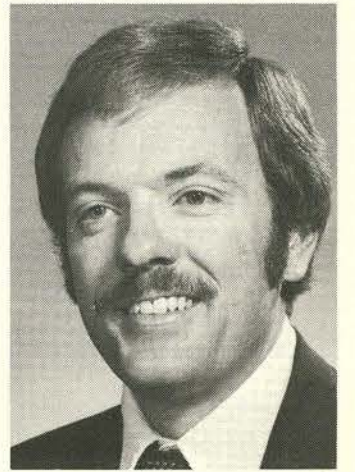
Warren Curry - 1331

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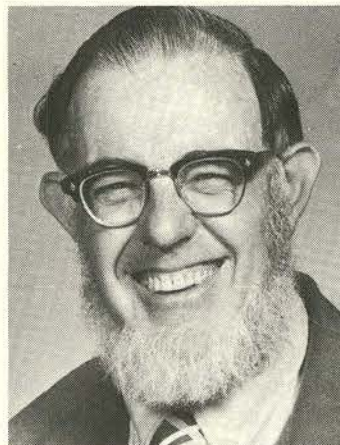
Harold Thomas - 9341

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Doug Buck - 2627

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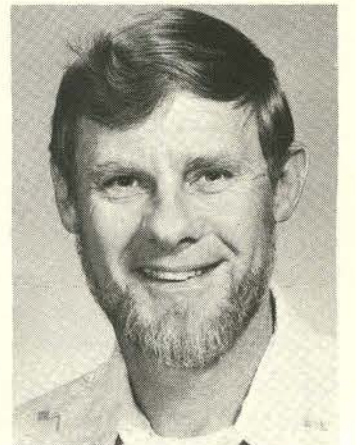
Paul Miller - 3171

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Andrew Lunsford - 9718

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Charles Eisenhour - 1716

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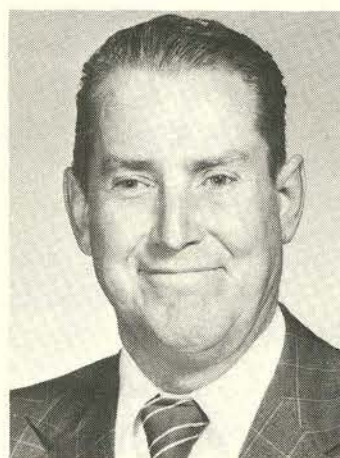
Irene Kay - 3254

25



Joseph Maldonado - 9713

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Leo Wilson - 1344

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Jeanne Goetsch - 4211

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Joe Pelletier - 9516

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Joe Sanchez - 3733

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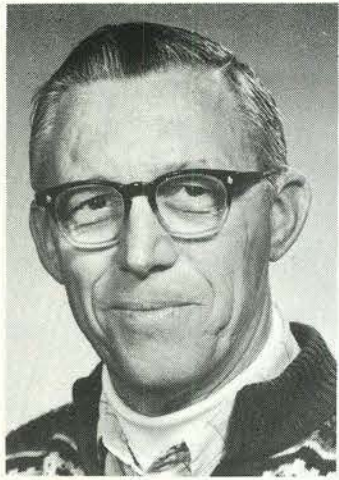
Esquipula Narvaez - 9722

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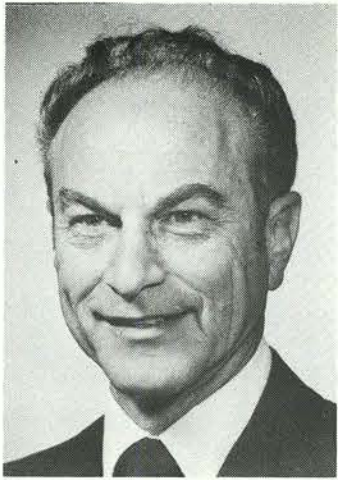


Edna Lee - 3725

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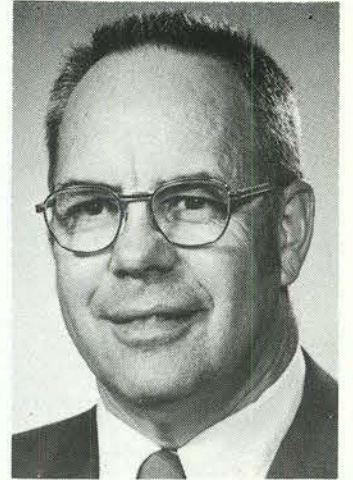
Kenneth Romine - 1713 15



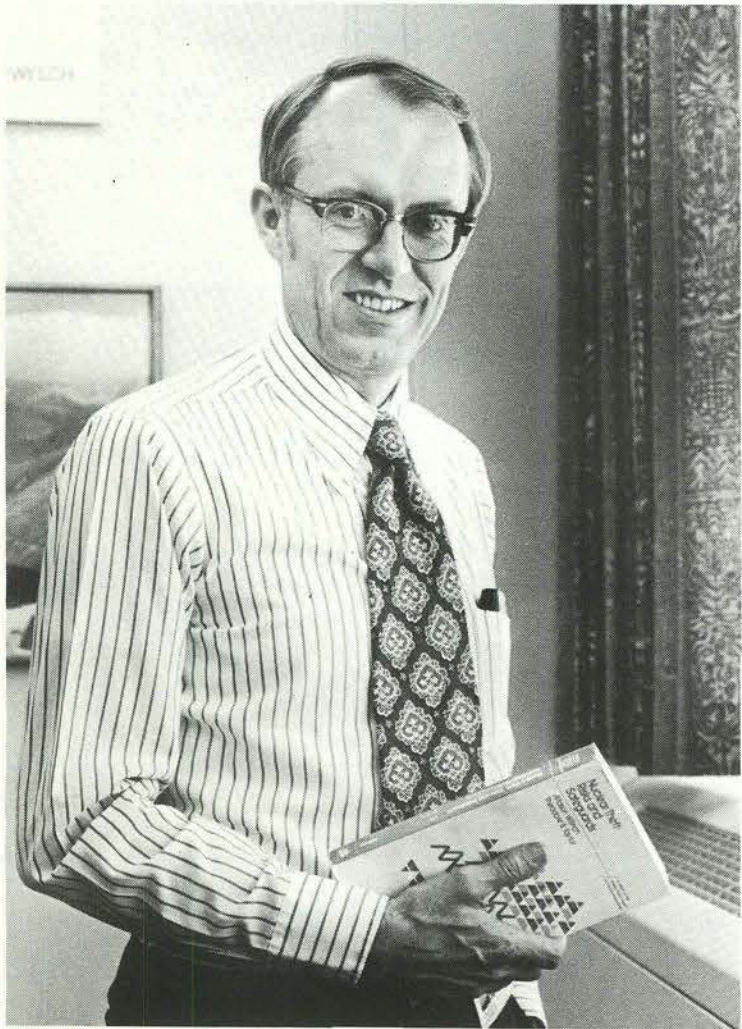
Howard Sander - 2141 25



Ev Beckner - 5200



Rudolph Stefoin - 3617 25



Orval Jones - 1700

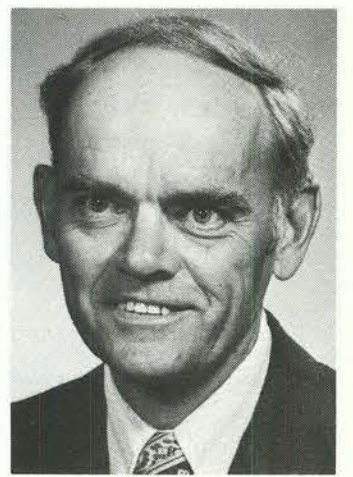
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Marian Weiss - 3731 20



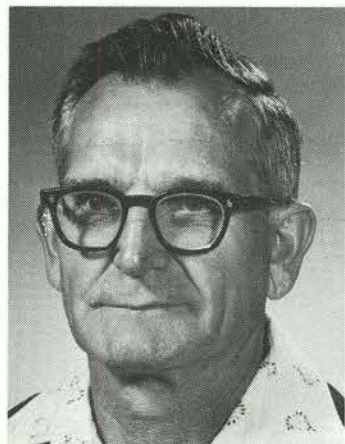
Betty Gray - 3712 10



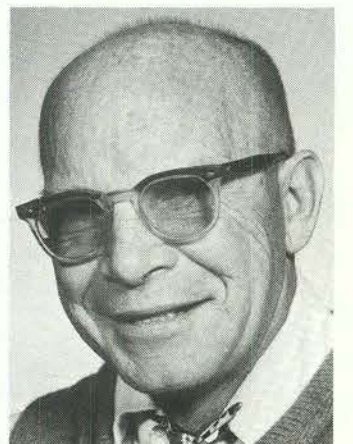
John Ford - 2321 25



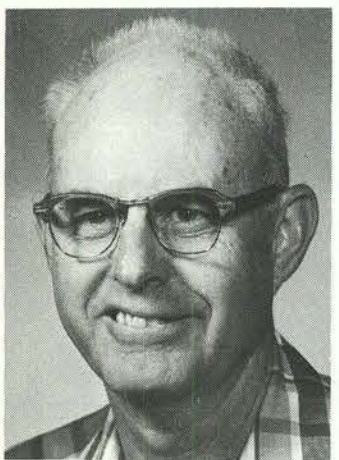
Bridget Chorley - 3731 10



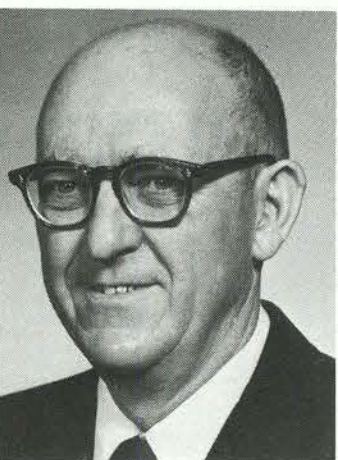
Carl Boxx - 3616 25



Howard Davis - 9343 25



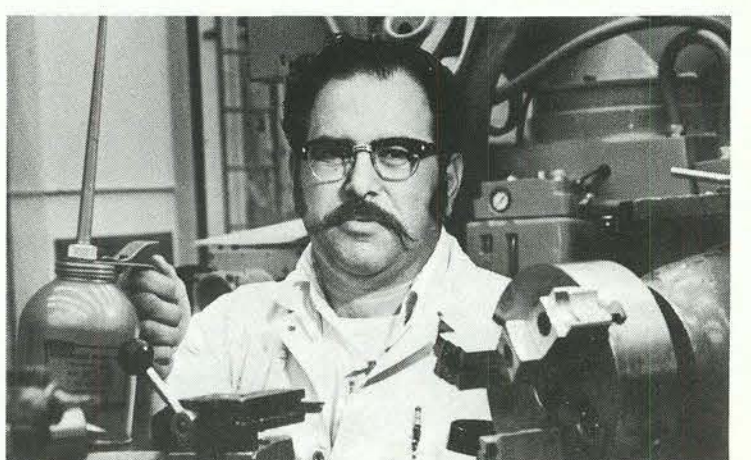
Charles Boal - 2622 30



Bill Boyes - 1221 30



Geraldine Wright - 9536 25



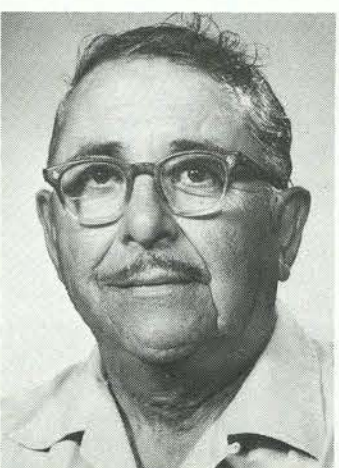
Fidel Gabaldon - 3644

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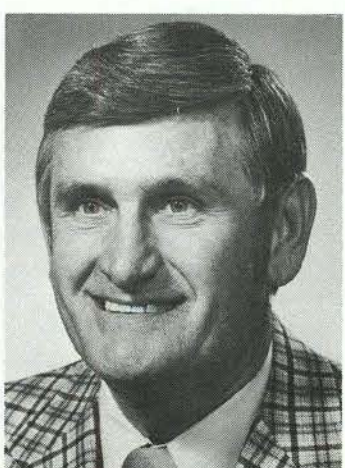


Michael Zownir - 3644

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Manuel Lucero - 9713 20



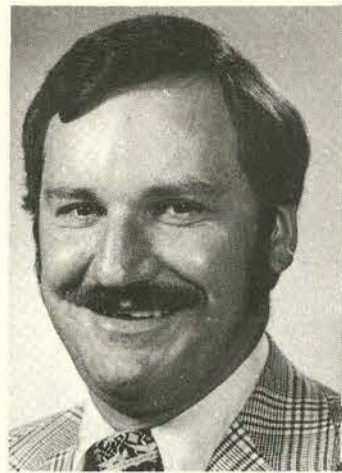
John Hart - 3713 25



Mildred Hinds - 3152 25



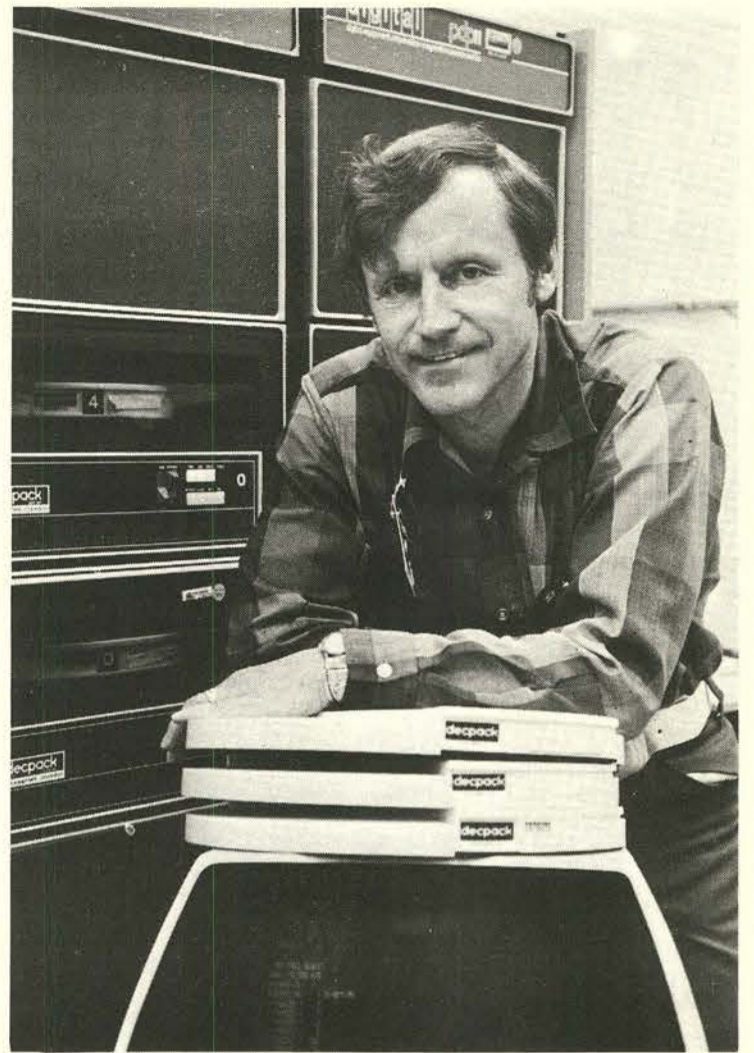
Martelle Mays - 8265 15



Gerald Hochrein - 1323 10



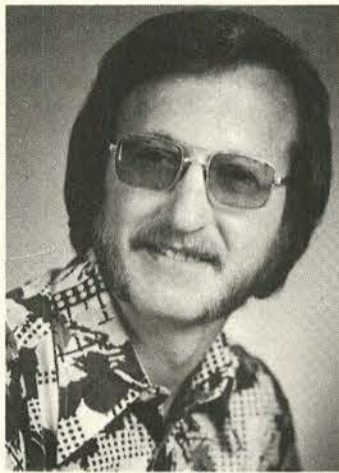
Steve Chemistruck - 2354 25



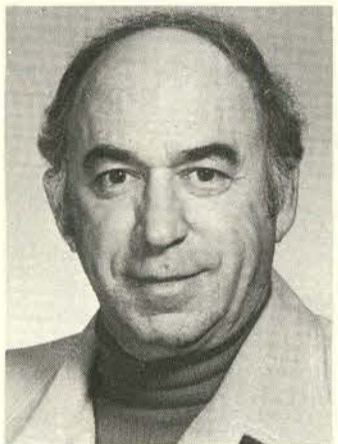
Jack Tischhauser - 2640 25



Frances Gross - 3731 20



Bill Rego - 8252 10



Carmen Gabriel - 2323 25



Violet Barela - 3152 25



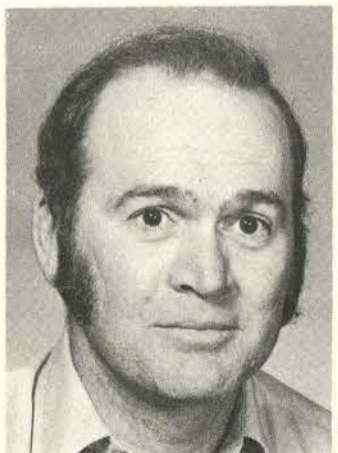
Gilbert Apodaca - 9632 10



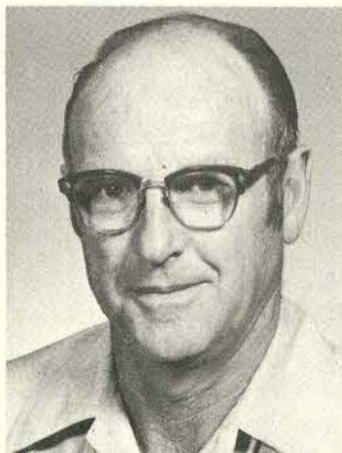
Allen Williams - 9713 25



Vic Krause - 8423 10



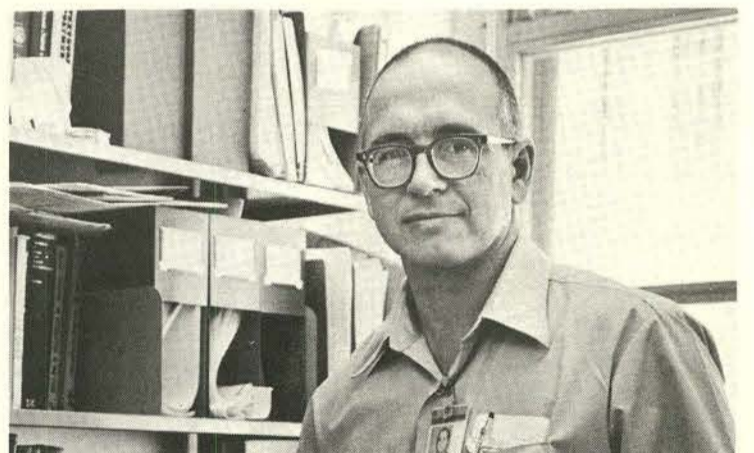
Harry Morris - 9526 15



Henry Welch - 3644 25



Leonard Baker - 5718 20



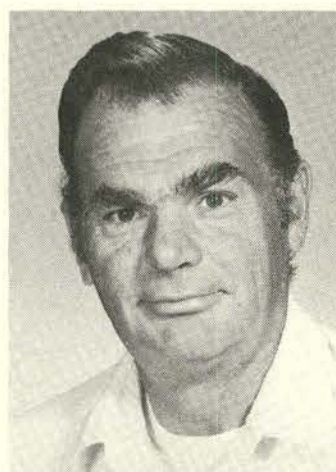
Don Mattox - 5834 15



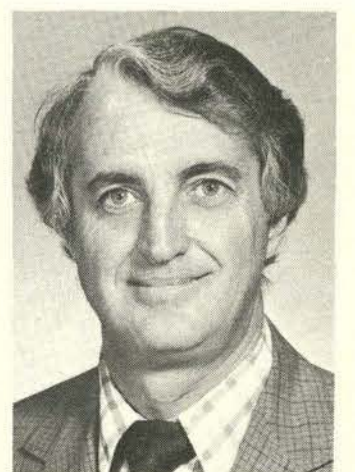
Harry Holmes - 1123 25



Marcel Schiess - 1715 25



John Snyder - 5421 20



Harry Rouckus - 9621 20

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

11' VISTA LINER CAMPER, fully self contained w/gas/elec. refrig., monomatic, jacks, intercom, many extras. Hunke, 281-3819.

STORM-SCREEN DOOR, removable glass insert, left-hinged, fits 79 3/4" to 81 1/4" high & 35 3/4" to 36 1/2" wide openings, hardware, \$40. Keeling, 296-9729.

KING SIZE Mediterranean bedroom suite, 6 pieces, \$475. Manley, 293-1293.

HERMES II port. typewriter w/carrying case, cost \$80, sell for \$40. Vigil, 298-6188 after 5:30.

'74 MOBILE HOME, 12x52', fully furnished, skirted, located in 4-Hills Park, reasonable down payment & refinace loan. Williams, 298-2768.

DISHWASHER, port.; telescope, 60 mm refractor; Great Books set w/extras, make offer. Plein, 293-5041.

REFRIGERATOR, white, 17.5 cu. ft., \$65; 3-wheel 12" bandsaw w/5 extra blades, \$60. Stott, 294-2292.

DINING ROOM table w/4 chairs, 2 leaves, solid birch w/maple stain, \$195. Dupree, 294-1835.

METAL folding chairs; padded desk chair; sewing machine, port., new, 25 cams, stretch stitch, buttonholer, zig-zag, all metal, \$180. Smith, 299-7151.

AKC Std. Poodle puppies, whelped 3/19, champion sired, OFA parents, show & pet prospects. Baca, 268-0943.

TEKTRONIX oscilloscope, model 524, complete w/operating manual, \$200. Kraft, 299-2157.

HAMMERLUND HQ 110 ham band receiver, 180 to 2 meter bands, \$80. Mendel, 265-3840.

TIRES, snow, rim mounted, 7.75x14 tubeless 4-ply, best offer. Carli, 298-9271.

CAMERA, 4x5 Crown Graphic, flash gun holders, case, etc., \$215; Honeywell strobe 72A, \$75. Geck, 299-5095.

GOLF CLUBS: First-Flight woods (1, 3, 4), \$55; McGregor tourney irons, (3-9) & Wilson 2-iron, \$30; Fairway bag, \$10. Harley, 898-0594.

STEREO turntable & 2 speakers, \$80; dishes, cutlery, best offer. Rizkalla, 293-3734.

CAMPER TENT TRAILER, stove & sink w/butane bottle. O'Hare, 869-2253.

FOUR 175-HR-14 radial Bridgestone tires, mounted on 4 steel rims taken off 240Z Datsun, \$25. Smelich, 242-0431.

CASE Evinrude outboard oil, \$14; deluxe stn. wgn. camping box; Lowrance LFP-300 port. fish LO-K-TOR, \$140 (new \$195). Westman, 881-0471.

APACHE TENT TRAILER w/spare tire, sleeps 4, \$450. Metzger, 242-1028.

SAMPSON card table chairs, matched set of 4, red vinyl seats & backs, \$18. Smitha, 293-1177.

SOFA, 80" wide, green, by Kroehler, \$50; dining room table, 4 chairs, \$50; single bed, box springs, mattress, \$30. Perryman, 294-7040.

TRAVEL TRAILER, 19' '69 Aristocrat, tandem axle, self contained, sleeps 6. Loeppke, 299-7338.

DOLLY WHEELS, four each, heavy duty ball bearing w/swivel, 8" diameter, \$4; winch, \$6. Henry, 266-6467.

ANTIQUE copper boiler, \$75; Magnavox B&W 21" port. TV, \$45; Westinghouse B&W 21" port. TV (needs work), \$15. Pierce, 268-6057.

BARBELL/DUMBBELL set, weights: two 15 lb., four 10 lb., four 5 lb., \$18. Smith, 242-9576.

SOFA bed, Sears queen size, \$125, 1 1/2 yrs. old. Lee, 294-3002.

CLARINET, Bundy, \$100. Shunny, 265-1620.

COFFEE TABLE, walnut, w/magazine storage compartment, new cost \$125, sell for \$40; roll-a-way dbl. bed, \$25. Ristine, 298-8383.

CAMERA, Argus C4 & GE-PRI exposure meter, \$25; Honeywell 65C prof. electronic flash unit for any camera, \$35. McIntire, 294-5884.

TOWNER TANDEM DISC, 5 1/2" wide, hydraulic cylinder control, on rubber, \$225. Donaldson, 255-4024.

GE CHEST FREEZER, \$75; Victor adding machine, recently rebuilt, \$25. Stanalonis, 296-1280.

UTILITY TRAILER, Allstate, 1-wheel, \$60 or best offer. Padilla, 881-9582.

WOMEN'S Bicentennial ERA medallions, 2"x1 3/4" in American pewter, 24" matching chain, non-profit org., Vandevender, 298-5097 after 5.

STAR DIAMOND lapidary, has 2 grind stones, 2 sanding wheels, 2 buffing disks, also lapidary saw. Schulte, 898-2437.

TOMATO & BELL PEPPER PLANTS, lg. plants in 6 oz. cups, 2 for 25c. Kroth, 293-9565.

12' ALUMINUM BOAT; Brother knitting machine; 8x10 tent; 12x12 canopy, mechanic's tool box; tennis racket; 7 1/2' Christmas tree. Lurette, 299-9273.

5-PC. dinette set. Buss, 298-1589.

SHOTGUN, .410 gauge Stevens 5-shot bolt action, \$40; shop manual for Fiat 128, 1974, \$3. Hays, 867-2835.

REAR SEAT, 4-passenger, from new '76 Ford Club Wagon, \$165 or best offer. Glaser, 293-8110.

19" B&W console TV, \$25; 17' Sea Shark boat w/120hp Chev. engine, \$3500. Vance, 255-8032.

CAMPING: Coleman tent, 10x13, \$45; small backpack, \$7; hunting bow w/arrows & accessories, \$45. Johnson, 298-4046.

NEW BELL motorcycle helmet, size 7, \$25; Emperor grandfather clock, black walnut, \$600; storage shed, 8x10' plywood, metal covered, \$100. Hiltunen, 6500 Cochiti Rd. SE, Sp. 56.

HI-STD. Duramatic .22 cal. automatic pistol w/holster, \$35. Rex, 821-8180 after 6.

PERCUSSION PISTOLS, matched pair, approx. .56 cal., \$650. Manhart, 268-3017.

KEESCHOND puppies, AKC, 9 wks. old, male. Rose, 298-4849.

SINGLE SHOT pellet handgun, \$15; avocado green nylon carpet, 35 yds., make offer; 3-sp. man's bike, \$25. Chandler, 296-3323.

FREE scrap lumber, good kindling, you haul; single spd. bicycles, \$5 ea. Souder, 281-3121.

SCREEN DOOR, wood, 36"x80", \$10. Anthes, 877-7805.

FOUR 600x14 6-ply tires mounted on Datsun wheels w/hub caps, under 2000 miles, \$25 ea. Dollahon, 268-5008.

TWO-HORSE TRAILER, '72, w/elec. brakes, \$1000; Kenmore elec. dryer, \$25. Clem, 296-5204.

SEARS Kenmore coppertone washer, 10 yrs. old, \$25. Jewell, 256-0414.

RUG, 9x15', wool, oriental design, pad, worn in spots, \$15; ironing board, \$7.50. Auerbach, 296-1489.

TRANSPORTATION

'71 FORD F-250, GVW 9000, \$1756. Gammon, 268-1032.

TRIUMPH TR-4 engine, transmission, rear axle, other parts. Mendel, 265-3840.

'72 PINTO wagon, yellow, low mileage, luggage rack, new tires, \$2000. Hubbard, 299-7818.

'71 FORD Torino, fully equipped, 45,000 miles, \$1400. Prevender, 299-5253.

'72 HONDA 450, \$595 or make offer. Fimple, 881-5110.

100 MX YAMAHA dirt bike, '73, recently overhauled, \$325 or best offer. Navratil, 293-5527.

'75 HONDA 550-4, windjammer fairing, Bates trunk & extras w/2 helmets, \$1800 or best offer. Armijo, 268-7645.

'69 COUGAR convertible, red w/white top & interior, 351 V8, PB, PS, no air, \$1350. Duvall, 268-9028 after 5.

'72 3/4 CHEV. camper, 11 1/2' Open Road camper, self contained, toilet-shower, refrig.; truck: AT, air, PS, PB, 38,000 miles, \$5500, will take trade car or pickup. Roeder, 298-9846.

GO-CART, alloy wheels & chassis, disk brakes, w/McCulloch 91-A engine, expansion chamber, owners manual, starting equip. Baca, 299-5223.

'71 DODGE Dart, 2-dr. HT, low mileage, snow tires & rims, \$100 below NADA retail. Holmes, 292-0898.

'72 CHEVY pickup, 350cu. in., AT w/HD trans. cooler, factory AC, 3 gas tanks, 39,000 miles, \$1950. Wright, 281-3213.

'73 PENTON 125cc dirt bike, \$350. Baca, 266-1629 after 5.

'75 YAMAHA RD-350, windshield fairing, crashbars, bags, rack, backrest, helmet box, 600 miles, make offer. Campbell, 268-5750.

YAMAHA DT2-MX 250cc dirt bike, many new & specialty parts including a complete set of protective riding gear, \$485 or offer. Snelling, 294-5751.

'62 FORD truck, overcab camper, sink, frig., stove; CB, many extras, Woodley, 296-3021.

TWO SHOW HORSES, double reg. quarter horse palomino mare & gelding, PHBA champion, many ROM's Western & English. Bassett, 898-1840.

'51 PACKARD-HENNEY ambulance, 45,000 miles, complete, will haul 1 ton easily; '49 1/2-ton Ford truck, sell or trade for one or both. Good, 898-7963.

MINI BIKE, \$80; '58 Ford car parts, \$30. Tsutsumi, 898-1907 or 898-7193.

'74 MAZDA, 5500 miles, Rx4, 4-dr., PS, R&H, AC. Zucuskie, 881-2972.

'71 FORD Pinto 2000cc engine, 4-sp., AM radio, extra snow tires, trailer hitch, \$850. Jarrell, 883-9365.

'73 MOTO GUZZI 850 police special, 13,000 miles, windjammer, saddlebags, \$1800. Phillips, 881-2450.

'67 FORD stn. wagon, 10-pass., AT, PS, PB, AC, shop manuals included, \$750, negotiate? Martinez, 299-8204.

'70 RENAULT R16, \$1025, \$200 under NADA book; '69 Suzuki TS250, motorcycle, good on dirt or street, \$275. Folkins, 344-5917.

3-SPD. BICYCLE, Schwinn stingray, 20", \$30. Johnson, 298-4046.

'68 VOLKSWAGEN. Yost, 296-3777 after 5:30.

'73 PINTO runabout, AT, 2000cc, 25,000 miles, \$1900. Thunborg, 881-4367.

'72 SCOUT, 4-wd, 304 cid, AC, R&H, AT, steel belted radials, 2-sp. transfer case, HD rear step bumper, 56,000 miles, 2000 miles on complete brake job, soft top, \$2950. Cover, 881-3860.

'74 CHEVELLE Malibu estate stn. wgn., V8, 3 seats, AM-FM radio, turbo hydromatic, tilt steering wheel, new radial tires, \$3995. Hay, 836-4173.

'66 OLDS 98, 2-dr., full power, \$500. Bowland, 256-1861.

'73 CHEVY Nova, 6-cyl., std., has '76 plates, new shocks, \$405 below book price. Chaves, 831-2296.

REAL ESTATE

NINE ACRES Frost Road, fenced water available or money back guarantee, paved road, utilities border property, \$22,500. McClure, 247-3095.

4-BDR. HOUSE, 1700 sq. ft., den w/stone fp, many extras, priced below FHA appraisal, low down, assume loan, refinance. Robles, 877-6384.

TWO-STORY CABIN located near Upper Bull Creek in the Pecos, 1200 sq. ft. living area, on 1/2 acre, \$12,000. Pafford, 298-8913.

2 1/2 ACRES of mesa property short distance north of I-40, 12 miles east of city limit. Stark, 298-6139.

FOUR city lots in Ouray, Colo. Johnson, 255-5427.

FOR RENT

CLEAN 3-bdr. apt., 1 1/2 baths, garage, lg. patio, stove & refrig., lease, deposit, \$195/mo. Erwin, 299-2418.

3-BDR. & den house in Corrales, incl. corral, 5-1-76 to 8-15-76, \$225/mo., deposit, references required. Donaldson, 255-4024.

WANTED

SAILBOAT, small, car-top transportable, hull must weigh less than 90 lbs. Beegle, 296-5300.

4-DR. GENERAL MOTORS sedan, '68, '69, '70 w/factory air & PS in good condition. Adams, 256-7265.

CHEAP: playpen, 3-4 inch portacrib mattress, elec. baby food warmer. Harrigan, 266-4143.

THE ALBUQUERQUE Mountain Rescue Council would like to obtain an inexpensive FM transmitter/receiver suitable for a fixed base station in the 155 MH band. Mattox, 296-4149.

THE A.H.S. CLASS OF 1956 is planning its 20th reunion. Anyone interested call 299-3293 or write: A.H.S. 20th Reunion, 1307 Eubank NE, 87112.

RACK for carrying wheel chair on car bumper. Lee, 299-5418.

WOODEN FILING CABINET. Kiehl, 344-1457.

1970 to 1972 175cc HONDA motorcycle, SL model. Coalson, 298-0061.

QUALITY used rubber raft. Jarrell, 883-2660.

TENT TRAILER in reasonable condition; old style (side hinge) ammo box. Baxter, 344-7601.

CAR POOLERS from Bosque Loop area to gates 6, 7, 9, or 10; share driving. Bertholomey, 869-2241.

TO RENT 3 or 4-bdr., would like den, fp, basement, trees, space essential; mountains or valley. Davis, 842-0092.

SCOUT TROOP 285 is having a rummage sale May 7-8 at Sombra Del Monte Church, 2528 Utah NE; donations also welcome. Cover, 298-6707.

USED spirit duplicating machine in good working order. Phipps, 299-8490.

TRADE surplus technical books: would especially like to acquire aeronautical engineering & aviation books. Stark, 298-6139.

BENCH GRINDER. Chandler, 296-3323.

AIR STREAM, 27-31', '72 or '73. Johnson, 255-5427.

LOST AND FOUND

LOST—Engr. notebook, mother of pearl and silver earring, man's tri-focal glasses, pearl triangular shaped earring, man's lt. blue jacket, man's metal-framed bi-focals. LOST AND FOUND, Bldg. 832, 264-1657.

FOUND—Red earring, man's Rx glasses, ladies turquoise & silver ring, green & purple scarf, Sandia gold 25-year pin. LOST AND FOUND, Bldg. 832, 264-1657.

●SWIM●C-CLUB●BACAS●SPARE RIBS●SINGLES●ATHENS●BELLY DANCERS●

FRIDAY	SATURDAY
30 — HAPPY HOUR BBQ SPARE RIBS BUFFET Adults \$3.50 Under 12 1.92 THE CIMARRONS Al McCahon In Lounge SINGLES NIGHT	1 — VARIETY NIGHT BACA NIGHT Baca Family Band <i>Nine Lives of Elfege Baca</i> Food @ 6 Show @ 7 Free to Members
7 — HAPPY HOUR ROAST BEEF BUFFET Adults \$3.25 Under 12 1.92 Watermelon Mountain Jug Band NATURAL PERSUASION	8 — SOUL SESSION 8:30 - 12:30 MIDNIGHT SPECIAL Members Free Guests \$1

DON'T — forget that the pools open early this year. Beginning May 15, swim weekends. Beginning May 21, swim Friday evenings. Weekend swims give the kids someplace to go — and give you a headstart (not to mention the rest of you) on a summer tan.

PUT — a “*!*(wow)” on your calendar for May 29. It's the biggest day at the Club since the 25th Anniversary last July: Grand Opening in the Pools-Patios with entertainment by *Country Comfort*, 20¢ draft beer, Happy Hour bar prices (all from 11-6). AND, in the evening, it's Greek Night — Greek foods, belly dancers, and more. A Hellenic good time for everyone from dawn to dusk plus.

OFF — to the lakes and rivers you'll go with the best chance at the fish you've ever had. That's if you sign up for the fishing course (Angles for Anglers?) starting May 20 at the Club. Pro Bob Lake will instruct the six-session course which includes field trips (stream trips really). \$22 for members, \$24 for non-members; class limited to 30 so don't wait till the 20th to sign up.

TILL — the wee hours tonight, it's Happy Hour with barbecued spare ribs, corn *au naturel*, and more. Like *The Cimarrons* with country-western and Al McCahon with smooth. Come on over.

TOMORROW — is Baca Night: the Baca Family Band and *The Nine Lives of Elfege Baca*. The former is a musical wonder in the flesh; the latter is a Wild West wonder in the (Disney) celluloid. Fun and food for everyone.

WHAT — a way to see the Caribbean! Be on the luxury cruise ship, the *M/S Skyward*, from Miami to all the exotic ports of call. Nov. 26-Dec. 4; from \$659. Get a movie preview of the sights to be seen at the Pre-Trip Meeting at the Club on the 10th at 7:30.

YOU — have likely heard about the newest beverage craze. The Club's the place to try them. They're Hereford Cows, they come in four flavors, and they're delightful. Herefords are the first in the Club's Drink-of-the-Week (DOW) series. “They're specially priced from the third through the eighth,” says Bar Director Hugh Jones. (What we have here is a sort of DOW-Jones Beverage.)

CAN — Sanado artists survive in the outside world? Sure. Come see the 12th Annual Sanado Winrock Art Show and Sale May 5-8.

DO — \$30 season tickets for Lobo football games sound good at \$20? Then head for the Club and pick up as many as you'd like. All seats are between the 30-yard (27 m) lines on the west side of the stadium. The one-third off deal, brought to you by the Club's Wolfpack, is good for anyone who's Kirtland based.

TODAY — of course, is another Singles Night beginning right after work and ending tonight sometime. Music, hors d'oeuvres, Happy Hour bar, and people without licenses — all for 50¢ in the El Dorado Room downstairs. All Sandia and ERDA singles are cordially invited. Bring one outsider guest if you like.

IF — you're one of the few who haven't caught (or been caught up by) the Watermelon Mountain Jug Band, look forward to a delight next Friday at Happy Hour. They're booked from 6:30 to 8:30, but good seats may be unavailable by then — so arrive early. Roast beef, baked potatoes, salads too. And good old *Natural Persuasion* for dancing, sipping, or socializing to later.

IT'S — time to buy '76 Summer Season Swim Tickets. After all, weekend swimming begins on the 15th. You can't go topless, you can't go bottomless, and you can't go ticketless.

GOOD — old Mazatlan. It's easily the town that C-Clubbers would most like to be marooned in. Next pilgrimage is Oct. 24-31. \$295 includes air fare, hotel, two meals a day. Signups open June 1 but not until 8 a.m.

YOU — may have noticed that the Club has more things going for more people than ever before. At \$2.50 per month per family, it's the easiest way to improve your social life since Certs.

CAN — you put off a decision on the trip to Greece much longer? Nope. Athens and the Aegean in August — act immediately.

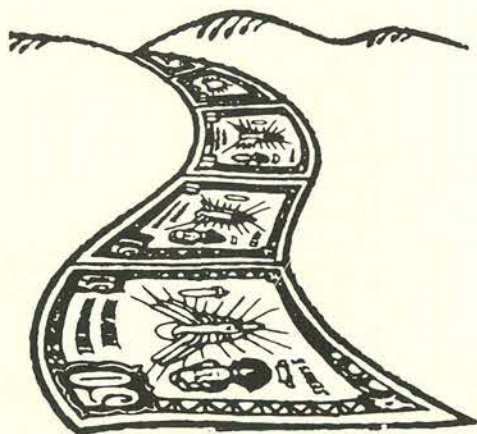
DO — your feet a favor. And your head. And the *terra incognita* in between. Go to Soul Session next Saturday.

IT — will be a ball, a Sanado Ball, on the 15th when “Treasures of Sanado” are unveiled to eyes wide with wonder. Make reservations by the 7th, Sanadoes, with Sandra Ruth or Lois Smith.

AGAIN — a reminder that there's no need to pay \$2.50 for a Commonwealth movie when the Club sells tickets for \$1.75.

MORE INFO — 265-6791.

Road to riches.



Take stock in America.
Buy U.S. Savings Bonds.

NOW IT CAN BE TOLD—A few weeks back Bill Spencer (2100) told us about a nesting great horned owl atop Bldg. 802. We got this picture of the handsome bird at that time. Note the egg, one of three, at lower left. To minimize visitors we held off on publication. Two of the eggs finally hatched and all seemed to be going well until, alas, the first weekend in April. Mother, chicks and third egg, all were gone following the weekend. Most likely villains: crows, cats, or wind.

