

MATH MAJOR Jean Bando is one of the assistant data engineers on the Data Reduction staff. With sophisticated software on one hand and a light pen (literally) in the other, she can "talk" directly to the CDC-6400 that controls the data reduction programs.

Data Reduction Center Supports Technical Programs

It's almost a cliché to say that Sandia's primary product is data. But it's true. Tests, experiments, simulation, systems analyses, deliberate crashes—all of these generate vast masses of raw data, much of it unintelligible to the average person. That's where Test Data Analysis Division 9422 comes in. "We support the technical programs at the Labs," says division supervisor Gary West. "We have the people, the hardware, and the software to turn raw data into information that can be used to check progress and make decisions."

Currently being supported are Exploratory Development systems such as the ANT (Advanced Nose Tip) and the ERB (Extended Range Bomb); Phase 3's such as B77, B61, Mk 4, and Mk 12A; and many other tests associated with underground testing, reimbursables, energy projects, and safeguards.

"Our major tool is a CDC-6400 computer," Gary explains. "Some of its peripherals were specially adapted to meet Sandia's data reduction needs. For example, two Gould-4800 electrostatic plotters now produce plots in minutes. The plots used to take hours."

"However, we feel the major accomplishment has been to automate the process of digitizing telemetry data for input to the CDC-6400. This process used to require a large amount of operator interaction with the process and was one of our primary bottlenecks. It is now performed with a minicomputer-controlled subsystem which 'sets up' all analog and digital modules for a given operation and cross-connects all required signal paths. The minicomputer

(Continued on Page Two)

LAB NEWS

VOL. 29, NO. 5

MARCH 11, 1977

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

New Sandia Project Will Aid Offshore Alaskan Oil Development

The Gulf of Alaska is one of the most seismically active areas on earth. It is also estimated to contain one of the richest of the unexploited petroleum provinces remaining on this planet. Tapping this petroleum resource will require structures typical of offshore drilling operations—huge drilling platforms and rigs elevated high above the rough surface of the sea. Seismic activity in the area will affect the design and utilization of these offshore structures, yet this seismic environment on the ocean floor has never been measured.

A new project at Sandia, funded in FY'77 at \$350,000 by ERDA's Oil, Gas and Shale Technology Division, is aimed at developing a unique instrumentation carrier system to measure the seismic activity in the Gulf of Alaska. Part of a growing participation in ERDA's fossil energy programs, this project is scheduled for significant expansion in FY'78. The work is centered in Instrumentation Systems Division 1327 under Dave Denton; Eric Reece is project engineer.

"Sandia pioneered terradynamic science," Eric says, "and the use of penetrator-type instrumentation in marine

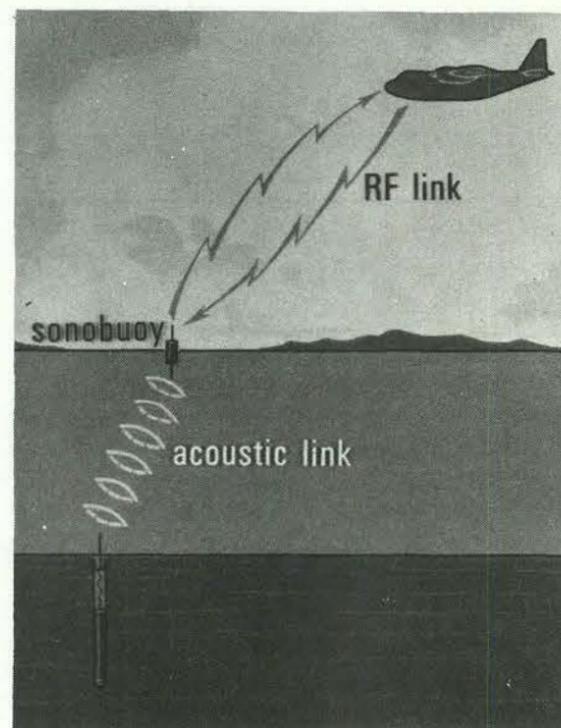
sediments is a logical extension of that science." Goal of the new project is to develop a Marine Sediment Penetrometer (MSP) in a missile-like configuration which free falls through the water and penetrates the sediment of the ocean floor, coming to rest perhaps 20 meters beneath the sediment/water interface. Accelerometers in the penetrometer will give an indication of the sediment strength and stratification.

Once in place, other sensors in the MSP will measure strong motion seismic activity. The seismic data will be stored in an onboard solid state memory and transmitted, on command, over an acoustic data link either to a shipboard receiving station or through a sonobuoy relay to an overflying aircraft.

"Remote bottom sensors that can operate untended for long periods are useful tools," Eric says. "Severe weather restricts working conditions in the Gulf of Alaska. You can operate from surface vessels to the bottom for only two months out of the year."

The proposed MSP system is composed

(Continued on Page Two)



CONCEPT of Sandia's Marine Sediment Penetrometer is shown in this drawing. Deep penetrator determines nature of the sediment layers while penetrator afterbody, at sediment/water interface, contains seismic sensors, data collectors and memory.

Afterthoughts

Your fat/lean ratio--We had considerable response to an item a few months back which gave a formula to determine your ideal weight if you are male. A few females wanted to know their formula, and we had to reply sorry, that's the only formula we have. Now, however, we have another measure and, for that matter, another approach to the question of body weight that applies to both men and women. An article in Runner's World refers to exercise physiologist Dr. Jack Wilmore who states that weight/height charts "... are grossly inaccurate for a large percentage of the population. It is not unusual for an individual to fall within the normal range for his or her category, but actually to have 10-30 pounds of excess body fat." Wilmore claims that percentage of body fat is much more reliable than weight as a measure of fitness. "It is generally accepted," he notes, "that men and women should not exceed 15-20% and 25-30%, respectively."

OK, so how to measure body fat? There is a laboratory procedure, but you can reach a satisfactory approximation by the "pinch test"--making measurements of certain skin folds. You'll need calipers (make with cardboard), and you'll be measuring in millimeters (approx. 25MM to the inch); here's what you pinch and measure:

1. The triceps, back of the arm between shoulder and elbow. Grab the flesh, and pull it away from the underlying tissues. The calipers should make a small indentation as you measure the thickness of the fold. Write it down.
2. The suprailiac (hip), midway between the lower rib and hip bone. Lean toward the measuring side, grasp and measure the thickness of fatfold.
3. For men only, the biceps, front of the arm between shoulder and elbow. Measure as you did the triceps.
4. For men only, the subscapular, the upper back. Take the measurement just below the lower part of the shoulder blade at about a 45-degree angle to the vertical.

Add your measures (two for women, four for men) and check the table below to get your percentage of body fat. Men should not exceed 15-20%, women 25-30%.

Women		Men	
Total mm	% Fat	Total mm	% Fat
8	13	15	5
18	16	30	13
26	19	45	18
34	22	60	22
42	25	75	25
50	28	100	28
58	31	130	31
68	34	160	34
80	38	205	37
88	41	255	40

Oddly, fat tissue weighs only one-third as much as muscle tissue. The article concludes: "Weight of itself is not a problem. Fat is."
*js

Continued from Page One

Data Center

transmits the digitized data directly to the CDC-6400 over a high-speed link."

Two interactive graphics display consoles connected to the CDC-6400 provide the staff with the means of communicating with the computer. These devices allow the data analyst to quickly select and control the software required for a given job. The display provides almost instant results, and report-quality plots can be made at any stage.

The software for interactive graphics was written by people in Fred Gutierrez's Test Data Programming Division 9424. Overall hardware-software engineering of the CDC-6400 facility was a joint effort of the two divisions.

"With this equipment," says Gary, "jobs that took several weeks are now done in days, even hours. We're proud of that."

"Of course, even with these efficient new tools, data reduction is still time consuming, as many of our customers are all too aware. But consider: our workload has increased from 10,000 data channels in 1970 to over 250,000 channels in 1976. At the same time our staff has several fewer people."

"It's a pretty exciting place to work. But we don't command much attention until we miss a deadline."

Continued from Page One

Penetrometer

of several components including (1) data acquisition sensors, (2) data processing and storage units, (3) power supply, (4) data transmission link, (5) a detachable afterbody penetrator, and (6) surface command/receiver/record units. Data transmission will take place through sea water using a modulated acoustic transmitter/receiver. A detachable afterbody penetrator will be used to emplace the sensors, processing and storage electronics, power supply and acoustic transmitter/receiver. It will rest on the ocean floor and be connected by wire to the deeper penetrator body. (See drawing.)

"The acoustic link through sea water is a singular challenge," Eric says, "and this we've addressed first."

"Initial testing of the acoustic data link system at Elephant Butte is complete. Such a system is feasible. Further development tests are scheduled in the Gulf of Mexico in early summer. Field operations are planned for the Gulf of Alaska late this summer to evaluate employment of a prototype instrumentation system in that particular environment. We will make measurements, store data and transmit it."

"The oil industry has expressed keen interest in the MSP," Eric says, "and a number of companies have agreed to provide logistic support during field tests. When functioning, a net of MSP stations will provide realistic design criteria for offshore structures, particularly in seismically active areas such as the Gulf of Alaska."



LAB NEWS

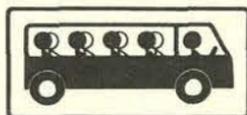
Published every other Friday
SANDIA LABORATORIES
An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA
Editorial offices in Albuquerque, N.M.
Area 505 264-1053
FTS 475-1053
ZIP 87115
In Livermore Area 485 455-2952
FTS-469-2952

john shunny is editor
&
don graham ass't. editor

bruce hawkinson & norma taylor write
bill laskar does picture work
so does russ smith

&
lorena schneider reports on livermore



BUS NOTES

Whatever the outcome of the current dispute between Sun-Tran and the United Transportation Union, Sandia will retain its five Special routes, says Sun-Tran Director Tom Gore. Not to worry, troops.

* * *

Sanchez bus passengers will revert to a 20-ride punch pass on Monday. Passes (\$20 from Belen and Los Chavez, \$16 from other areas served) are now on sale from drivers or from the Credit Union.

Pat Childers Chairs Spring Art Show

Chairman of the Livermore Art Association's upcoming show is Pat Childers (8261), who has been an LAA member for eight years and is this year's vice-president. Set for March 19 and 20 at St. Bartholomew's Episcopal Church, the show marks the 20th anniversary of the LAA and its annual spring show.

Open to all artists regardless of residency, the show includes both general and amateur categories in landscape-seascape, portrait, abstract, textile-stitchery, and pottery-jewelry-sculpture. Hours are 10 a.m. to 5 p.m., March 19 and noon to 5 p.m., March 20. The public is also invited to a show preview on March 18 from 7:30 to 10 p.m.

Other Sandians serving on the committee include Bill Ormond (8261), plant decorations chairman; Florence Quillen (wife of Charlie, 8161), hostess chairman; and Virginia DuBose (wife of Don, 8424), preview chairman.



SANDIA SCHOLARSHIPS to Chabot College, each in the amount of \$250, have been awarded to Freshmen Glen Journey (left) and Larry Frisa. Dean of the college, Barbara Mertes, and Jim Smith of Training Division 8214 make the presentation. Based on academic excellence in math and science, the scholarships also provide for summer work at Sandia in areas related to the students' academic interests. Both students graduated from local high schools last June.

Contract Awarded to Modify Bldg. 916

Construction work is underway at Sandia/Livermore to modify Bldg. 916, converting 3000 square-feet of the existing one-story warehouse into laboratory facilities. Wallace Webb and Son Construction Co. of Hayward has been awarded the contract.

Work includes gypsum board and steel stud interior partitions, acoustic ceiling, insulation, floor covering, and painting, as well as mechanical work for heating, air conditioning, and electrical systems. In addition, an adjacent 1200 square-foot structural steel exterior canopy with metal decking will be constructed. Work is scheduled for completion the end of July.

Project engineer is Len Bedinger of Plant Engineering Division 8254.

Conversion of an additional 7000 square feet of warehouse space into office and laboratory facilities is in the planning stage.

Retiring



Evelyn Bachman (8265)



Chandler Smith (8264)

LIVERMORE NEWS

VOL. 29, NO. 5

LIVERMORE LABORATORIES

MARCH 11, 1977



OVERFLOWING MAIL BIN reflects volume of mail received at SLL without organization numbers, most of which results from reader service card requests for catalogs and other information. To expedite delivery, employees should always include organization number with address when submitting a request. Mail clerks are Ken Stewart, left, and Dave Anderson (both 8266).

Materials Properties At Extreme Temperatures Under Study

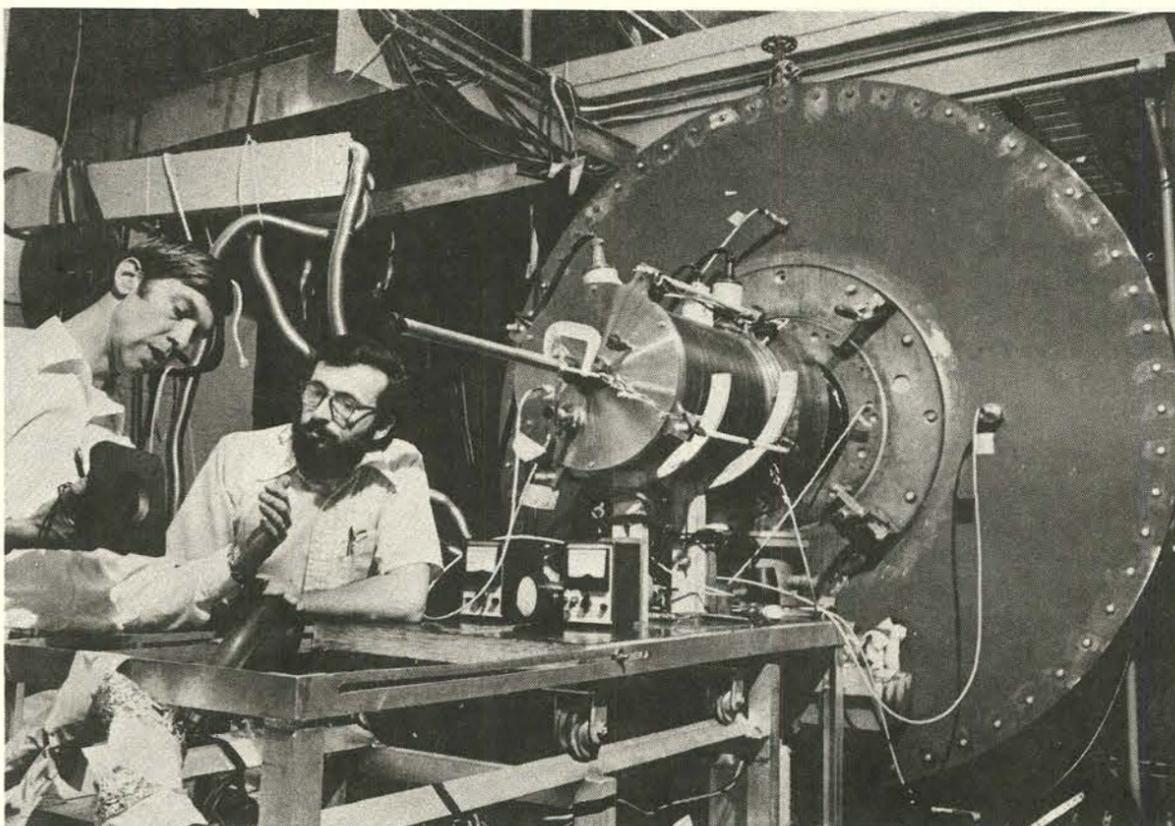
Dave Benson in Thermomechanical and Physical Research Division 5167 has found a way to answer questions about the behavior of fuel in a hypothetical nuclear reactor accident. At the same time, he has been able to advance the state of the art in materials properties at extreme vapor pressures and temperatures. Two years ago, Dave was working to clear up an uncertainty in reactor safety analysis, but the work broadened. Now it seeks to understand what happens to materials undergoing high rates of vaporization at extreme temperatures.

Knowledge of vapor pressures at temperatures above 3000 K used to be limited to extrapolations—if something behaves this way at 1000 K and this way at 3000 K, then it probably behaves this way at 5000 K. Dave, with the assistance of Will Ouellette (5167), has developed new heating methods and instrumentation techniques which permit high temperature properties to be measured directly.

"Crossing the 3000 K barrier," says Dave, "came when we realized we could heat samples with the electron beam from REBA (Sandia's Relativistic Electron Beam Accelerator). With REBA we can add as much as 4000 joules of thermal energy per gram to a sample in about one micro-second. This translates to vapor pressures as high as 6000 atmospheres and temperatures above 10,000 K (inferred from the measured energy) in the case of gold. For uranium dioxide, a common reactor fuel, temperatures as high as 7000 K have been probed.

"The data on uranium dioxide are, of course, vital to Sandians and others studying the safety of the Liquid Metal Fast Breeder Reactor, or LMFBR," Dave continues. "Vapor pressures in this range haven't been studied before."

The electron beam experiments have been carried out jointly with Beam Source Application Division 5232. Paul Bolduc of that division worked very closely with Dave in executing the experiments. Says Dave, "Paul gets the credit for the significant modifications of REBA that were necessary to achieve the desired conditions. The accelerator was upgraded to operate at 10 times the normal pulse width. It now delivers more than 10 kilocalories of beam



DAVE BENSON AND PAUL BOLDUC with the working end of REBA. Dave (with the sample holder) has used REBA to subject gold and uranium dioxide to extreme temperatures and vapor pressures.

energy at a peak voltage of 2.0 MV."

Analysis, based on the new fuels information, is underway in Reactor Research and Development Department 5420 to determine its relevance to the safety of the LMFBR. Recently, Ken Reil (5422) extended the work on uranium dioxide using longer duration heating of fuel samples by neutron fission. This neutron heating method also appears appropriate for studying pre-irradiated fuel materials.

Dave and the other researchers are also finding that at these very high temperatures the materials become chemically active—that is, they begin to react with materials or become unstable and subdivide to other species. With uranium dioxide, for example, an oxygen molecule apparently breaks away from its usual place in the structure. "These reactions," says Dave, "make the study invaluable as materials properties research."

"You see, much of what we know about vaporization dates from the early part of this century. Now we're able to check this out. We've found much of the early work

surprisingly accurate."

The project is part of Sandia's Fast Reactor Safety Research Program conducted on behalf of the Nuclear Regulatory Commission.

Sympathy

To Ed Hawn (9571) on the death of his father-in-law in Seattle, Wash., Feb. 28.

To Norma Taylor (3162) on the death of her father, Feb. 25.

To Lou Cropp (1738) on the death of his father, in Longmont, Colo., Feb. 23.

Death

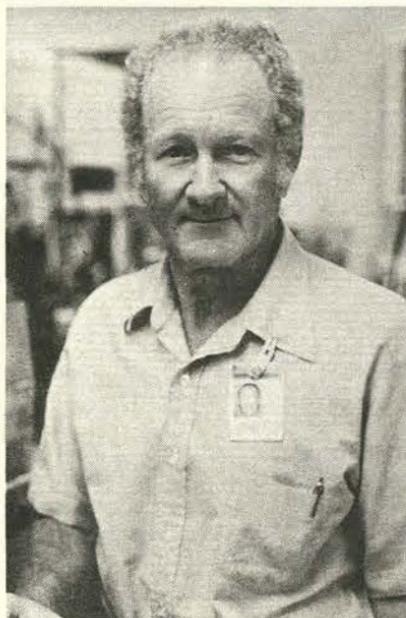
Horace Page of Scientific Computer Operations Division 2631 died suddenly March 6. He was 47.

He had worked at Sandia since December 1972.

He is survived by three children.



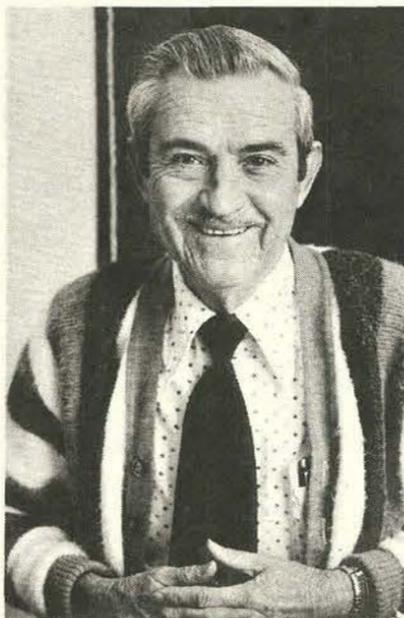
Retiring



Norm Rosenberg (2522)



Archie Sorley (2553)



Mike Campbell (9000)

PAGE FOUR
LAB NEWS
MARCH 11, 1977



ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING JAN '77

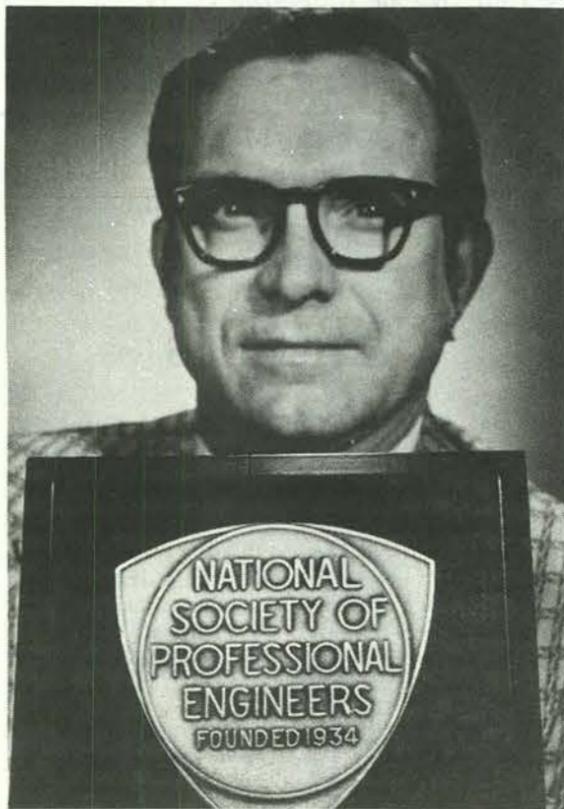
ELECTRICITY	BASE PERIOD 92276 MWH	1977 79201 MWH	14.2% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 224583 BBL'S	1977 208586 BBL'S	7.1% SAVED
VEHICLE MILES	BASE PERIOD 2468 MI	1977 2174 MI	11.9% SAVED

FUN & GAMES

Coronado Club Tennis Club—The membership drive for this new facility is underway. Plans call for four Laykold courts to be built northwest of the swimming pool. To minimize overcrowding, memberships are limited to the first one hundred applying. Play during prime time will be by reservation so that members can be guaranteed playing time. A limited number of guests will be permitted on a fee basis. Cost of membership is an advance payment of two years' dues—\$150 for families and \$120 for individuals, plus an additional payment of one year's dues (\$75 and \$60) at the time construction is completed. Forty-six firm commitments for membership have been made thus far; *deadline is March 15*. The C-Club voted recently to allow the yearly tennis fee to cover both swimming and tennis. For information and applications: Ed Leeman, 4-7949; Joe Tillerson, 4-5575; Phil Stanton, 4-1097; Lew Sisneros, 4-7927.

* * *

Walk, Run, Bike, Swim—The coming weekends offer an uncommon amount of these activities. "Project International Walk" runs for a week beginning March 19. It's for the Menaul High School Scholarship Fund and offers many walking events, from a one-mile walk-for-fun to the 20,000-metre Olympic walk. The state's first orienteering race will be held this Sunday, the 13th, in Tome. And on Sunday the 20th the first annual Triathlon of Albuquerque will be held here on the Base. It calls for 10 miles of biking, followed by five miles of running, followed by a quarter-mile swim. Entry forms can be obtained from LAB NEWS, 4-1053; entries close Wednesday, March 16. For those who really plan ahead, the 5th annual bike tour of the Rio Grande Valley is set for Apr. 24. LAB NEWS has entry forms.



RECENTLY ELECTED Engineer of the Year by the National Society of Professional Engineers is Jim Williams, supervisor of Intrusion and Detection Assessment Technology Division 1739. The NSPE is an association of several professional engineering groups, and nationwide competition for the honor is keen. Congratulations, Jim.



VIP VISIT—Both Sandia and LASL were host to Secretary of the Air Force Thomas Reed during recent visit. From left, Bob Gattis of LASL, Gene Ives (4360), Mr. Reed and President Sparks. The object being examined is the AF&F system for the Navy's Mk 4 RB (Trident). The Sandia briefings covered our arming and fuzing technology, the Tiger II bomb, and the Labs' microelectronics facility.

feed iiback

To get a response to your comments and questions about Sandia Labs, complete a Feedback form [available near bulletin boards] and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

Q. *Why can't the Weekly Bulletin be printed using a reduced size type? By using the same size type as in the Sandia phone book the cost savings could be as much as \$2600 per year.*

A. Your suggestion that the format and type size of the Weekly Bulletin be reduced, with a consequent saving of paper, is appealing in some respects but presents problems which seem to offset the advantages.

If the job descriptions were being published merely to fulfill an obligation, like the "legals" in the daily newspapers, the reduced type size would not matter. But the fact is, we want all interested employees to see and read them to help ensure the efficient movement of people. Fine print tends to give the opposite impression. While it is true that the half-scale type size you suggest is the same as in the phone book, the directory has a tabular or columnar format which makes the location of a single item of information relatively easy. By contrast, reading a three-paragraph job description in that same type size borders on not being feasible for some.

The smaller format would also cause some problems in printing and handling, but those could be managed if the communication effectiveness of the medium were unimpaired. Considering all the factors, we believe the standard type and the standard size paper best meets the needs of this particular program.

You may be sure we will make every effort to conserve paper in this and other printing operations, as we share your interest in economy as well as conservation. You will notice that in using the four-sheet,

joined pages format we sometimes end up with a blank page or two at the end, but this saves the cost of collating and stapling an odd number of single sheets.

K.A. Smith - 3100

Q. *The self-nomination system for job opportunities seems to be operating reasonably well and I believe it to be a very positive morale factor. However, for a system so important to people's careers, the call-up-and-talk-to-a-tape-recorder method is not sufficiently reliable, and I'd like to offer two suggestions: (1) Institute some method of notifying the candidate immediately that his nomination was received. This is an important step for a person to take and he shouldn't have to wait 3-4 weeks—knowing nothing—before he is contacted for an interview. (2) Provide a means for self-nomination by mail in case the taped message is garbled or the tape runs out before the caller gets his name out.*

A. Concerning your first point, selecting supervisors are asked to contact all candidates for an advertised vacancy. If you are a candidate and the selecting supervisor fails to communicate with you, your Personnel Representative has access to all nominations for job vacancies and can answer your questions about your own nomination.

Concerning your second point, the volume of self-nominations is high, and the phone-in system is best able to handle this number. If you have difficulty getting a message over the telephone to the recorder, your Personnel Rep is again available for this purpose.

J.R. Garcia - 3500

Take Note

The South Highway 14 Village Project, which looks after needs of poor families in villages on the east side of the Manzano Mts., has a shopping list of items needed by the Senior Citizens Center in Manzano. With funds from bookstand sales, the Project will be able to buy most of the items, but donations are always welcome. Items needed (new or used): wall mirrors, hair dryers and hair dressing equipment, folding chairs and tables, cooking utensils, eating utensils, towels, oil cloth, sewing equipment (materials, scissors, machines, needles & thimbles), and quilting materials. Donations can be dropped at the LAB NEWS office in Bldg. 814, or call the office on 4-1053.

* * *

Car batteries sometimes explode when jumper cables are being used, causing injury to those in the vicinity. Here's a formula which will prevent such an occurrence: (1) connect one end of the jumper cable to the positive pole of the discharged battery, (2) then connect the other end to the positive pole of the booster battery, (3) connect the second cable to the negative pole of the booster battery and the other end to the engine block of the vehicle with the discharged battery, as far away from the battery as possible, and (4) after starting the car, remove the cable from the engine block first, then remove the other end of this cable from the booster battery. Disconnect the other cable, first from the newly recharged battery, then from the booster battery. Suggestion: since few will remember this sequence, cut the item out and tape it inside your engine compartment.

* * *

The principles of air traffic control are the theme of "Operation Rain Check," to be conducted at the FAA Air Traffic Control Center beginning March 22. The 9-hour course is held three evenings, 7 to 10 p.m., and offers general aviation instrument pilots the opportunity to learn about the air traffic control system. New classes begin on Tuesdays. The number of classes is determined by the number of requests received. Applications for "Operation Rain Check" may be obtained at most airports and FAA Flight Service Stations, or by calling the FAA: 296-0511, ext. 236.

* * *

For the design of the new Safeguards and Security Laboratory building, ERDA has selected the architect-engineer joint venture proposal of Flatow, Moore, Bryan & Associates and Allison Engineering Inc. Fee negotiations are in progress and design work should begin early this month. The project calls for construction of a 3-story lab building south of Bldg. 869, a separate Training & Conference Center, and a new parking lot.

* * *

A reminder about bulletin boards: if you put an ad on the board, date it or it will be removed immediately. No religious, commercial or political ads are permitted, and all ads must be taken down after a week's

Completes 50

Tom Corpe Takes TI Courses

Tom Corpe (2325) recently completed requirements for his third TIE (Technical Institute Equivalent) certificate in Sandia's Out-of-Hours Education Program. He holds certificates in Mechanical, Electro-Mechanical and Electronics Technologies.

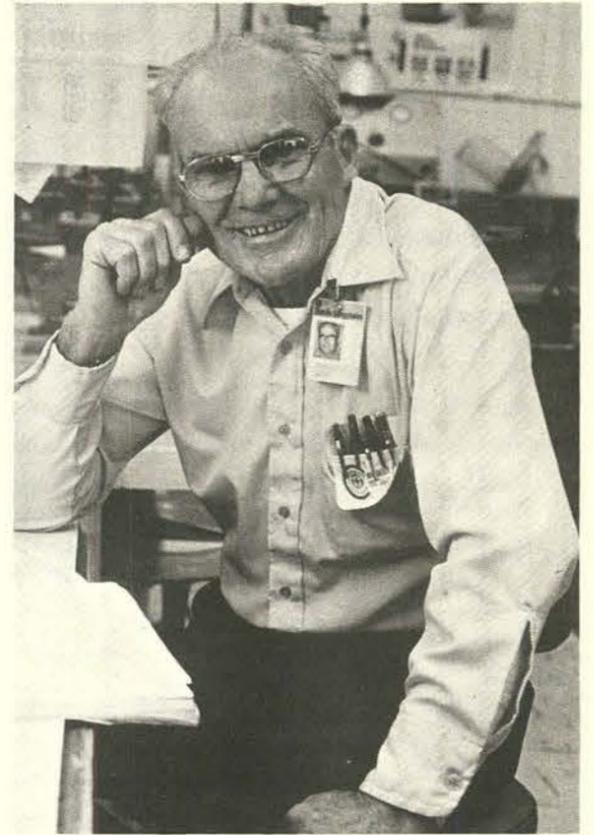
He joined Sandia as a staff assistant in May 1957 after spending 20 years as an instrument repairman in the U.S. Navy. He took his first noon-hour class in September 1958, and since then he has completed 50 courses. And he's still going; currently he's enrolled in an Engineering Review class.

"Well," Tom says, "here I am at Sandia where the Labs offers this free education. It seems like such a waste not to take advantage of the opportunity. Besides, I'm a curious person and I like to have a basic understanding of things."

Tom also shares his knowledge. He is currently a tutor for students enrolled in a Basic Engineering and Science Concepts course.

At Sandia Tom's work has primarily been in component research and development, particularly acceleration and gravity-sensing devices, baroswitches and altimeters.

Weekends Tom spends in Belen where he is building a home—the foundation is



Tom Corpe (2325)

complete. He recently completed a barn and installation of an irrigation pump and piping. He has planted fruit trees and plans farming his five acres, now planted in alfalfa.

exposure. Posters and other material should be checked and ok'ed by org. 3162 before being posted.

* * *

The Base military want to encourage use of seat belts and, for the months March through June, plan to offer incentives to seat belt usage. Checks will be randomly made at the gates and, according to the release, "If all occupants are buckled, the driver will receive a card . . ." The card is actually a sort of lottery ticket for these prizes, for which a drawing will be held each month: (1) a \$25 Savings Bond, (b) an airplane flight around the city, (c) dinner for two at each O-Club, (d) two dinners for two at the NCO Club, (e) buffet for two at the C-Club, and more. If you get one of the cards, turn it in to Helen Spriggs in Safety (3440) to be in on the drawing. And buckle up—their figures show that only a third of people on Base use their belts.

* * *

The Albuquerque Lesser Symphony Orchestra invites the public to a performance on March 21 at 8 p.m. on Stage II of the Fine Arts Center at the U. of A. There is no charge. Under the direction of its new conductor, Willy Sucre, ALSO will play selections by Mendelssohn, Mozart and Haydn. Alfredo Lopez is guest soloist. A number of Sandians and their wives play in the orchestra.

* * *

Robert Langley (5111) will present "Energy Straggling of Protons in Carbon" at the 5100 Seminar Mar. 15. Co-author of

the paper is David Brice (5111). The seminar meets at 3:15 p.m. in Bldg. 836, Rm. 201.

* * *

Three Out-of-Hours first aid-type courses are now being offered. First Aid, Multi-Media, has two sections, one starting March 16, the other March 17; both run from 7:30 to 9:30 p.m. Cardiopulmonary Resuscitation (CPR) starts March 15, while Cardiopulmonary Resuscitation (CPR) Recertification starts March 14; both run from 7:30 to 9:30 p.m. Call Grant Johnson, 4-3352, for enrollment and further information.

Authors

M. Cowan (5230), W.B. Leisher, E.C. Cnare, D.L. Wesenberg and W.K. Tucker (all 5233), "Pulsed Energy Conversion with a DC Superconducting Magnet," Vol. 16, No. 12 (1976), CYROGENICS.

R.L. Courtney (9572) and L.A. Harrah (5811), "Organic Hydrogen Getters: Part I," Vol. 12, No. 1 (1977), JOURNAL OF MATERIALS SCIENCE.

W.B. Gauster (5111), "Positron Annihilation as a Non-Destructive Monitor of Radiation Damage to Reactor Pressure Vessel Steel, Vol. 62 (1976), JOURNAL OF NUCLEAR MATERIALS.

H.A. Watts (2642), "Mixed Boundary Value Problems for a Cylindrical Shell," Vol. 12 (1976), INTERNATIONAL JOURNAL OF SOLIDS STRUCTURES.

R.S. Claassen (5800), "A Perspective on Materials in the Energy Program," Chapter 1, *Critical Materials Problems in Energy Production*, (1976), Academic Press, Inc.; "Instrumentation for Materials Research," Vol. 29, No. 11 (1976), PHYSICS TODAY.

S.G. Varnado (5742) and G.A. Carlson (5423), "Considerations in the Design of Electron-Beam-Induced Fusion Reactor Systems," Vol. 29 (1976), NUCLEAR TECHNOLOGY.

Play It Again Sam, Faster

Truck, Cask, & Concrete To Join Forces at 80 mph

The second in a series of full-scale crashes in a test program to measure response of spent nuclear fuel shipping casks is tentatively scheduled for next Tuesday, March 15, at the rocket sled track.

In the upcoming test, a 22-ton spent fuel cask mounted on a tractor-trailer rig will impact at 80 mph into the 690-ton earth-backed concrete target. This is the cask that survived the January 18 crash into the same target at 60 mph. At 80 mph the test will subject the cask and transport system to about 75 percent more kinetic energy.

Future tests include the high-speed impact of a 120-ton locomotive into a large cask placed at a simulated grade crossing, and the high-speed impact of a special rail car carrying a spent fuel cask into a massive abutment, followed by a fire. The locomotive test is tentatively scheduled for June, and the rail car test for fall or winter.

Major objectives of the program are:

1. To gain quantitative knowledge of extreme accident environments by measuring response of full-scale hardware under actual crash conditions, and
2. To assess the validity of ERDA's scale modeling and calculations for predicting damage in real accident conditions by comparing predicted results with test results.

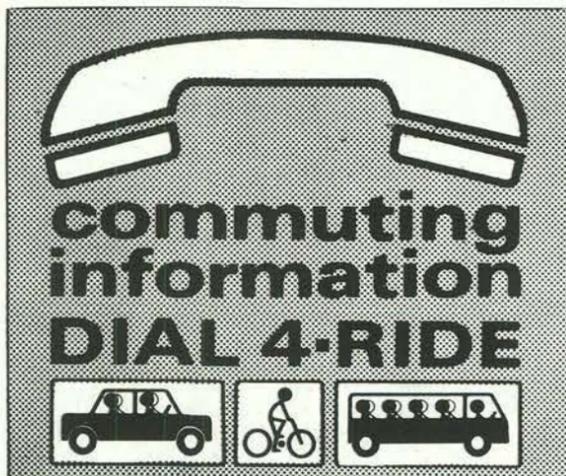
For next week's test the cask, equipped with shock-absorbing impact limiters so that it conforms with modern shipping cask construction, is mounted on a 35-foot trailer attached to a commercial tractor. Rockets will propel the rig along the sled track. When the rig reaches the desired speed, the rockets will disengage and the tractor-trailer will continue on to the target. Only minor surface damage was incurred by the cask in the first test.

Congratulations

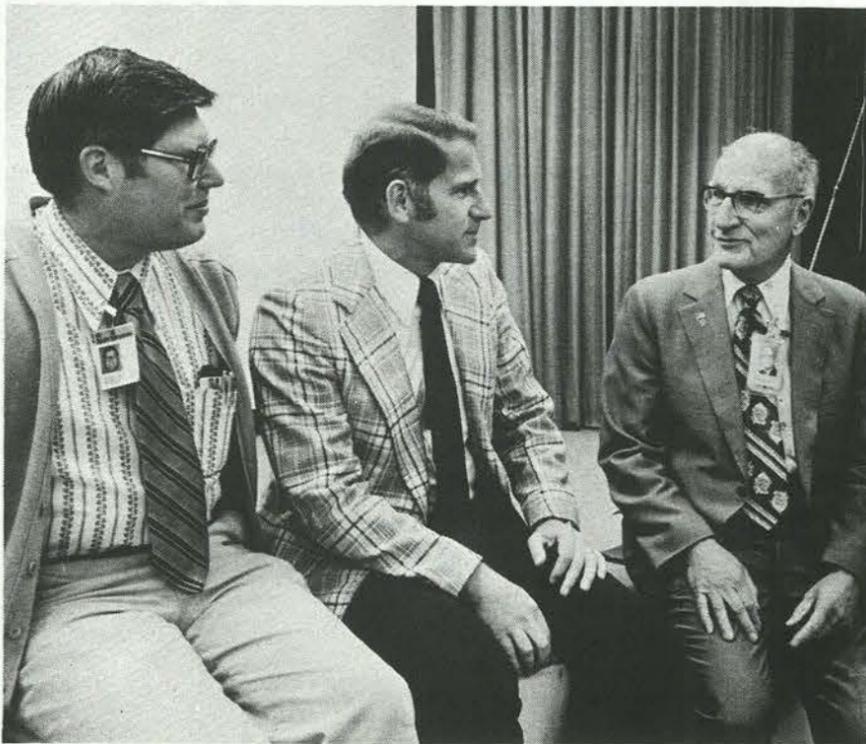
To Mr. & Mrs. Mike Hall (4311), a daughter, Christy Lynn, Feb. 20.

To Mr. & Mrs. Dan McCoy (4342), a son, Jason Robert, Feb. 18.

To Mr. & Mrs. Ken Nowotny (2532), a son, Kelby Hyrum, Feb. 27.



"HERE COMES THE SHOWBOAT," a musical program of barbershop quartets, both men and women, and a 50-voice chorus, will be presented March 18-19 at 8 p.m. at Rodey Theatre, UNM. Appearing on the program will be the Desert Sounds Quartet (with hats)—Charlie Jackson (4362), Oz Wehlander (ERDA), Cliff Schumann (DNA) and Gil Wallace (9573)—and Peggy Smith (9414), president of show-sponsor Sweet Adelines, Inc., and Jo Ferrell (1732). Tickets are \$3.50. More info from Peggy, 4-9434.



ADDISON PERSONS (right), manager of manufacturing, GE, St. Petersburg, discussed "History of GE Neutron Devices Department" at a seminar at Sandia last week. Mr. Persons is retiring from GE after 43 years with the company. He was honored at a party here at the KAFB O-Club. With him are Hugh Bivens (2355) and John Crawford (2350). The GE plant has produced Sandia-designed generators for 21 years.

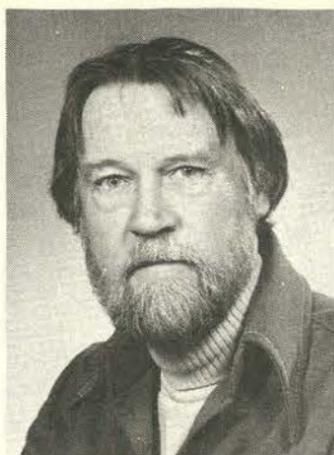


MORGAN SPARKS is Albuquerque's Chairman for 1977 in the city's "Take Stock in America" Savings Bond campaign. Evelyn Oberg from the Treasury Department conferred this certificate on Mr. Sparks, and Glenn Fowler, VP-1000, signed it in his role as State Chairman.

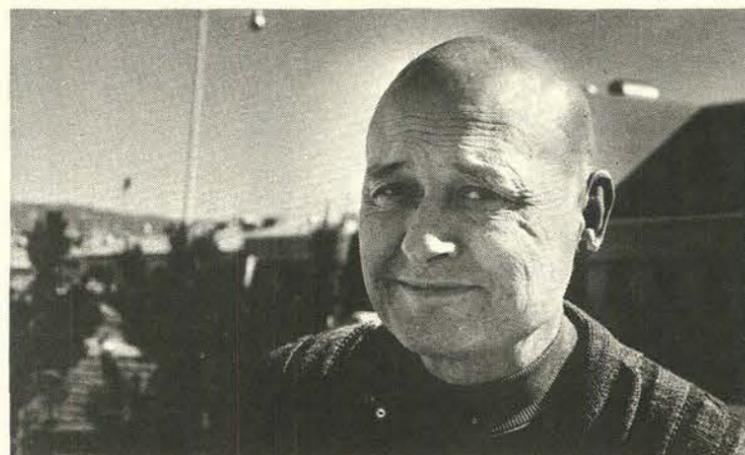
MILEPOSTS

LAB NEWS

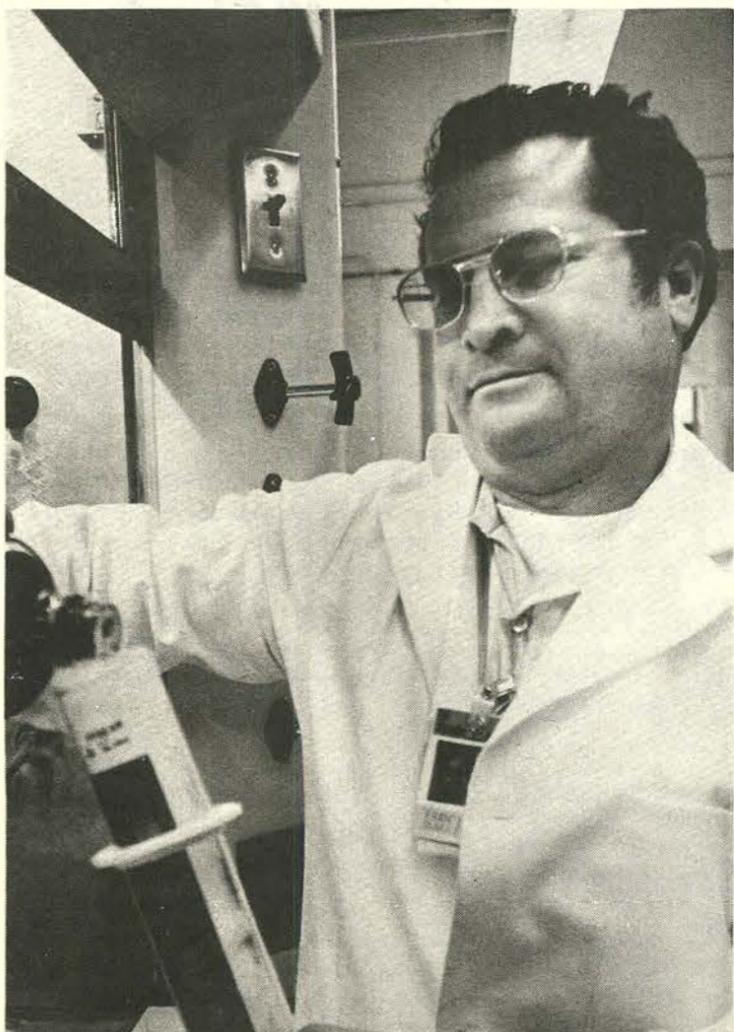
MARCH, 1977



Robert Sharp - 9751 20



Vic Engel - 4010 25



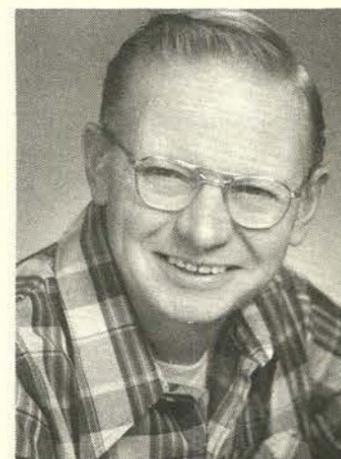
Frank Gurule - 1712 15



John Pearce - 8420 25



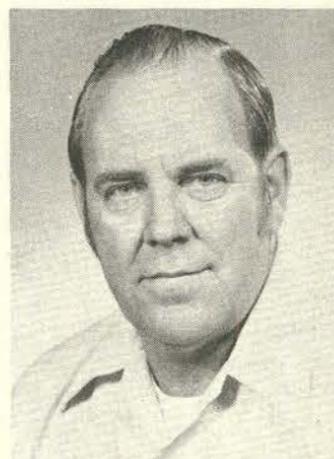
Ronald Bump - 9512 20



Clarence Karfs - 8312 20



Richard Prokash - 1211 25



C.P. Thomson - 9582 20



Ron Hoffman - 8252 10



Clifford Ruttle - 9483 25



Al Derby - 8264 20



R.F. Turnbough - 9582 20



Margaret Martin - 2633 10



Howard Nunez - 9341 20



Chuck Frost - 8424 10



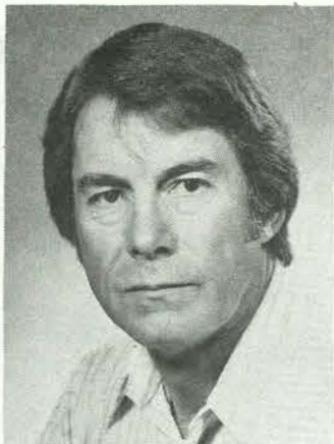
Duane Benton - 9656 15



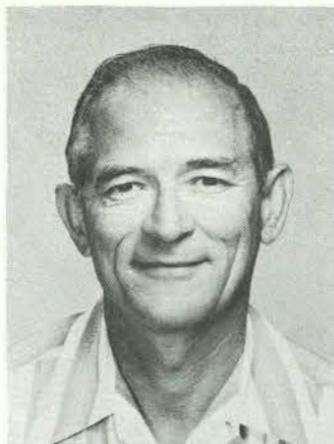
Carl Holmes - 8413 20



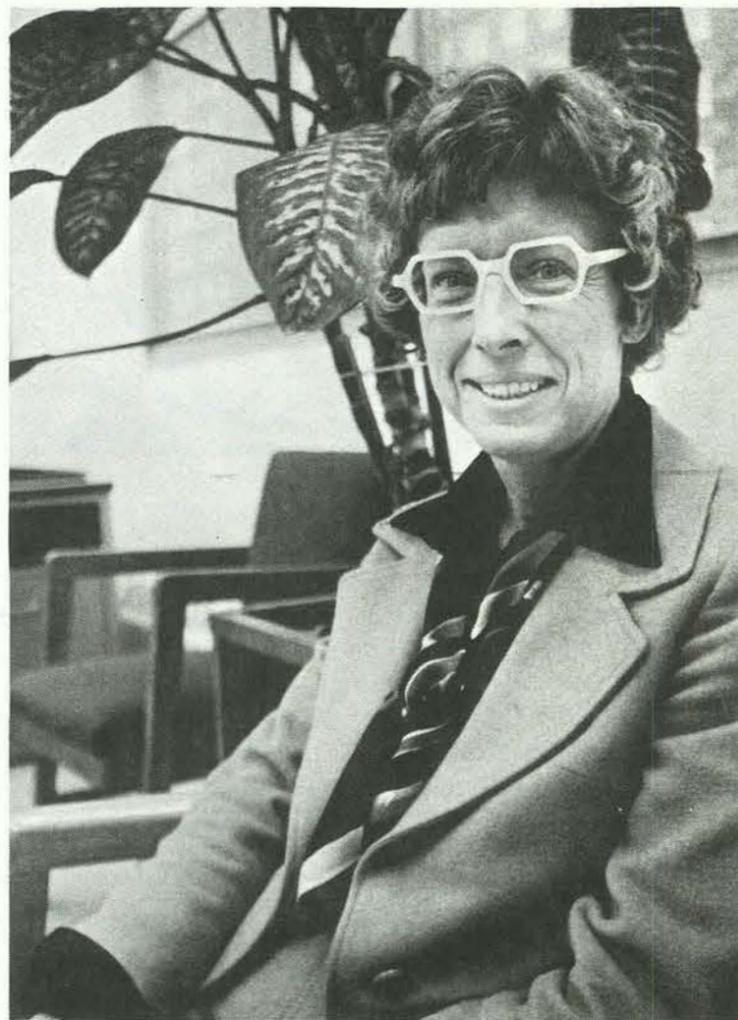
C.N. Giles - 9561 25



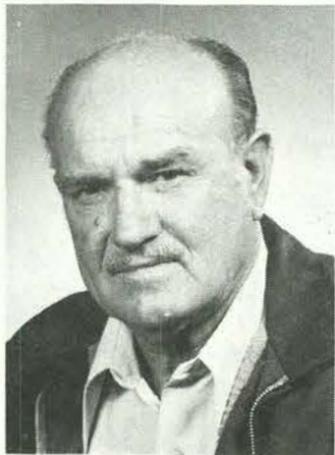
Robert Perryman - 9743 10



Nathan Moore - 3153 10



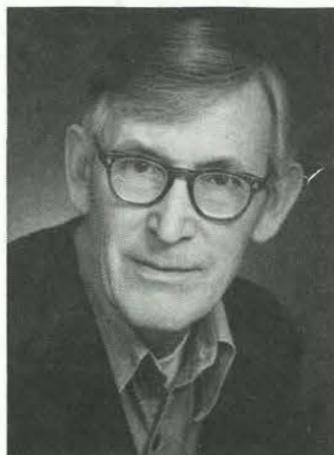
Calla Ann Pepmueller - 3140 20



E.H. Baber - 9581 25



Donald Porter - 1738 10



Ben Mills - 8413 25



Harvey Thiermann - 9651 25



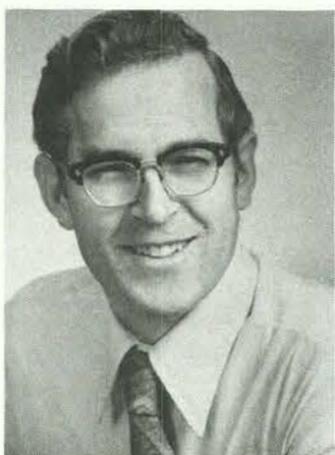
Rudy Johnson - 8312 20



Paul Beeson - 5814 15



Don Wright - 1221 10



Vern Barr - 8342 10



Richard Hosley - 2632 20



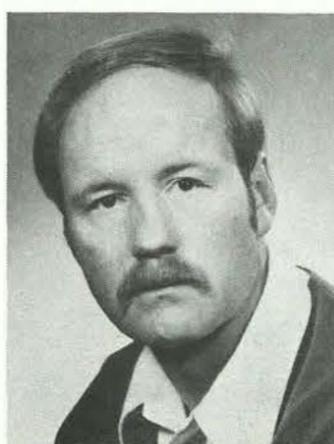
Joe McManus - 8265 20



Frank Ross - 9526 20



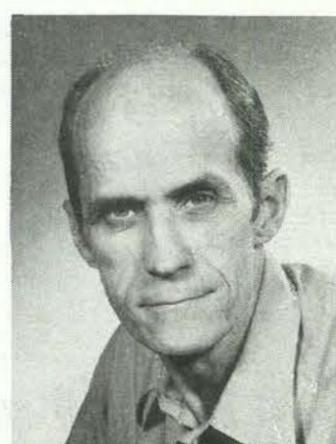
Archie Lackey - 1241 20



Ronald Rodeman - 1281 10



John Cordial - 8161 20



Don Ritter - 9655 10



Don Hurt - 9511

30



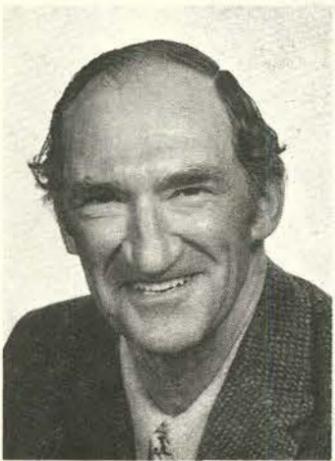
Lollie Short - 8433

10



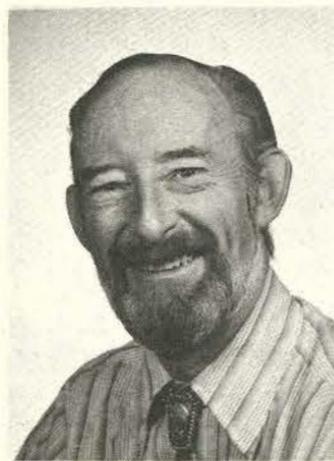
Jerry Love - 2135

10



Q. L. Vandi - 9561

25



Edward Shepherd - 4010

25



Winford Watson - 1733

20



Bill Stanton - 9487

15



Jack Chavez - 3733

25



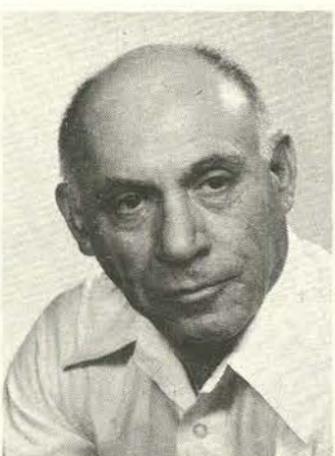
Marvin Plugge - 1752

20



Glenda Plake - 8150

10



Steve Drago - 3411

25



Jean Shaffer - 1220

20



Cliff Wolfinbarger - 9524

20



William Brooks - 5233

20



Mary Pasko - 9535

25



Gary Peterson - 5112

10



Lester Lathrop - 9473

15



Larry O'Connell - 9526

20



Mathew Roach - 9652

20

Electric Auto Completes Sandia Stay

ERDA's electric automobile, an EVA Metro, is now on its way from Sandia to Washington, D.C., where it has been assigned to Transportation Secretary Brock Adams. While at Sandia it was tested for distance between charges, maximum performance, acceleration, and energy consumption.

Test results indicate that the 1665 kg (3700 lb.) vehicle is a satisfactory around-town performer. At 40 km/hr (25 mph) the range is greater than 80 km (50 miles). At 80 km/hr (50 mph) the range is reduced to under 45 km (28 miles). Constant stop-and-go driving also reduced the range, but precise values depend on driver skill and road situations.

Maximum speed is 80 km/hr (53 mph),

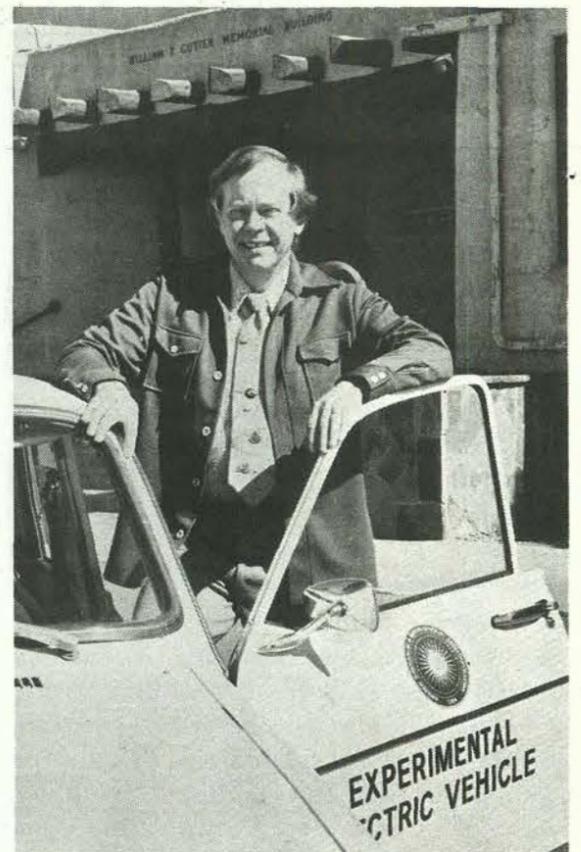
and braking distance is 52 m (170 feet) at that speed.

Acceleration tests suggest that, while the EVA Metro is not likely to win drag races, it will keep up with ordinary traffic:

- 0 - 48 km/hr (30 mph) - 13 seconds
- 0 - 73 km/hr (45 mph) - 40 seconds
- 0 - 80 km/hr (50 mph) - 76 seconds

Total energy consumption, measured with a bipolar dc watt hour meter, averaged about 3¢ per kilometre (2¢ per mile) under all driving conditions (assuming 0.022¢ per kW/hr).

DICK BASSETT (2354) has helped assemble data on the electric car. Assigned to the Motor Pool, the car has been used for a variety of assignments and will now be used by Secretary of Transportation Brock Adams in Washington.



JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday.

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and ERDA employees.
6. No commercial ads, please.
7. Include name and organization.
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

- DISH WASHER \$15; tent type camper, sleeps 6, 3 burner stove, 16 ft. long, \$550. McCoach, 298-5960.
- USED TIRES 10x16.5 8 ply tires \$10 each, new 10x16.5 6 ply, \$40. Seiko Automatic watch w/stop, day, date. \$100. Schulze, 898-2800.
- SSW 357 MAG, oversize grips, 6" bbl \$240; Browning 9MM, adj. sights, holster, extra clip, \$325. Benson, 268-9727.
- ENCYCLOPEDIA BRITANNICA 1976 Edition, leather bound, gold leafed, \$700, or pay difference and take over payments. McConnell, 256-7321.
- CB ANTENNA, Wilson Laser Beam, 35' boom, 17 db gain, \$195; tower and rotor, \$145. Mosteller, 256-3227.
- FURNITURE, living room corner arrangement; 5-piece youth bedroom, bunks or separates; American Encyclopedia, 20 volumes; Tires recappable, four 9.50x16.5, two 7.00x15. Nunez, 256-3492.
- BIRDS & ACCESSORIES, 3 finches (one male, two female), pagoda style cage; nest, bath, accessories, \$20. Robertson, 299-7561.
- GREAT BOOKS, 54 volumes w/bookcase, 10 vol. study program. New cost \$700, make offer. Bower, 299-5765.
- HAMSTER CAGE, Habitrail Deluxe w/extra room; Coleco electric football; model rocketry equipment. Madden, 296-1082.
- MXR PHASE 90, \$75; Fender blender, \$35; cry baby wa, \$35; Shinel wa \$25; extension speaker, \$75. Baca, 296-8474.
- ALFALFA, reasonable. Ulibarri, 864-7234.
- COUCH, 72" double sleeper, armless, \$70; table lamp, \$8; twin mattress & springs, \$25; 2 piece sectional, white vinyl \$90. Longfellow, 299-7062.
- CRIB w/mattress, dressing table, bassinet, playpen, stroller, carseat, baby girl's clothing, cost from \$12 to \$75. Huhn, 821-8925.
- CHILDCRAFT BOOKS, 15 volumes, \$50. Bates, 256-0152.
- SPANISH-AMERICAN WAR knap sack, \$7; Japanese movie camera, \$25; Italian leather liquor flask, \$8. Smitha, 881-1001.
- REFRIGERATOR, coppertone, apt. size, \$70; rattan bookcase, \$30; washer, needs agitator, \$20; blue chair, \$25; Bassett crib, \$25. Love, 293-0536.

- BIKE STUFF, all new, Sting Ray speedometer, \$6; rear carrier, \$3; chain break, \$2; misc. metric wrenches. Shunny, 265-1620.
- HOOD for '63 to '67 Corvette Stingray, \$40. Marchi, 299-3653.
- MANUAL TYPEWRITER, office size, 16" carriage, pica type, Smith-Corona Pacemaker, \$35. Detorie, 299-1868.
- BEDROOM SUITE, Pennsylvania House double bed, double dresser w/mirror; rocking sofa, Tell City maple w/upholstered cushions, skirt. Stevens, 296-6326.

- OVEN, electric, built-in installation, Tappan; flute, Haynes closed-hole and C foot, \$30. Anderson, 294-8451.
- SOCKET SET, 6 to 19 mm, 3/8" drive, \$5. Dippold, 821-5750.
- IRRIGATION PUMP, 6", 10 hp gas engine, trade for working windmill. Riley, 869-2119.
- GEMTOP CAMPER SHELL, roll out windows, all steel, fits LWB, in Moriarty. Miller, 832-4784.
- TIRES, two 700x15, mounted on 8-hole split rims. Burt, 246-4748.
- MOVIE CAMERA and fully automatic projector, \$35 each; two bucket seats, \$60 each. Martegano, 294-7012.
- ELECTRIC RANGE, 30" w/self-clean oven, harvest gold; Toro Whirlwind rotary lawnmower; electric floor polisher-scrubber. Carter, 296-4127.
- RUG, 10 x 12, beige shag, wool Karastan, w/pad, \$35 or offer. Smith, 242-9576.
- GAS RANGE, Rheem, 36" w/broiler; den sofa; 19 cu. ft. white refrigerator w/bottom freezer, will sell all or individually. Garcia, 256-7606.
- VOLT-OHM-MILLIMETER, Simpson Mod. 260 type, \$40. Kraft, 299-2157.
- SHAG CARPET, avocado, 3 rooms, \$150; 7" Naugahyde sofa, \$110; oriental coffee table w/glass top and matching lamp table, \$80. Smith, 298-4724.
- MATTRESS/BOX SPRING, full size, \$20; 6' sofa, white, \$25; infant seat, \$2. McKay, 821-2469.
- BENCH SEAT for Ford Van, \$45; round 5 gal. can, \$3. Stuart, 299-9190.
- EARLY AMERICAN trundle bed w/steel frame, \$150. Troy, 292-2579 after 5 p.m.

- STEREO, Craig AM-FM, cassette in-dash, \$100. Fellerhoff, 299-3132.
- ELECTRIBROOM VACUUM CLEANER, \$500; floor polisher, \$10; bowling ball, \$3. Anderson, 299-5727.
- WATER SKIS, 2 pairs, tow rope, \$40. Falacy, 881-1802.
- COUCH/LOVESEAT, lime green, crushed velvet. Ewing, 298-1404.
- ELECTRIC DRILL press w/sanding attachments; sabre saw; reel-type gasoline heavy duty lawnmower; wheelchair; walking aid; toilet arm rests; bath seat. 4919 Pershing, S.E. Dawson.
- FROSTLESS FREEZER, Sears 19 cu. ft., \$200; Ethan Allen maple twin bedroom furniture, 6 pieces including desk & chair, open stock style, \$450. Chapman, 292-1198 after 5
- BATHROOM SINK w/fittings, \$5; bathroom sink faucet, \$2; tricycle, \$7.50; roll-away bed without mattress, \$5; wood screen door, 32" x 81". Hall, 298-8617.

- BEN HOGAN woods (1, 3 & 5), D-1's, stiff apex shafts, \$45; early American lighting fixture; Keystone 8 mm movie camera; golf cart. Chandler, 296-3323.

- CABOVER CAMPER, 8', needs some work, best offer over \$700. Jones, 298-3165.
- AQUARIUM, 10 gal. w/accessories, \$15; 6' pool table, balls, cues, \$25; lawn spreader, \$5. Strasburg, 299-4214.
- ALUMINUM BOAT, 12', 7 1/2 hp Sears motor, oars, swivel seat, gas can, anchor. Never been used, \$500. Preveder, 299-5253.
- SPORTYAK II, \$100, 7' long, 3' wide, 38 lbs. Worrell, 299-0381.
- LADIES CHAIR, beige background, floral design, \$25. Keizur, 298-7945.
- TRACTOR, JD 420, 3-pt. gas w/blade, \$1375; JD 10 shank, 3-pt. chisel, \$160. Donaldson, 255-4024.
- VACUUM CLEANER, Hoover convertible w/attachments, \$25. Kelsey, 266-6460.
- HOMELITE CHAIN SAW XL2, automatic oiling, 10" bar w/carrying case, \$75. Wilkinson, 299-8327.
- MULBERRY TREES, nonbearing, two 10-15' tall, free, you dig. McBride, 299-4347.
- SEARS AIR CONDITIONER, 8000 BTU, used 2 months, \$150; water flush toilet for RV, \$10. Moore, 298-2019.
- FREE BACHELOR BUTTONS, transplant now for early bloom, variety of colors. Rigby, 298-1767.
- CAMPER, 8 1/2' Travel Queen, Monomatic toilet, gas heater, 30 gal. water tank, jacks and boot. Cleveland, 299-7420.
- CHAIN SAW, Homelite model 350, 24" bar, automatic oiler, never used, \$235. Bouton, 898-3562.
- WARDS TRUCOLD REFRIGERATOR, white, 14 cu. ft., right hand door, \$75. Stump, 898-2546.
- GENERAL SPARE TIRE, new, G78-14, belted Jumbo 780, \$20. Novotny, 296-7167.
- ALVAREZ CLASSICAL GUITAR, w/case. Souder, 281-3121.
- BUNNY CLARINET, \$70; buddy seat for Yamaha and large sprocket. Frye, 836-6665.

TRANSPORTATION

- DATSUN PICKUP 1600cc, radio, new tires, CB optional, shell with boat rack; 2 dog kennels. Bozone, 299-2986.
- '62 CHEVROLET 1/2 ton truck, \$550. McCoach, 298-5960.
- '73 CHEVROLET 1/2 ton, LWB, 454 engine, AT, extras, \$3850. Vance, 255-8032.
- SCHWINN Varsity 10-speed bike. Yates, 292-2671 after 5
- LINCOLN CONTINENTAL, classic, genuine leather, original Sultana white finish, will consider trade. Smitha, 881-1001.
- '72 WINNEBAGO Indian 24', self-contained, includes 4KW Onan and CB, \$9500. Dye, 299-2823.
- '75 SUZUKI T500 Titan, Bates fairing,

- luggage rack, crash bars with hwy pegs, \$850. Frye, 836-6665.
- '76 HONDA CVCC hatchback, 5400 miles, AM-FM stereo, \$3100 w/sterero, \$3000 without. Hudson, 296-6978 or 296-3484.
- '74 260Z DATSUN, AM-FM stereo, vinyl top, new radial tires, metallic green, \$4550. Nunez, 293-4076.
- '72 JAVELIN 3-speed, 304 engine, power steering, \$1350. Miller, 832-4788 in Moriarty.
- '57 FORD 1/2 ton pickup, 223 engine, \$340. Rupe, 4401 Montgomery NE #160.

- '63 T-BIRD, PS, PB, PW, R&H. Herrera, 836-0765.
- '67 TORONADO, classic styling, new paint, seat covers, AC, power seats, chrome wheels, first offer over \$1000. Risse, 299-5002.
- '71 VW Super Beetle, 65,000 miles, AC, radial tires, \$1400. Davis, 821-8388.
- '67 JEEP COMMANDO 4x4, overhaul on engine and trans. May, 1976, \$1500. Zamora, 344-0256.
- '60 VW BUG, new tires, re-upholstered, 25 mpg in city, \$600 or best offer. Rayner, 299-7429.
- '73 CAPRI, 4-speed trans., 2000 cc engine, AC, AM-FM radio, sunroof. Preveder, 299-5253.
- '70 FORD 1/2 ton pickup, LWB, 360 motor, recently overhauled, 4 spd. heavy duty rear end, new tires, \$1700. Marquez, 865-7364 or 247-0907.
- '74 VW Beetle, 8100 miles, yellow w/black vinyl interior, radio. Swearengen, 881-5079.
- '70 BOSS 302 Mustang, chrome wheels, full race engine w/extras. Romero, 881-3597.
- '76 FORD, F-250, 4x4, 360, 4-speed, PS, PDB, dual tanks, 12,000 miles, \$5,500 or best offer. Campbell, 294-6000.
- '72 BLAZER, PS, AC, 4WD, \$3050.46. Conklin, 298-8217.
- '72 FORD, 3/4 ton, V8, 4-speed, AC, PB, sport custom cab, \$2100. Hurt, 293-9391.
- '75 MUSTANG II Ghia, AT, PS, AM-FM stereo, 4-Cyl, 2-door, new shocks and battery, low mileage. Bodine, 296-3620.

- '74 AUDI FOX, AC, AT, FM radio, low mileage, \$3600. Widlund, 256-3509 or 296-7479.
- DUNE BUGGY, rail frame, full cage, two seater, 40 HP VW engine. Hobbs, 268-6461.
- '75 TOYOTA Chinook Camper, w/facilities. RH, AC, gas saver, 15,000 miles. Black, 299-3369.
- '73 PORSCHE 914, 1.7 liter, FM-AM radio, 5 speed, 43,000 miles, below retail, \$3800. Plummer, 296-4327.
- '74 SUZUKI, GT 550, 11,000 miles, \$800. Falacy, 881-1802.

REAL ESTATE

- 4-BDR, two baths, F.P., corner lot, 6601 Luella Anne N.E. Academy Acres. Frantz, 821-8655 weekdays after 6.
- 3-BDR, 1 1/2 bath, landscaped, 3406 Sierra Dr. N.E. \$33,500. Falacy, 881-1802.
- MOBILE HOME, 14' x 64', fully skirted, 2 bedrooms, one woman owner. Martinez, 298-2331.

FOR RENT

- CABIN, Vallecito Lake, near Durango, 3BDR, furnished, F.P., hiking, boating, fishing, horseback riding. Croll, 881-7235.
- VACATION HOME, 3-rm, rustic, by stream in forest, near Mora, \$15/week. Cooper, 268-8975.
- 3-BDRM, built-in kitchen, carpeting, attached garage, walled yard, near freeway. Jojola, 821-5950 after 5.

WANTED

- PICKUP SHELL, aluminum, for '69 Ford, short wide bed. Meikle, 299-4640.
- METAL STORAGE SHED. Detorie, 299-1868 after 5.
- POWER LAWN MOWER, push-type. Moss, 298-2643.
- DOGHOUSE for two medium sized dogs; basic darkroom equipment for novice photographer. Muir, 296-2252.
- '76 VW CAMP MOBILE Pop-Top, low mileage, clean. Noel, 298-2142.
- MOTOR HOME, would like to rent first 2 weeks in May. Riley, 869-2119.
- MEN'S BICYCLE, 10 SPEED, 2 1/2 to 24 inch frame. Donohoe, 293-8591.
- TO RENT 3-Bdr furnished home or apartment in Albuquerque for visiting professor June 1-August 7. Headley, 298-9521.
- PADLOCKS, old or unusual, working or not, buy or trade; old keys of any kind. Ludwick, 296-6447.
- PING PONG TABLE w/accessories, 10 to 12" chain saw, portable electric heater. Caruthers, 296-5953.
- TRAILER HITCH for '75 Dodge van, fixed hub wheel for utility trailer with 3/4" axle, horizontal mount LP bottle. Worrell, 299-0381.
- STEREO SYSTEM, small set suitable for college student. Coleman, 299-2377.
- REAR END for '66 Scout Positrack, complete unit, hub to hub, or set of gears. Welch, 266-2074.

LOST AND FOUND

- LOST—Ladies' yellow and white Gold Ring w/two hearts, diamonds in center; blackrimmed pres. safety glasses in black case; small brown leather billfold; bunch of keys with military dog tag; tan and brown leather glove; small gold oval locket with raised daisy and screw-type fastener; orange car key; ladies' Galaxy flyer bicycle, single-speed, blue and white basket, chrome fenders, comb, cable/lock on front wheel; ladies' tan knit gloves with darker palms; yellow automatic pencil; men's light brown all-leather gloves with snap closing.
- FOUND—Grey and black gloves with leather palms; ladies' right hand brown leather knit glove; brown-rim Rx glasses (AO) with one nose-piece missing; man's brown knit cardigan sweater; ladies' black suede/leather/knit glove for right hand; man's brown knit glove with vinyl palm, for right hand. LOST & FOUND, Bldg. 832, 4-1657.

FRIDAY	SATURDAY
11—HAPPY HOUR BEEF/CRAB BUFFET Adults \$3.25 Under 12 1.92 LA ULTIMA	12—TEEN DANCE 7:30-10:30 SATIN FLAME Members \$.50 Guests \$1
18—HAPPY HOUR GERMAN BUFFET Adults \$3.25 Under 12 1.92 UP COUNTRY	19—SHRIMP PEEL Cocktails 6 Dinner 7 HANK & LEWIE WICKHAM Concert 8:30 Dance 9 Members \$6.25 Guests \$6.95

TOTAL—auditory and gustatory delight awaits you on the 19th (if you have reservations) when the Rio Grande Shrimp Fleet (including a Liberian supertanker full of sauce) docks at the Club moorings for another Shrimp Peel. It's always quite a night, but this one features *Hank and Lewie Wickham* who sneak out of the grocery store to do their darndest for us too—in concert at 8:30, in action (for dancing) at 9. Pick up your tickets by *tomorrow* or they'll go to people on the "one hundred plus" waiting list.

ABSTINENCE—from beef for Lent doesn't mean you subsist on salads at the Happy Hour buffet tonight. In addition to the beef stroganoff, we'll have crab (as in newberg). Lots of other good stuff too. Then it's time for *La Ultima* and their slant on Latin, pop, old stuff and new that will have you upright on the dance floor in no time.

IS—German maybe your heart's (or tongue's) desire? Then do not miss Happy Hour next Friday when sauerbraten, knockwurst, hot German potato salad, other genuine goodies germane to Germany gem the buffet tables. On the stage later is *Up Country* playing a variety of



music mastered in the shadow of the Belen Wall.

GREAT—new travel package coming up to a south-of-several-borders site: Lima, Peru. Fly there and back, stay at the deluxe Hotel Crillon for a week, all for about \$500 from Denver. (The one-way fare alone is \$424). More details later, or see Ed or Joe between 6 and 7 in the Lobby on Fridays. Pre-trip meeting March 17 at 7.

SO—you've always wanted to check the inscrutability of the Orient firsthand. The time is ripe. There's a July 26 - August 9 package at just \$779 from LA (one-way LA to Tokyo is \$502). Ed will help you arrange the lowest, peanuttiest fares available to LA and back. You'll stay in the fantastic new Otani Hotel. This is no Motel 6; it has 2050 rooms, 25 restaurants and bars, over 100 stores and shops, on a 17-acre site in the heart of Tokyo—and 10 acres are a 400-year-old traditional Japanese garden! In addition, the Imperial Palace is almost next door. Tokyo culture is legendary—and much of it is true too: ancient temples and shrines, modern geisha girls, swinging cabarets, all-night coffeehouses. As if this weren't enough, stopover privileges in Hawaii are allowed on the return leg at no increase in airline fares.

LONG—for Hong Kong? Wait till November. Exact dates aren't set yet but the price will be about \$770 from LA (compared to the usual \$656 one-way). More info later.

OF—course the Disneyland trip is still open—but hurry. Seats are going fast—you'll have to move yours to get one. And be prepared to pay as you sign up: \$189 adults, \$129 kids.

COURSE—of your travel life need deviation? Want to arrange your own hotels, itineraries, etc.? Then check out the ABC charter flights to London, Frankfurt, and Amsterdam for this summer. Prices begin around \$515 (RT jet from Albuquerque).

AS—long as the topic is travel, let's mention the airchair version too. Roy Rainhart will take you on a Mediterranean Cruise. Sights of sea and city will make

ports in Spain, France, Italy, Sicily, and Majorca come alive before your very eyes, or any other eyes you happen to be using on the 23rd at 7:30.

IT'S—a neat glass, the logo-encrusted Coronadouble 11-ounce beauty. With or without liquid contents, it's a great complement to your crystal set.

PRACTICED—your public speaking in private, did you? Not much luck at turning your docile audience into a frenzied mob, right? Learn to do it right. Come out for Beta Aloosters Toastmasters/mistresses at the Club every Wednesday noon. Prepare and present speeches, debate, conduct meetings, listen effectively—all under the

HOT FLASH—Tennis club memberships are now better than ever, thanks to a Board decision to include pool and patio privileges in the price (already low) of membership. See the article in the FUN & GAMES section of this issue.

expert tutelage of neat, warm, helpful people like Frank Biggs, Jim McKenzie, Don Schroeder, or Charles Vittitoe (whose phone numbers are 265-4661, 298-8933, 344-1011, and 299-9278 in that order for further info). Dues are \$12 semiannually, but guests are welcome and free anytime.

IN—our town when it comes to Teen Dances, *Satin Flame* is the pacemaker. Tune yours up, teens, and come on out tomorrow night if your immediate ancestor picks up tickets immediately—or at the door.

MODERATION—in everything except snow next year, right, Ski Clubbers? Ensure better conditions next season by electing better officers now. On the slate: Caryl Peterson for pres., Frank Biggs for VP, Tom James for trips (he's been on some great ones), Lyle Wentz for secy., Mary Sweet for treas., Walt Westman for area rep, Fred Schkade for membership chairman. Nominations from the floor (or, if you're still sitting up, from your chair) are legal too. In addition, a couple of neat movies, *Karli* and *Hotdogger at Vail* (this year it's Vale—of Tears). At 7 on the 15th.

MORE INFO—265-6791.

CRAB • SICILY • RAINHART • SATIN FLAME • FLEET • SEAT

Events Calendar

Mar. 11, 12—The New Mexico Symphony Orchestra with pianist John Browning performing Barber, Mozart, and Rachmaninoff, Popejoy Hall, 8:15 p.m., 277-3121.

Mar. 12, 13, and 19, 20—Rose-pruning demonstration by the Albuquerque Rose Society, Prospect Park Rose Garden, 10 a.m. - 3 p.m.

Mar. 13—“Love's Labour's Lost,” produced by John Housman, Popejoy Hall, 8:15 p.m., 277-3121.

Mar. 13—N.M. Mt. Club, rock climbing practice, no rating required, 299-4714.

Mar. 17—St. Patrick's Day Corned-Beef-and-Cabbage Supper, Ag Exhibit Hall, State Fairgrounds.

Mar. 18, 19—Gilbert and Sullivan's “Pirates of Penzance,” sponsored by Music Vesper Series, 1st United Methodist Church, 4th and Lead, dinner 6:30 p.m., show 7:30 p.m.

Mar. 21—Free concert by Albuquerque Lesser Symphony Orchestra, U of A, Stage II, 8 p.m.