

New Potting Material Can Be Dissolved

Technology changes, especially weapon technology.

Early nuclear weapons were bulky and primitive by today's standards. Vacuum tube technology was the basis for electronics. Weapons required extensive field checking by hand and maintenance of components.

With the introduction of the "wooden bomb" concept in the early '50s, field checking and maintenance were eliminated. Circuit boards, semiconductors and sophisticated circuits were introduced. The practice of potting, i.e., encapsulating, components and subsystems in resins became standard.

Potting provided electrical insulation plus the rigidity and strength required for field storage and handling. The complex electronics had to withstand extreme stress, vibration, impact and other environmental conditions. Encapsulating was an ideal

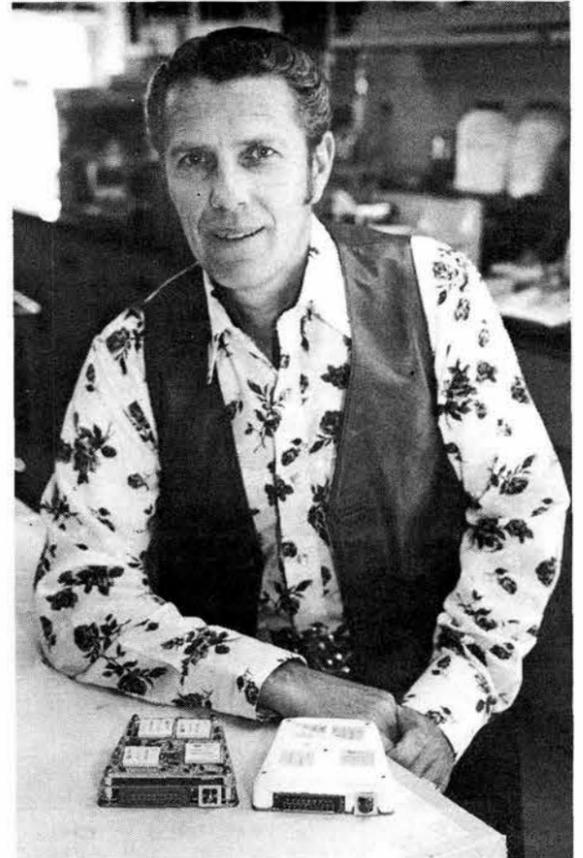
solution to meet the stringent requirements.

"Now it's a matter of economics," says Ken Wischmann, researcher in Chemistry of Organic Materials Division 5811. We use integrated circuits and microprocessors as the heart of our electronics. The devices in which they are used are expensive. We may have \$20,000 in a radar unit or as much as \$40,000 in a signal conditioner. Old-style encapsulating materials were great in their time but once potted, the unit stays potted. There's no way an old-style encapsulated component can be retrieved.

"Nowadays, we need to save our expensive components when they are defective for reuse or for post mortem evaluation."

Ken has developed several formulations of materials to replace the casting or foam

[Continued on Page Two]



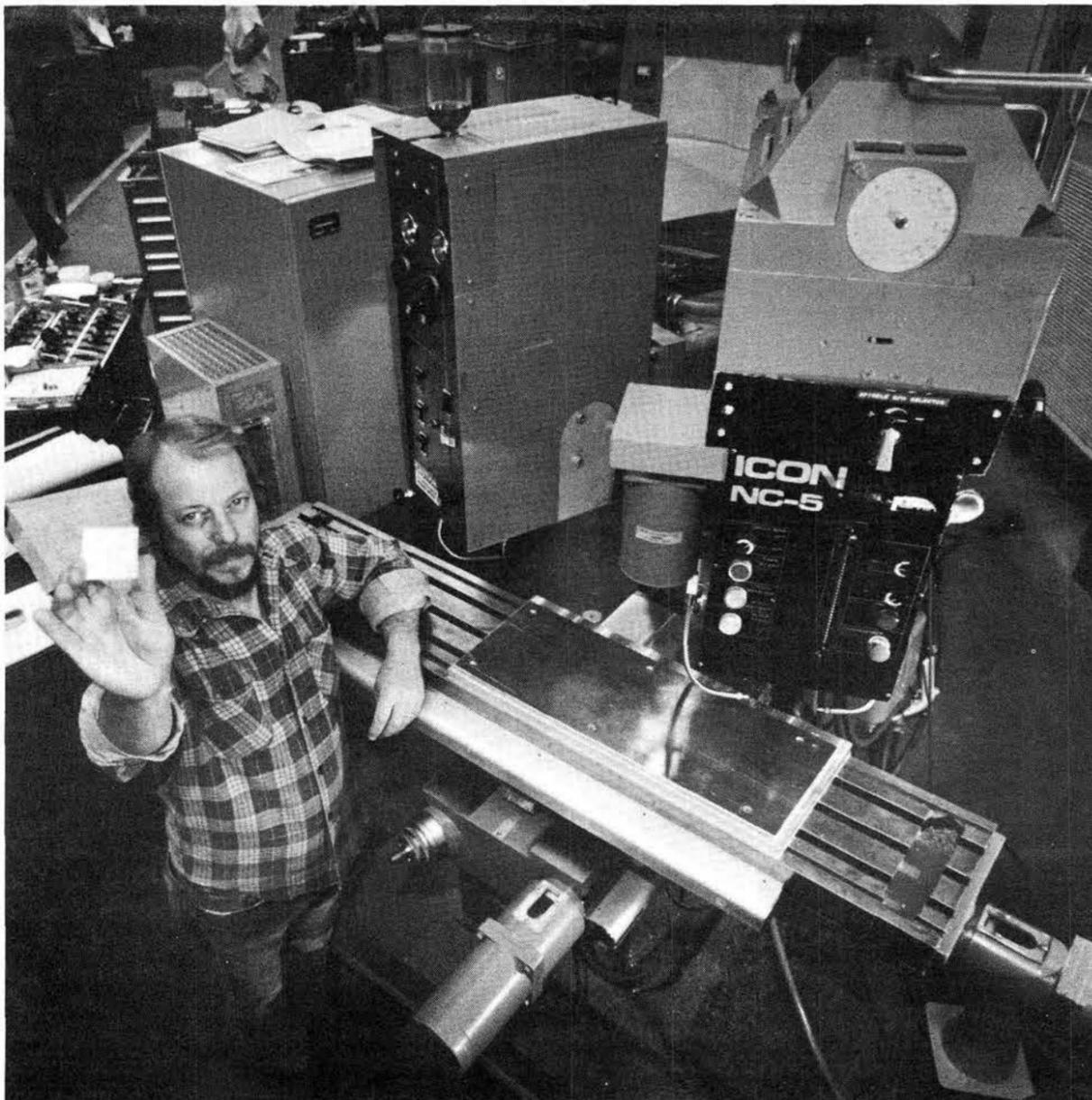
KEN WISCHMANN (5811) displays Mk4 radar which uses one of his new encapsulating materials. The unit at left has been cleaned of potting material with an agitating bath of toluene solvent. New dissolvable encapsulant enables recovery and reuse of expensive components.

LAB NEWS

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



BOB WALSH (1485) displays a wafer of aluminum oxide ceramic with several .008-in. holes (too tiny to show up in photo) drilled by a new ultrasonic head he adapted to fit into an ICON NC-5 milling machine. The programmable "two-headed monster" gives the Process and Fabrication Labs new capabilities in machining brittle, exotic materials.

Two-Headed Monster Built In Shops

The men in the Shops call it a "two-headed monster." Bob Walsh of Machine Repair Section 1485-1 has grafted a Branson ultrasonic rotary head onto an ICON Model NC-5 three-axis CNC milling machine.

The one-of-a-kind device gives the Process and Fabrication Labs new capabilities in ultrasonic machining of very brittle materials—hard ceramics, fused quartz, aluminum oxide ceramic, ruby and sapphire rods. And the work is done with numerical, manually programmable three-axis automated control.

The new hybrid machine is operated by a tape generated to direct the motions of all three axes automatically.

"What this means," says Jake Gonzales, supervisor of Machining Division 1481, "is that we can now use ultrasonics to drill holes down to .008-inch diameter with extreme precision in positioning. We can drill these holes and perform milling operations in sequence. Once the machine is programmed and set, no manual operations are required. We can machine exotic shapes using exotic materials. We could do this before but not as well nor as rapidly. The two-headed monster is proving very valuable in our production schedules."

The job of interfacing the electronics of the Branson ultrasonic head to the control system of the ICON milling machine was performed by Glen Corbett and Harry Conrad of Automated Processes Division 1483.

Afterthoughts

Speaking of words--A recent column in the Journal was devoted to a new coinage in our language. The word is posslq, pronounced poss-el-cue and, assuming you are as I was--without the foggiest notion of what it means--well it means "persons of opposite sex sharing living quarters." So it's an acronym that, apparently, was born of the 1980 census with "POSSLQ" just one of many categories of households. The Journal columnist was enthusiastic about the term, claiming that it has indeed entered the language because it meets a need. I agree. Many of us have friends (or sons and daughters) who live with a person of the opposite sex and the time comes, inevitably, when the relationship must be verbally described. "This is my son Charles and Irene, his, uh, girl friend ...". That's pretty feeble because a girl/boy friend can be someone met last Tuesday with whom you've just gone to the movies. "Paramour" sounds sinful, "consort" is what kings and queens have, "companion" has medical-care overtones, and "live-in girl/boy friend" is cumbersome and more explicit than most of us care to be.

So hooray for posslq. As new coinage, it has several attributes to commend it.

Economy is the first; posslq has no gender, thus this single term may be applied to either sex (It's not "Charles, my boy-posslq" but simply "Charles, my posslq"). Denotation but not connotation is the second attribute--it's too soon for posslq to have picked up fringe meanings reflecting moral judgments. And posslq has wide and flexible application. For instance, what's the term for the mother of the posslq with whom you live? I lean to something like "motherposs"; it has a down-home flavor, much warmer than that of "mother-in-law."

The big question is what to call children arising from a posslq relationship. That's tough--how about using a device from the Spanish language ... posslqitos?

* * *

Cheerful note--A study by the Alliance of American Insurers shows that it would cost \$25,458 for the parts and labor to repair a totally wrecked 1980 American-made compact car. Just replacing a fourth of the parts on the car would set you back \$6364--\$346 more than the dealer's original cost. What this means is that some car owners involved in accidents will back up and give their own vehicle another lick, hoping to get a new car out of the settlement. *js

Continued from Page One

New Potting Material

resins formerly used for potting. These new materials can be dissolved away--completely cleaned off with an organic solvent such as toluene. The unit can be tested and reworked, re-potted and used again through several cycles.

"Nobody keeps score," Ken says, "but we've saved hundreds of thousands of dollars on production component and developmental subsystem costs."

Ken uses commercially available polystyrene foam beads as the base for one of the new materials. This is the same material used in ice chests and plastic insulation. By varying bead density and fusion time, the material can be tailored to fit the requirements of the unit under development. Two weapon components now in production use this new foam.

The polystyrene foam bead material has thermal limitations--it fails above 82°C (180°F). Other materials are under development, however, which can withstand higher temperatures. For example, a second material, different from the polystyrene bead, is "foamed" in place using a catalyst; it can withstand 116°C (240°F) temperatures.

"We want to duplicate the characteristics of the old epoxy resin and foam encapsulating materials," Ken says, "and we're well on our way. The only difference is that we can dissolve the potting material away and rework or rebuild the unit for additional use."

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Events Calendar

- Dec. 6-7--"Harkee the Cat," & the Ballet Figurines, Children's Theater, 1:30 & 3:30 p.m., Popejoy.
- Dec. 7--Jazz concert, UNM jazz band, 8:15 p.m., Popejoy.
- Dec. 9--Audubon Wildlife Film Series: "National Wildlife Refuge System," 7:30 p.m., Popejoy.
- Dec. 11-13--Beethoven Festival: 11th--Beethoven Marathon, NM Symphony Orchestra, 8:15 p.m., Woodward Hall and Keller Hall; 12th--American String Quartet, 8:15 p.m., Woodward Hall; 13th--Beethoven's Ninth Symphony, NMSO, 8:15 p.m., Popejoy, 842-8565.
- Dec. 11-14--Holiday Skating Show, 8 p.m. Iceland Sports Center, 255-1628.
- Dec. 12--Mel Tillis concert, Tingley Coliseum, 255-5501.
- Dec. 13--Las Posadas de Barelmas Christmas Fiesta, Community Center, 801 Barelmas Rd. SW, 6:30 p.m., 766-7802.
- Dec. 14--Old Town Holiday Festival: mariachi bands, piñatas, dances; Old Town Plaza, 1-6 p.m., 247-0273.
- Dec. 14--"Holiday Favorites," Albuquerque Civic Chorus, First United Methodist Church, 4 p.m.
- Dec. 14--"Festival Guadalupeña," Albuquerque Museum, outdoors--weather permitting, 1-4:30 p.m., 766-7878.
- Dec. 14--Travel Adventure Film: "East Africa," 7:30 p.m., Popejoy.
- Dec. 14--Lecture, Frances Quintana, "Living Memories of People and Places in Tijeras Canyon," 2:30 p.m., UNM Maxwell Museum of Anthropology (Univ. Blvd., 1 block north of Grand Ave.), free admission.
- Dec. 18-23--Rooftop luminaria display, Old Town, dusk.
- Dec. 19--Caroling at the Airport, Albuquerque Civic Chorus, International Airport, 7:30 p.m.

Sympathy

To Blythe Wemple (1472) on the death of his mother-in-law in New York, Nov. 10.

To Judy Hawbaker (1250) on the death of her father in Albuquerque, Nov. 13.

To Vernon Koonce (1531) on the death of his grandmother in Florida, Nov. 10.

To Ralph Rayner (1472) on the death of his mother in Albuquerque, Oct. 3.

To Terry Holovka (4200) on the death of her sister in Albuquerque, Nov. 19.

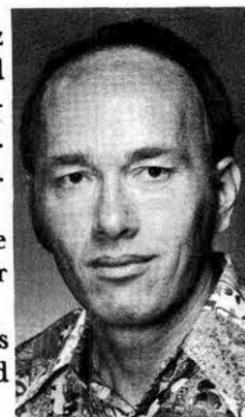
To Wayne and Marti Bell (1243) on the death of their son Bruce in Tucson, Nov. 12.

Death

James Dyer of Quartz Crystal Oscillator and RTG Development Division 2531 died Nov. 22 after a long illness. He was 43.

He had worked at the Labs since September 1961.

Survivors include his widow, a daughter and a son.



Supervisory Appointments

JOE CHAVEZ to supervisor of Space Projects Division 1261, effective Nov. 1.

Joe began working at Sandia as a Youth Opportunity Trainee in 1971. He continued to work at the Labs during summer vacations while attending UNM. After receiving his BS in EE in 1975, he joined Sandia as a One-Year-On-Campus candidate. Joe earned his MS in EE from Stanford in 1976. Since returning to the Labs, Joe has worked in his current division which is responsible for various satellite-related programs.

Joe enjoys tennis and personal computing (he'll enjoy the latter even more when he replaces his recently stolen computer). He lives in the NE heights.

* * *

DWIGHT JENNISON to supervisor of Solid State Theory Division 5151, effective Nov. 1. Dwight joined the Labs in June 1977 as a member of the technical staff in his current division where he has pursued research in surface physics.

Dwight earned a BS in psychology from Rensselaer Polytechnic Institute. He became a probation officer in clinical psychology for Los Angeles County, then served four years in the Air Force as a Minuteman missile launch officer. Dwight returned to Rensselaer and received his PhD in physics in 1974. Before coming to Sandia, he was a research assistant in the department of physics at the University of Illinois. He is a member of the American Physical Society and the American Vacuum Society.

Off the job, Dwight enjoys running and playing ice hockey and tennis. He is a pilot and commands a squadron in the Civil Air Patrol, flying search and rescue missions. Dwight and his wife Mary have three children and live in the NE heights.

* * *

BILL GOLDRICK to supervisor of Sensor Applications Division I 1263 (a newly created division in Space Projects Department), effective Nov. 1.

Bill joined the Labs in February 1958 as a staff member in a field test telemetry group. The following year he joined the Vela satellite group and continued to work on satellite programs. For the past three years, Bill has worked on DOE's National Seismic Station project.

Bill earned his BS in EE from Purdue. He served in the Army during WW II and in the Air Force during the Korean conflict. His hobbies include sports car rallying and gardening. Bill and his wife Beverly have three children and live in NE Albuquerque.

* * *

ALFRED WATTS to supervisor of Sensor Applications Division II 1264 (a newly created division in Space Projects Department), effective Dec. 1.

Following graduation from Mississippi State with a BS in EE, Al joined Sandia in 1966 as a member of the Technical



NEW SUPERVISORS—Al Watts (1264) Joe Chavez (1261), Don Rigali (5650), Dwight Jennison (5151) and Bill Goldrick (1263).

Development Program. He earned a master's degree in EE from UNM and, as a Doctoral Study Program participant, received his PhD, also in EE, from Mississippi State. Al worked for several years in the nuclear readiness program where he was concerned with small rocket and balloon payloads. More recently his work has been concerned with inertial navigation systems.

Al enjoys sports car restoration and skiing. He and his wife Tunell and their son live in Sandia Heights.

* * *

DON RIGALI to manager of Advanced Systems Development Department 5650, effective Dec. 1. This newly created department has responsibility for several advanced systems development programs related to reentry vehicle technology.

Joining the Labs as a staff member in July 1957, Don spent five years with the experimental aerodynamics group, working primarily with wind tunnel testing. He worked for another five years with a rocket projects division before transferring to the exploratory systems group. He was named division supervisor in that organization in 1972.

Don earned a BA in liberal arts from the College of St. Thomas (St. Paul, Minn.), a BS in aeroengineering from the University of Notre Dame, and an MS in ME from UNM; the latter degree was earned as a member of Sandia's Technical Development Program. Don is a member of AIAA. He plays ice hockey and enjoys camping, fishing and hunting. He and his wife Barbara have four children and live in the NE heights.

My Favorite Recipe

Mucho Chile Con Queso

When Doris Mason (3543) transferred from the drafting organization (2450), she left a copy of that group's favorite recipe with the secretary. Doris had adapted a chile con queso recipe to serve the 200 plus people in the group; she prepared it on request and for all of the office parties.



"It's quick and easy and great for entertaining," Doris says. The recipe below is one-third of the amount required for the large group.

CHILE CON QUESO

2-lb. box Velveeta cheese
1 small can jalapeno peppers (I use Ortega, chopped, hot)
1 small can jalapeno relish (Mountain Pass or Old El Paso)
Garlic salt to taste

Melt cheese in double boiler. Add chopped jalapeno peppers and jalapeno relish. Mix well. Add garlic salt to desired taste.

Use chafing dish or heated serving dish. Serve with chips or fresh vegetables.



A report out of the People's Republic of China informs us that a surgeon there has successfully removed a bladder stone from a patient by inserting a "miniature bomb" inside his bladder and blasting the stone to small pieces. It's reported the doctor is asking for combat pay.

AA Program for '81 Is Published

Sandia's Affirmative Action Program for 1981 has been published and is now being distributed. President Spark's policy statement on the subject has also been published and is now being posted around the Labs.

George Banos, manager of EO/AA Department 3510, reports that this year's program includes significant changes, many of which derive from comments and suggestions by Labs supervisors. Of primary concern to these supervisors were the methods used to develop availabilities for the various job groups within the Labs. Availability figures now reflect more closely Sandia's hiring and promotion history and policies.

Supervisors and personnel representatives have copies of the AAP available for review; the latter also have each vice presidency's detailed AA plan. Frank Gallegos (3510) is coordinating the program and may be contacted on 4-9482 for additional information; he is also available to make presentations on the subject.

At Sandia Livermore, Paul Brewer (8210) reports that the SNLL AAP will be distributed in December. Barry Bolden and Denise Clay (both 8212) are contacts on the program.

Fun & Games

Skiing—Response to the beginner's class in cross country skiing was so overwhelming that a second one is being set up. Dates are Monday, Dec. 22, for the classroom session (7 to 9:30 p.m.) and Saturday/Sunday, Dec. 27 and 28 (9 a.m. to 1 p.m.) for the outdoor sessions. Cost is \$20/person or \$13/person if you already have skis. Call 4-8486 to register.

* * *

Ice skating—A beginner's class in this is scheduled for Dec. 31, running every Wednesday for six weeks from 6:15 to 7:15 p.m. at the Iceland Bowl. Instructor is Joann Brockmeyer, and the class is open to Sandians, DOEans, contract employees and their dependents—kids, too. Cost is \$19/student. Register: 4-8486.

* * *

Swimming—Several lanes at the Olympic pool are now roped off Tuesday through Friday evenings from 4 to 7 for circle lap swimming. "Circle lap" means swimming around the perimeter of the assigned area instead of back and forth in a single lane. More swimmers can be accommodated under such a scheme.

* * *

Motorcycling—A new group, "The Dustdevils Motorcycle Club," has recently been formed on Base, and membership is open to all Sandians and military people, as well as their dependents. Purpose is to bring together all interested dirt bike riders for fun and competition. The club plans to make use of the existing motocross track on Base. If you're interested, call Mike Garcia, 4-2348, or Lee Donlan, 4-4090, for additional information and for dates of the next club meeting.



Sandia National Laboratories Policy Statement

As President of Sandia Labs, I reaffirm our commitment to the principles of equal opportunity. In fiscal year 1981 we will continue our policy of providing equal employment opportunity in all personnel actions for all persons. This policy extends to all of our activities including recruiting, employment, compensation, training, advancement, promotion, transfer, and termination without regard to race, color, religion, national origin, or sex, and in accordance with the laws and regulations concerning age, physical or mental handicap, and disabled or Vietnam Era veterans. Not only will we comply with all applicable laws, directives, and regulations of federal and state governments and their agencies pertaining to equal employment opportunities, but also we will strive to develop the true spirit of these acts throughout the Laboratories.

The program of affirmative action to which we have pledged our efforts has had gratifying results. These efforts plus our conduct of business have advanced the cause of equal opportunity both in the Laboratories and throughout the communities with which we interact. Internally our progress is reflected not merely in numbers of minorities and women on roll but in their greater representation in the professional and technician classifications. The ultimate objective toward which we continue to strive is the optimum use of our personnel resources. Externally our efforts are focused on community involvement, support of educational institutions, and support of minority owned businesses.

Our Affirmative Action Program has been developed with the view of assuring good faith implementation of our equal opportunity policy by all Laboratories people. Information is regularly disseminated through the policy statements, employee news media, and special meetings. Every supervisor is expected to be familiar with our Affirmative Action Program and to take an active and positive role in maintaining and promoting our equal opportunity commitment.

J. R. Garcia, Director of Personnel, 3500, and staff will continue to monitor all equal opportunity activities and report to me on the effectiveness of our Affirmative Action Program, including recommendations for necessary action to ensure attainment of our objectives.

Morgan Sparks



Commuter Notes

Vanpooling at Sandia

Ever wonder about those vans marked "State Employees Commuter Association" and "Sandia Commuters Association" parked south of Bldg. 839? Are there state employees working inside the Tech Area? No, these vans are used by 60 Sandians who have decided that vanpooling is the way to go.

The State Employees Commuter Association (SECA) is a non-profit corporation formed by state employees who commute from Albuquerque to Santa Fe. This organization now provides vans for Los Alamos and Sandia as well as for state employees. The three SECA vans at Sandia serve employees living in the Sandia Park/Cedar Crest, Moriarty/Edgewood and Rio Rancho/Corrales areas.

The Sandia Commuter Association (SCA), also a non-profit corporation, was organized a year ago by Sandians living in the Los Lunas area. They currently operate one van and plan to add a second early next year.

Both SECA and SCA obtain interest-free loans, covering 83% of the cost of the vans, from the Federal Highway Administration. The loans are an incentive to encourage use of energy-efficient ways of

commuting. The non-profit nature of the vanpool organizations, coupled with the interest-free loans, means low fares. Sandia vanpoolers pay from \$33 to \$45 per month. This is less than many spent on gas alone before.

Besides these savings, many vanpoolers find they are able to dispose of a second vehicle; car insurance savings alone are substantial. Other advantages include having a dependable means of commuting; the convenience of parking inside the Tech Area; plus the satisfaction of conserving energy, relieving traffic congestion and reducing air pollution. And, in the event of a gas shortage, vanpools are in the same gas priority category as emergency vehicles.

Three new vanpools are being formed. They will serve Paradise Hills/Taylor Ranch, Edgewood/Tijeras, and Belen/Los Chavez. A few seats may be available on these vans. Also, a vanpool in the Alameda/North Valley area is being considered. Call Barbara Champion or Don Stone at 4-RIDE for more information. They can answer your questions and will give a presentation to any group interested in learning more about vanpooling.

Rounding Up 420 Is One Large Task

If you were to open your own firm here in Albuquerque and discovered that to make the thing go you had to put 420 people on the payroll during the next 12 months, you'd likely conclude that you'd be doing little else during those 12 months but interviewing and hiring. And if those 420 people had to be highly trained engineers, scientists and technicians—skills in short supply today—you might further conclude that your task was overwhelming.

For Marv Torneby, who heads the Labs' Staff Recruiting & Employment Division 3531, that task—recruiting 420 staff people over the next year—is a real one, but Marv is getting a lot of help. Like the head of a movement, Marv deploys throughout the land a host of recruiters to spread the word about Sandia Laboratories. In total, they visit more than 100 schools, talking with soon-to-be-graduated PhDs, MS and BS candidates, and students at technical institutes.

The recruiters come from technical organizations within the Labs and, more often than not, have themselves graduated from the institution at which they recruit. "When the recruiter knows the territory and knows the faculty people, he really has a jump on other recruiters," Marv notes. And any such advantage is welcomed because competition is keen for high quality graduates in technical disciplines. "We're competing with oil companies, with firms from 'Silicon Valley' near San Francisco and with others, many of them able to offer more money. Fortunately, money isn't the only criterion for most graduates, and Sandia's total package does very well in the recruiting marketplace."

On balance, the Labs does indeed do well. We seek—and get—people at the top of their class, the graduates most ardently pursued by other recruiters. The Labs' acceptance rate, i.e., the percentage of those accepting our job offers, is a high 60%.

Why do people come to Sandia? Says Marv, "First and foremost, the Labs has a very solid reputation in colleges and universities. Bright people want stimulating work, and they find it here. Then, too, the Southwest—its climate and life style—is a strong inducement. But I should also emphasize the central role of the recruiter. He or she makes that first critical impression and, when the recruit comes to Albuquerque or Livermore for interviews, the recruiter or another Sandian adds those nice touches—meeting the recruit at the airport, showing him around the city, perhaps having him to dinner at home. These things are important to the new grad and help diminish the feeling of being a stranger in a strange city."

College recruiters from both Albuquerque and Livermore are already afield, talking to June '81 graduates at the BS (for OYOC) and MS levels. This we do as a member of the Bell System team. Most of these recruiters will make another trip to the campus next spring as well. PhD and tech institute recruiting is pursued



COLLEGE RECRUITER Ernest Garcia (1725), one of more than a hundred whom Sandia sends to colleges and universities throughout the country.

separately, and each of these efforts is supported by its own group of recruiters.

Elsewhere on this page is a listing of those schools at which Sandia recruits. For Sandians who know of strong technical candidates who are about to graduate from one of these schools, Marv has a suggestion: tell him about them so that he can pass the information on to the recruiter going to that school. His phone number is 4-7138.

Schools At Which Sandia Recruits

Arizona, Arkansas, UCAL-Berkeley, UCAL-Davis, UCLA, USC, Cal Tech, Case Western, Colorado State, Colorado University, Cornell, University-Florida, Georgia Tech, Harvard, Howard, IIT, Illinois, Iowa State, Kansas State, Kansas, LSU, MIT,

Michigan State, Michigan, Minnesota, Mississippi State, Missouri-Columbia, Missouri-Rolla, Nebraska, NMSU, UNM, N. Car. A&T, Ohio State, Oklahoma State, Oklahoma, Penn State, Pennsylvania, Pr. View A&M, Princeton, Purdue, Rice, San Diego State,

Stanford, Texas A&M, Texas-Austin, Texas Tech, UTEP, Tuskegee, Utah, Washington U, Wisconsin.

Congratulations

To Deanna Adams (5840) and her husband Bert, a daughter, Cristina Adele, Nov. 7.

Labs Recruiting Apprentices

Sandia is placing advertisements in newspapers throughout New Mexico. These ads appear under the heading, "Apprentice Training—Sandia National Laboratories."

The Labs is seeking qualified applicants to fill apprentice slots in six trades programs—machinist, electronics fabrication technician, plant technician (structural), plant technician (mechanical), mechanical measurements and material processing.

Employees are urged to tell relatives and friends of the opportunities in Sandia's apprenticeship program. Successful applicants will complete a five-year training program leading to a Craftsman II position at the Labs. They receive on-the-job and out-of-hours instruction in all practical and theoretical aspects of the trade.

Qualified minorities, women, and handicapped people are particularly sought, according to Personnel Department 3530. The trades areas at the Labs have already seen a gradual infusion of persons in these categories, and Sandia would like to increase their number.

Applicants must be U.S. citizens and high school graduates between 18 and 30 with good learning ability and electrical or mechanical aptitude. They must also meet the physical requirements of the job and undergo a DOE security investigation.

All outside applications must be made through a New Mexico Employment Service Office. Persons already on roll at Sandia may get additional information or apply through Don Duran, Personnel Representative for Orgs. 1000 and 3000, on 4-6348.

LIVERMORE NEWS

VOL. 32, NO. 24 LIVERMORE LABORATORIES DECEMBER 5, 1980



ED HOLBROOK (8411) and wife Wilma collect buttons from past national campaigns.

How They Run: Campaign Volunteers

Campaign slogans like "You Can Make the Difference" have meaning for many citizens who make up the grassroots volunteer force—the votes behind every political campaign that spell victory or defeat.

Several Livermore Sandians have been caught up in that political process, and LAB NEWS talked to some of them after the November elections.

A notable behind-the-scenes volunteer for many campaigns in the area is Ed Holbrook (8411). Both Ed and his wife Wilma have been active in Republican politics as far back as the '64 Goldwater campaign. A high point was the '76 presidential race when Wilma was a delegate to the Republican National Convention and Ed was a county GOP central committeeman—a post he has held for nine years.

Ed has also worked at state and local levels and has been president of the Livermore Republican Assembly, a regional VP in the California Republican Assembly, and Livermore's GOP precinct chairman. That's a lot of blocks walked and leaflets distributed over the years.

Another Sandian involved in the national campaign is Lars Selberg (8342), Contra Costa county petition-drive coordinator in the Anderson-for-President campaign. Lars undertook the sizable nights-and-weekends task of collecting enough signatures to help put Anderson on the November ballot, then this fall stayed active in the Anderson-Lucey campaign.

Lars says he'll continue to have an interest in politicians "taking a rational approach to responsible government," and

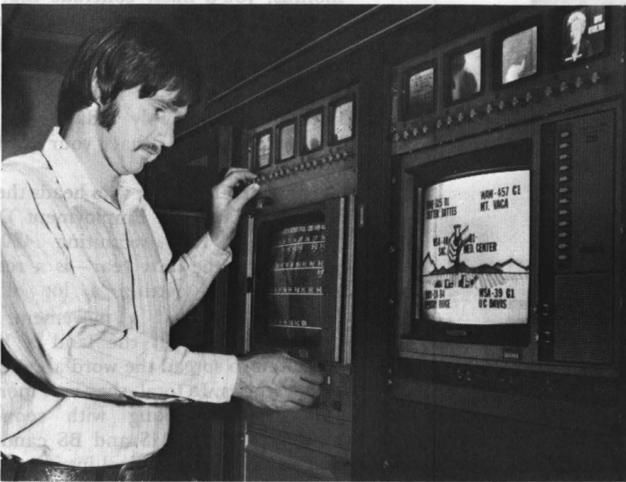
foresees more volunteer work in the '82 Senate campaign.

A Sandian with calluses to show for his part in a campaign is Dick Demo (8111). He served as sign chairman for former Sandian Gib Marguth who waged a successful race for the legislative seat in the 15th District. Dick and his crew put up some 1000 signs (the job included the cutting of stakes and braces), then took them down afterwards. He also served as treasurer for a city council candidate in 1972.

A fellow sign volunteer, Sandian Jim Carrell (8442) is no newcomer. His wife Betty (a former Sandian) was campaign chairperson for Marguth. Jim (as well as Dick) has also helped Betty run her twice-successful school board trustee campaigning. As for his own political aspirations, "I don't think I would want to run myself."

Chuck Hartwig (8442) is another veteran of local campaigns. He became active when he first moved to town 10 years ago and has worked for some candidate in every election since then. This fall, he was asked to be treasurer for country board incumbent Valerie Raymond. In the past, he has organized precinct walkers in the local Zone 7 water board race, was sign chairman for the same county board candidate four years ago, and has walked precincts for various city council hopefuls over the years.

Chuck explains his participation: "This is one way you can express yourself, by working for the person or issue you believe in. It makes you feel that your ideas and beliefs are represented. It's satisfying and productive, getting to know my community and its issues."



STUDIO ENGINEER Brian Chamberlain adjusts new automated switching system.

Learning With An Electronic Assist—Still Not Easy But Convenient

Sandia Livermore has automated its Educational Television Facility with the addition of a new electronic switching system.

The new equipment, installed in time for the fall classes, includes a micro-processor-controlled electronic switcher that automates the programming/scheduling for all courses. Jim Smith (8214), project leader for ETV, explains that "we record the schedule at the beginning of each quarter—our master schedule—and the new switcher then automatically receives the classes being transmitted by the Labs' repeater antennas atop Mt. Diablo, routes them to the individual student carrells at the right time, and records each class for makeup sessions and review." The new system also prints out a log of ETV activity each day and lists classes scheduled for the next day as well.

One person was needed to operate the existing mechanical switching system, and it lacked flexibility. Now, studio technician Brian Chamberlain (8214) loads two cassettes two or three times a day and is able to handle other ETV responsibilities as well.

When a call comes for a class makeup or review, registrar/programmer Ramona Anderson (also 8214) or Brian instructs the computer to run the tape upon a specific classroom carrell at the time requested. The requester must be prompt: the automated equipment starts and stops the tape exactly as programmed.

With the new ETV installation, Sandia can broadcast 15 classes simultaneously at three locations on site. The microwave and coaxial cable system links SNLL with LLNL, Stanford, UC Berkeley, UC Davis, Golden Gate College and College of Notre Dame. Most of the courses are live so that

students can carry on two-way communication with the instructor.

Looking beyond, the possibility of getting engineering and science courses via satellite from more distant universities is being investigated.

This fall, 53 technical and six non-technical courses were offered; 177 enrolled.

When the learning facility was first opened in 1971, its cost was nearly recovered the first year because of reduced travel to classes in the Bay Area.

ETV is also expanding its capabilities to produce training tapes on site. A training class on the new Cray computer was recently taped for later use by computer programmers.

Since the beginning of Educational Television, seven Sandians have earned PhDs and eight others their master's by taking nearly all their coursework on site. Before ETV, many staffers wanted continuing education programs but were understandably reluctant to take on such a major commitment. With ETV, learning is still a major commitment but, at least, the convenience factor is much improved.

Death



Maurice "Morey" Coil, a senior camera operator in Division 8273, died Nov. 23 of a heart attack. He was 60 years old.

He had worked at Sandia Livermore since 1967.

Survivors include his widow, a son and a brother.

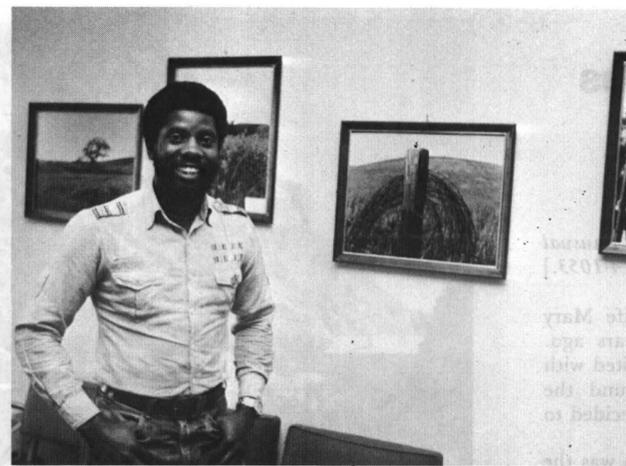


EXHIBIT OF PHOTOS by Marv Kelley (8444) features Livermore Valley scenes, but Marv also enjoys shooting weddings and portraits. Hobby goes back to high school days when he worked for a professional photographer doing yearbook photos and covering sports events. Later, he took photography classes at Laney College. Marv joined Sandia over a year ago as an ESA and does nondestructive testing work. You can see his exhibit in Bldg. 911.

Take Note

Walt Bauer (8340) visited Japan recently as a member of the American team operating under the U.S.-Japan Fusion Cooperation Program. The exchange program focuses on fusion materials research. Walt was responsible for the plasma materials discussions and made two presentations: "Hydrogen Recycle Research in the United States" and "Recent Results of Coated Limiter Program at Sandia." He also visited Japan's Atomic Energy Research Institute Laboratories and universities at Osaka, Nagoya and Kyoto.

Walt reports that funding for the Japanese fusion program has rapidly increased. They are now building a major Tokamak, JT-60, which will incorporate coated components, a technology of great interest to Sandia.

The recent Blood Bank Drive at Sandia Livermore was again a big success. One hundred twenty-eight employees donated blood, with 77 units going to the Sandia Blood Bank and 51 to the Kaiser Health Care Plan.

Congratulations

To Art Van Hook (8342) on the death of his father in Houston, Texas, Nov. 3.

To Sandy Mondot (8264) on the death of her father-in-law in Danville, Calif., Nov. 7.

Sympathy

Mr. and Mrs. Jim Shelby (8342), a daughter, Stephanie Rachel, Oct. 28.



A regulation for Kingswat Tunnel in Liverpool, England, states: "The driver shall cause his vehicle to enter the tunnel via an entrance and, after proceeding through the tunnel, to leave via an exit." —Family Safety

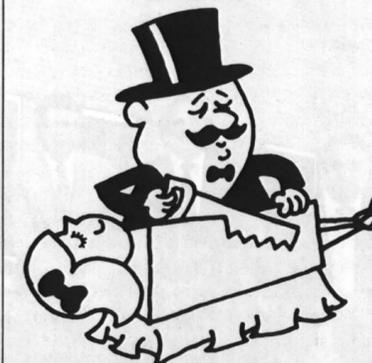
In Newcastle, Australia, a man who claimed his pet kangaroo made him swerve off the road by jumping off the front seat of the car was fined and had his driver's license suspended. He was hopping mad at the verdict. —Family Safety

Retiring



Herman Von Steeg (8423)

Perform a death-defying act.



Reduce if overweight.

Give Heart Fund American Heart Association

Unusual Vacations

Sandian Makes 2nd Trip to Yugoslavia

[Ed. Note: Have you taken an unusual vacation? Tell us about it. Call 4-1053.]

Fred Bentz (3713) and his wife Mary vacationed in Yugoslavia two years ago. Mary, of Yugoslavian descent, visited with relatives, and she and Fred found the country so interesting that they decided to return again this year.

One unusual aspect of this trip was the travel arrangements. Working with the local representative of a travel agency in Cleveland, which has a large Slavic population, Fred and Mary were part of a tour group of 19 (mainly from Albuquerque) on a tour coordinated by a Yugoslavian travel agency. Yugoslav Airlines makes a weekly flight from Belgrade and Ljubljana to Cleveland and Chicago. The travel agency, utilizing the airlines return flight, offers some money-saving tours.

Fred and Mary joined a two-week tour of the country and then took a one-week cruise through the Greek Islands. Returning to Yugoslavia, they left the tour, rented a car and spent three more weeks visiting relatives. They then joined another tour group for their return to the U.S.

"Traveling within the country is easy and the cost is reasonable," Fred says. "During the last of our visit, we used a rental car, buses and planes. A 400-mile bus trip cost \$6 each. The food is good—a nice meal with wine at a good restaurant runs about \$6 a person. In addition to the standard lamb, pork and veal, many menus feature wild game—elk deer and boar.

"The country is tourist oriented. The Adriatic coast has long been popular with European tourists. Under Tito, the country underwent a beautification project and, consequently, flowers are profuse, not only in government projects, but also in most homes in flower boxes and plantings.



A RELIC OF OTTOMAN ARCHITECTURE, this ancient stone bridge in the town of Mostar is a popular spot for picture taking.

"The government is beginning to restore old ruins as tourist attractions. Department stores, operated by the government, are full of goods. The people are friendly and in the villages often offer you homemade wine and cheese.

"Accommodations run the gamut: first-class hotels, numerous government-operated auto camps for tents and trailers, or rooms in private homes. The latter is popular along the Adriatic where students flock to backpack and to soak up the sun."

* * *

Logistics—Round-trip Albuquerque to Cleveland to Ljubljana with tour bus, guide, lodging and two meals per day cost \$1450 each for two weeks. The seven-day Greek Island cruise was extra, \$1100 per person. Fred adds that Yugoslav Airline fares are very reasonable; persons interested in travel in Europe might consider using this airline to reach Belgrade, then

use local transportation for further continental travel.



SARAJEVO, capital of Bosnia-Herzegovina, underwent conquest by the Turks. Picturesque minarets and mosques dominate this medieval city. History buffs will recall Sarajevo as site of the incident (assassination of the Archduke) leading to outbreak of WWI.



SVETI-STEFAN is one of many small islands along the Adriatic coast which have changed from small fishing villages to plush resort complexes.



WESTERN ELECTRIC auditors recently wound up their audit of Sandia Labs and have now returned to their WE locations around the country. They are (standing, l to r) Dan Cobucci, Frank Henke, Vern Husa, Leo Graham, Don Zurovsky, Ted Lathrop and John Holecsek; seated, Larry Tepper and Mick Osman. The audit of the Labs business procedures is an annual function.

Take Note

The New Mexico Symphony is offering a Beethoven Festival in the coming week, Dec. 11, 12 and 13, with performances of old LVB's Top 40 at Keller and Woodward Halls as well as Popejoy. Climax of the Festival comes with the playing of that sublime expression of musical genius, the Ninth Symphony, on the final day. Try the Symphony office, 842-8565, for tickets.

* * *

Coming up on KNME, Channel 5, on Dec. 10 is the documentary "The Shatterer of Worlds" which explores the development of the atomic bomb. The release states that the program "... utilizes a humanitarian approach to the historical and scientific development of the bomb and includes remarkable historical film footage..." The one-hour program starts at 8 p.m.

* * *

The YWCA writes us concerning their "Holiday day camp... a great gift. Two sessions (three days each) are offered at the YWCA Blue Triangle Camp in Tijeras Canyon. Youngsters in grades one through seven participate in many crafts and outdoor activities—hiking, cooking, snow play and snow sports." The "Y" picks up the kids at locations in town, provides food, craft materials, a swim party, supervision and more, all for \$25/child. Dates are Dec. 22 to 24 and 29 to 31. Call 247-8841 to register and to get more information.

* * *

The Sandians is an organization for wives of past and present Sandia staff members, associates and assistants. Purpose is to provide educational, social, and other activities to its members and to help introduce newcomers to Albuquerque. Meetings are held on the first Monday evening of each month and include a speaker or other type of program. There's also a babysitter coop, plus several social events each year. Call Marjorie Berry, 294-3549, or Kitty McLellan, 299-0266, if you're interested.

* * *

If you have a youngster, 16 or older, who needs work, the Base operates something called "NAF Employment" that offers jobs such as food service worker, custodian, waiter, cook, recreation aide, sales clerk, cashier and others in the same vein. The work may be full- or part-time. NAF Employment has a personnel office in room B1 of Bldg. 20203A (across street from fire station). Or you can call, 4-8595 or 4-4939.

* * *

Bill Boyes (1221), Dori Miller (1542), Doug Ballard (1551) and Ruth Ronan (1423) were speakers last month at APS's Career Enrichment Center. The four were part of a program to provide students and faculty people with a look at engineering and scientific work in order to better plan future education. The presentations were made under the auspices of the American Society of Quality Control.

Retiring



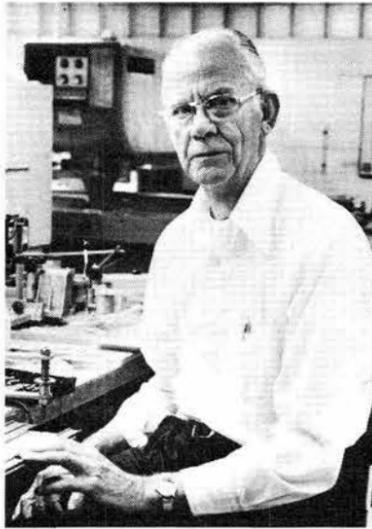
Nelle Satathite (2631)



Wilber Grisham (1211)



George Browning (3418)



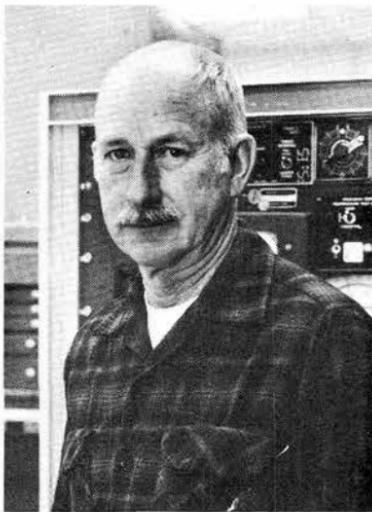
Charles Boston (1474)



Winford Watson (1733)



Charles Allen (1213)



Charles Carlson (2153)



Corry McDonald (2426)



Neith Pollard (1554)

Attention amateur photographers: the Images Amateur Photographers Guild presents its second major photographic show Saturday & Sunday, Dec. 6 & 7. Show hours are noon to 5 Saturday, and 10 a.m. to 4 p.m. Sunday. Over 100 photographs, representing the work of 20 IAPG members, will be on display. The exhibit is at 1500 Indian School NE. There is no charge for admission.

* * *

Sandians are eligible to use the Que Pasa Snack Bar at the new KAFB Recreation Center. It's open weekdays from 11:30 a.m. to 1:30 p.m., and from 4:30 to 9 p.m. Breakfast is served from 9 to 12 every Saturday and Sunday. The snack bar is in Bldg. 20155 (the former NCO Club), located south of the Coronado Club pool patio.

Two noontime programs from Sandia Medical are planned next week in Bldg. 815 (outside the Tech Area). First, part of the "Go For Health" series, Dr. Judy Ewing from Sandia Medical will present "For '81—Why Not Choose Health?" The presentation includes a brief test, "Health-style," which identifies aspects of lifestyle that are risky to health. Date of this program is Dec. 9. The second program is set for Dec. 12, also from 12 to 12:30 p.m., and is part of Medical's "Let's Talk About Aging" series. Nutritionist Susan Brammer from Sandia Medical will present "Eating Well As We Age" and will discuss diet, food and other nutritional factors as they relate to the aging process.

* * *

Is your organization sponsoring a Christmas charity project? The LAB NEWS wants to hear about it. Call Norma on 4-7841.

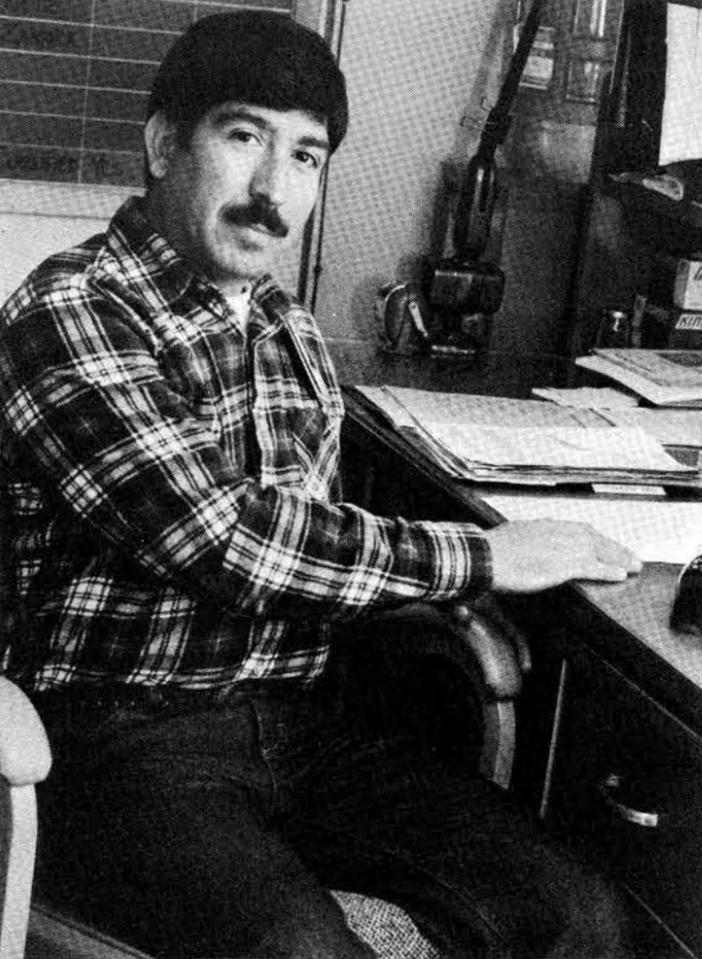
MILEPOSTS
LAB NEWS
DECEMBER 1980



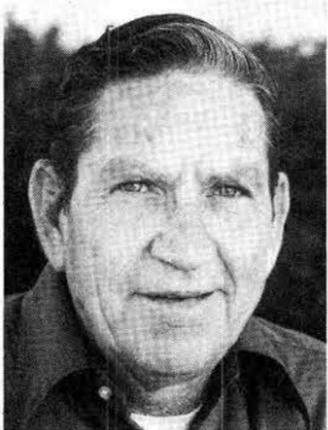
Ray Foster - 1131 15



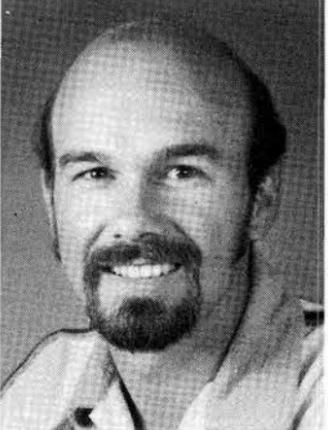
Thelma Harrell - 1250 15



Nestor Zamora - 5836 15



Norm Colcleasure - 8257 15



Art Hayes - 8271 10



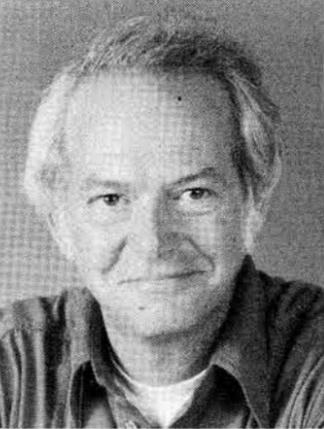
Bill Ormond - 8261 15



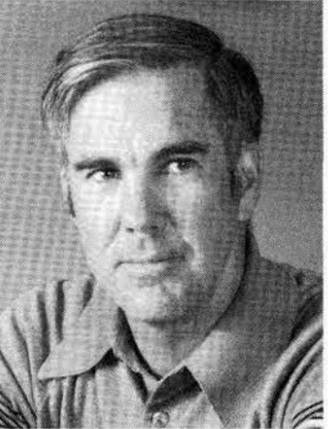
Stanley Landrith - 6021 30



John Panitz - 5114 10



Floyd Kent - 8352 15



Al Baker - 8452 15



Bob Coates - 8412 20



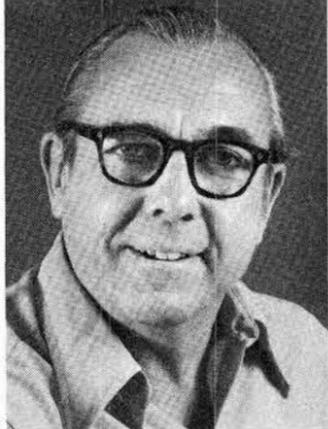
Ed Kuroski - 8257 30



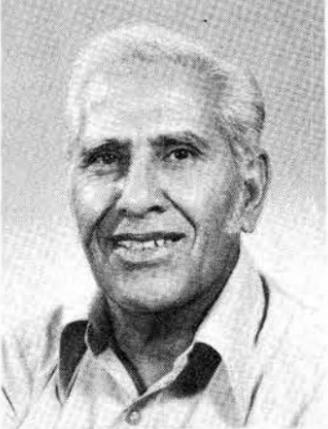
Michael Butteri - 3733 25



Joseph Lasinski - 2332 20



Bob Schaltz - 8412 20



Marcus Herrera - 1481 30



Sam Myers - 5111 10

CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday. Mail to: Div. 3162 (M0125).

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 DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name & organization.
9. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

SANDIA LABS CAPS, \$4.25; aerial photos of Tech Area: 11x14", \$3.50; 16x20", mounted, \$12. T-shirts sold out—new shipment in January. LAB NEWS, M0125/814.

MINIATURE Dachshund free to good home, male, approx. 5 yr. old. Sullivan, 299-1348.

FULL SIZE BED, bookshelf headboard, footboard, box springs & mattress, matching chest of drawers w/mirror, \$225; crib w/mattress, \$65. Jarrell, 293-9671.

SNOW TIRES, 2 AF/13 studded radial tires mounted on Pinto rims. Pepping, 299-1291.

SEARS 16 cu. ft. refrigerator w/ freezer section & icemaker, compressor shorted, \$65. Horton, 883-7504.

ROTEL model RX-402, 25 W/Ch min., AM/FM stereo amplifier/receiver, in orig. pkg., w/manual, \$225; Sunbeam ¾ hp gas engine, 2-spd. weed eater & trimmer, \$25. Dahl, 256-1067.

PICKUP truck tool box, fits std. wide bed, white, metal, lockable, never used, still in box, \$120. Barr, 884-4582.

HOT POINT refrigerator, \$50. Reter, 296-5623.

TWIN LID, across bed tool box, fits LWB pickup, \$75. Owens, 881-0815.

SNOW TIRES: Firestone Snowbiter A78-13, used one season (about 5000 miles), \$35/pair. Burd, 884-9133.

DIAMOND earrings, ¼ ct. each, new, solid 14K yellow gold studs, \$850. Schmidt, 299-7305.

MOTORCYCLE or dirt bike bumper-mount rack, up to 185cc; 9.50x16.5 or 10.00x16.5 tire chains. Fisher, 881-8072.

FAIRCHILD TV game w/5 cartridges, \$100; jogger exerciser (treadmill), \$180; amateur radio show scan camera & monitor, \$300. Cochrell, 298-2068.

TWO studded snow tires, Sears Dyan-glass XST J78-15, approx. ¾ tread remaining, \$50 pr.; 1 set tire chains, lug reinforced, fit 8-25-15 or F78-15 or smaller, \$18. Strome, 256-3324.

HOPE CHEST, 19x115 inches, \$150. Dalphin, 265-4029.

COLEMAN HEATER, catalytic camp type, 5000 BTU, \$15. Smaier, 881-7981.

SADDLES; dishwasher; antique oak icebox; piano; Childcraft; antique banjo ukles; 1866 Winchester; Noritaki bluebell china; oil paintings prints. Cooper, 869-2198.

CAMPER SHELL for Datsun, insulated, inside paneling, \$150. Chavez, 294-7933.

KENWOOD stereo integrated amplifier model KA-5500. Babicz, 299-5938.

CANOPY METAL, 28'w, 180'1, heavy gage metal roof sheet, Y-shaped, boxed steel beam poles, dismantled, sell all or part. Montoya, 243-2632.

REFRIGERATOR, washer & dryer. Ball, 292-2740.

ICE SKATES; men's new size 11, ladies' size 7½; metal typewriter table. Cox, 299-0480.

PING PONG TABLE, folding on wheels, \$35. Lloyd, 299-4372.

BAR DOORS, 1 pr. swinging slatted, stained dark brown, 47x24", \$15. Marchi, 299-3653.

BICYCLE, boys' 20" Schwinn w/training wheels, \$35; skis, Sabre 130's, size 5 boots, Soloman bindings, poles, \$40. Kinney, 298-5281.

LIONEL 029 train set, extra track, cars, switches, cross, derail, etc.; total retail value over \$300, \$200 or will consider offers on part (kids' toy, not for collectors). Barnaby, 265-4353.

15" So. Bend lathe, 3 & 4 jaw chucks, \$1175. Dain, 881-0639.

AUDIO EQUIPMENT: Marantz 75w per channel integrated amp, \$225; Marantz 20W per channel amp, \$65. Rogulich, 292-3815.

BACKPACK FRAME, \$15; AMF pro classic bowling ball, \$10; repair manual for Chevelle, El Camino, Monte Carlo, \$5; parts from 1976 Honda XL350, make offer. Barnard, 831-4114 evenings.

VIETNAM POW-MIA bracelet, still in wrapper, copper, \$19.50, or nickel, \$17.50. Smith, 292-0825.

FLEXSTEEL couch, brown, \$100; small Mexican rush chair, \$18; antique radio, mid-30s, broadcast & short wave band, \$40. Birdsong, 299-3529.

POOL TABLE, 4x8 slate top, \$400 plus \$100 take down & set up by 4 Star. Robertson, 299-7561.

LG. WONDER spring horse, \$25; 2 motorcycle helmets, \$8, \$10; tri-cycle, \$8; metal skates, \$2; diaper pail, \$2; barn, \$1; garage, \$5; swimming pool, \$15; games. Dixon, 298-5617.

EXERCYCLE, Sears best flywheel model, cost of \$100, sell for \$60. Caskey, 294-3218.

PUPPIES, Lhasa Apsos, AKC champion Hamilton bloodline, paper trained, shots, ready by Christmas, \$225-\$250. Donaworth, 294-4637.

COLT PYTHON .357 magnum 6", new \$390; Smith & Wesson model 39 auto., 9mm nickel, new \$260. Haaker, 293-1077.

PIANO, 4 years old, Baldwin spinette, \$850. Hale, 298-1545 after 5.

FIRESTONE Snowbiter M/S JR 78x15 steel radial whitewall tires, \$42 ea. Nelson, 881-0148.

FIVE 15x8" chrome rims w/70 series steel belted radials, 5½" diam. 5-bolt pattern, \$250. Reif, 299-2665.

STOVE, 30" drop-in, \$150; swing set, \$40; dbl. peg table, \$15; spring horse, \$20; assorted Fisher Price toys, childrens clothing \$2 & under. Crawford, 881-1593.

RANGE, elec., dbl. oven, coppersone, continuous clean, \$150; paint, dark brown exterior trim, oil base, semi-gloss, \$3.50 per. Rainhart, 821-3690.

AUTO speakers: two pair, Clarion SK99's 3-way, \$75 new, \$65; Jensen 5¼" coaxials, \$55 new, \$45; both \$100. Hesch, 881-9874.

CAMP STOVE, Coleman, 2-burner, \$20; Coleman dbl. mantle lantern, \$15; 10-gal. Igloo water jug, \$10; platform rocker, \$20. Keller, 299-2451.

SADDLE, Western Pleasure by Circle Y, 15½/16" seat, oil finish, \$375; camper shell for short bed import, alu. over steel frame, insulated, paneled, full ht., rear door, lights, \$350. Fleming, 869-3681.

SKI JACKETS, girl's small, lt. wt., short length, lt. red or lt. green, \$10 ea.; port. toilet, rugged design, \$35. Stevens, 299-6086.

28MM F2.5 camera lens, wide angle for 35mm camera, universal thread mount, Vivitar, list \$125, ask \$60. Norwood, 292-0072.

MINK STOLE, cerulean, furrier appraisal \$1200, consider best offer; Harman/Kardon AM/FM tuner, \$40; Sony 264D tape deck, \$75. Harris, 299-6664.

LUMINARIAS by Boy Scout Troop 444, \$2.25/doz. delivered, \$3.25/doz. delivered & set up. Nokes, 884-5279.

GOOD HOMES needed for 2 house-broken 6-mo.-old puppies, strays who have adopted me. Walters, 881-7027.

PET GATES: 28" h, 28.5" to 42", Sears; 24" h, 27 to 44", Nuline, \$5 ea. Weirick, 281-1462.

CHEST (armoire) solid pecan, shelf & 2 drawers behind doors plus 2 lg. drawers, 2 yrs. old, \$350. Kunz, 293-0225.

GE DISHWASHER, portable, \$65; Hanksraft humidifier, \$7; Sears electric facial mister, \$6 or both for \$12. Norton, 344-1329 after 5.

16" REMINGTON chain saw, \$90. Smith, 384-2396.

CHILD'S ski pants & matching jacket, green & white, for girl up to about 5' tall, \$35 for both. Karnes, 884-8674.

NEW RINGS & PISTONS, 1932 Austin 6; new front wheel sealed bearings, 1957 Buick Special, best offer. Anderson, 293-3432.

J. C. PENNEY washer, elec. dryer, white, 2 mos. old, cost \$570, both \$470; queen size bed, box spring, mattress & frame, \$150. Teta, 821-5172.

THOMPSON Contender 44 mag, \$165; Leupold 2X pistol scope, \$75; Leupold ring & mount, \$19; S&W model 52-2 .38 special target pistol, make offer. Ma, 883-4438.

PACIFIC DL-155 shotshell reloader, new \$65; several new SKB shotguns, below wholesale. Svensson, 898-3078.

RIFLE, 30.06 Remington, 77 BDL, 4X scope, case, 3 bxs. ammo, \$200; Savage 243 99F, 4X scope, case, \$100. Hernandez, 268-5000.

LIONEL 0 & 027 track, switches, locomotives, cars, transformers, accessories; will sell or trade. Campbell, 299-4830.

KEITHLEY MODEL 130 digital multi-meter, new, \$90; Heathkit GD-18 electronic siren & PA w/horn, \$80; 2500 watt engine heater. Campbell, 294-6000.

GREENHOUSE fiberglass, 2½ rolls; glass fireplace doors, 25"x40"; sun-tem solar collector fluid. Edenburn, 869-2911.

POTTER'S WHEEL, electric, variable speed, splash pan, bats, \$225. Carlson, 268-9726.

SOLAR POOL COVERS, retain heat, used on C-Club pools. Lenz, 844-8486.

DEADLINE
for next
issue of
Lab News
is Friday,
Dec. 12.

DEADLINE
for Jan. 9
issue is
Wednesday,
Dec. 24

USED ski boots, Raichle, \$50, women's size 7. Knight, 292-6329 after 5.

IRISH SETTER, 3 yrs. old, can have puppies, pure, certified breed, \$125. Krause, 292-4855.

PUREBRED Norwegian Elk Hound, male, 2½ yrs. & female, 1½ yrs, \$75 ea. Little, 881-3270.

PENTAX KX CAMERA SYSTEM: includes Pentax SMC telephoto & wide angle lenses, lenshoods, skylight filters, camera & lens cases, \$350. Brewster, 898-0144.

PREWAY green freestanding fireplace. Grandstaff, 268-5974 before 6.

SNOW TIRES, 7.35-14 on Plymouth/Dodge wheels, \$40 pair; wide Jackman wheels, 6-hole Chevy/GMC, \$90 for 4. Hammons, 281-1205.

RADIO, AM/FM, desk/table top, dual speakers, cassette player, clock, alarm; 3 mos. old, \$70/catalog, sell for \$45. Shunny, 265-1620.

UNM basketball season tickets, bench seats, NW corner, Section 23, Row 27, seats 3 & 4, parking west of football stadium included, \$150. Hobbs, 268-6461.

ANTIQUE English piano, almost 100 yrs. old, needs good tuning, \$350 negotiable. Leili, 884-5765.

HAND-CRAFTED solid ash dining table, 42" diameter top, trestle-style base, mellowed natural finish, \$400. Nelson, 256-0675.

SL-8600 SONY Betamax, VTR, 3 hr. playback. Tafoya, 883-6090.

REFRIGERATOR, \$150; washer & dryer, \$200. Ball, 292-2740.

ELECTROLUX tank vacuum w/attachments plus rotary brush carpet cleaner, \$50; Kroehler ¾ hide-a-bed lounge, \$200. Palmer, 296-2551 or 881-5165.

OME single X banjo, case, strap, Keith tuners, \$800. Downs, 293-9320.

SNOW TIRES, 2 nearly new, 5.60x15 tires for VW, \$50. Muench, 867-5115.

TRANSPORTATION

73 BUICK Regal 2-dr., PS, PB, AT, AC, Cruise Control, 60,000 miles, \$1500 or offer. Rayner, 821-5534.

73 PLYMOUTH Fury III, 2-dr., AT, PS, PB, AC; new brakes, tires & lifetime battery, best offer. Azouz, 266-3512.

71 LE MANS, body & interior need work, make offer. Lyons, 296-8866.

78 YAMAHA motorcycle, DT100E Enduro, lights, 1800 miles on complete engine overhaul (5/80), \$450. Hole, 255-1444.

HONDA 305, needs some electrical work, \$175. Owens, 881-0815.

'68 FORD 2-dr., 302 V8, AC, PS, R&H. Higgins, 298-8092.

'79 MARK TWAIN 15½' tri-hull, open bow, 70 hp OB Merc. Nutt, 821-1857.

'80 KAWASAKI 750 LTD, low mileage, extras, 45+ mpg. Adzija, 293-1818 after 5.

'73 GRANDE Mustang, 351, AT, AC, PS, PB, AM-FM stereo cassette, dual exh., trac. bars, tach, new dash, etc., \$1900. Poole, 298-6025.

JEEP CJ5, 3-spd., power take off winch, V6, recent overhaul on engine, body solid, HD tow bar. Arana, 299-1214.

'79 FAIRMONT Squire wagon, 15,000 miles, V8, PB, PS, PW, power door locks, stereo, AC, cruise, \$5600. Pope, 255-6702.

BICYCLE, girls, std., 26", \$25. Lloyd, 299-4372.

'79 VOLKSWAGEN Rabbit, 4-spd., AC, AM-FM stereo cassette, 20,600 miles, \$5500. Harris, 821-8524.

'79 YELLOW MONZA sport hatchback coupe, AC, PS, AM-FM stereo radio, HD battery, V6 engine, 4-spd., \$4400. Hobbs, 268-6461.

'80 VAN, ¾ ton, 318 cid, AC, PS, PB, PW, P locks, towing pkg, halogen lamps, more, 4500 miles, \$7500, terms. Johnson, 268-1043.

BICYCLE, boys' 24" frame & wheels, 10-spd., red. James, 292-1606.

'78 MAZDA GLC, gold, 4-spd., 30+ mpg, radials, AM/FM, many extras, still under warranty. Shortencarier, 292-3575.

'69 FORD ¾ ton van, 302 V8 engine, newly rebuilt AT & new shocks, \$1300. Walters, 881-7027.

BICYCLE, 10-spd., boys, Sears Free Spirit, ridden twice, \$90; tape deck, 8-track, \$75. Dykes, 298-4754.

'77 DIESEL RABBIT, sunroof, AM-FM stereo, list \$4500, make offer. Clark, 296-3924.

'78 KAWASAKI KZ200, street equipped, adult ridden, 3000 miles, elec. start, windscreen, 70 mpg; 2 helmets, \$675. Varnado, 294-2783.

'77 DATSUN pickup, 4-spd., \$3000 or best offer. McCaslin, 298-1693 after 5:30.

'74 CORVETTE T-top, AC, black interior, T/A radials, luggage rack. Perryman, 294-6113.

'73 MUSTANG, green, black vinyl top, chrome rims, \$1500. Esterly, 821-0077.

'80 VW Rabbit, 4-dr., AC, AM-FM cassette, 12,000 miles, under warranty, \$500 under used retail, \$6250. Leonard, 865-5338.

'73 MOTO Guzzi, 850, Eldorado full dress w/small trailer lights, \$1800 or best offer. Armijo, 268-7645.

REAL ESTATE

'74 FAIRWAY mobile home, 2-bdr., 2 baths, carpeted, drapes, Four Hills Mobile Park, \$9000 cash or \$3000 down. Miller, 296-0205 night, 255-0002 day.

HOUSE, SE heights, \$28,500. Lerma, 881-3836 or 881-0015.

4-BDR. HOUSE, extra lg. lot, professionally landscaped, 16x32 covered patio, huge master suite, Coronado/Winrock area, \$68,500. Ripi, 884-4683.

NE HTS. HOUSE, encl. courtyard, 3-bdr., LR, FR w/fp, 1730 sq. ft., near school, park & tennis courts. Jones, 298-6422.

'80 TOWN & COUNTRY mobile home, 14x75, 2-bdr., 2 bath, assume plus best offer down. Stibick, 821-8112 days.

'75 ACRE, old adobe house, in South Valley, selling cheap. Cordova, 277-5528.

FOR RENT

3-BDR. passive solar house on 11 acres, horses OK, 10 miles south of Tijeras, improvements count toward rent. Ahrens, 281-3920.

SANTA CLAUS, have suit, will travel to party, other occasion. Lenz, 844-8486.

WANTED

DRAFTING TABLE, complete unit. Korak, 296-1165 after 5:30.

NEED minor carpentry assistance: adjust doors, install door locks, adjust windows, etc. Underhill, 294-5774 after 6.

BENCH SEAT for 1979 Ford van. Slater, 294-5858.

BARBELL/dumbbell weight lifting set. Cummings, 292-0524.

DOG HOUSE. Crawford, 881-1593.

WORLD BOOK encyclopedia, 1970-1980. Sherman, 292-3297.

ROOMMATE to share 1300 sq. ft. home in NE, \$275/mo. plus ½ of utilities, non-smokers. Johnson, 268-1043.

VIDEOTAPE of "Centennial," Part 7, broadcast 10/11/80, to borrow (VHS or Beta) to copy, or will trade blank tape. Lambert, 293-8825.

SERVICE MANUAL for '74 Ford F100 w/V8, 360 eng. Stuart, 265-7315.

TIRE, 600 or 650x16, any kind of condition. Bauhs, 281-3497.

WOULD THE gentleman who offered to sell me a grape press please call me again? Harrison, 883-5411 after 5.

COLT, government model, automatic, any caliber, any condition. Ma, 883-4438.

GUN CASES, for rifle, shotgun & pistol. Baxter, 344-7601.

OLD PIANO. Rapp, 892-5756.

BABY CRIB & mattress, will pay cash or trade 185 Fischer skis. Marrs, 822-0367.

DUST COVER for phonograph 12" wide, 14 to 20" long. Colgan, 344-3776.

PIANO. Lockner, 292-6374.

WORK WANTED

SMALL masonry jobs such as fire-places, block walls, or brick work, estimates given. Mike Rogers, 344-9991 or 256-0066.

WILL DO yard work or odd jobs. Clifford, 344-8404.

SHARE-A-RIDE

NEED desperately to pay to ride only from Comanche-Carlisle area to DOE, hours: 7:45-4:15. Lehner, 846-5126.

ABQ. to N. Carolina: leaving Dec. 20, returning Jan. 3, 1 rider wanted, \$75 ea. gas cost. Clay, 265-5188 after 6.

LOST AND FOUND

FOUND—Men's blue/red jogging shorts, black & white sweater, ladies Rx glasses (found in Bldg. 840), blue baseball cap, gold cuff-link w/Mona Lisa, men's brown pants & pink shirt, ladies blue & white scarf, key in white envelope marked "Safe Deposit" (found north end of Bldg. 806), Ford auto key w/black rubber head.

LOST—Keys in black leather case, ladies bi-focals, black glove, red & blue tie, silver earring, men's sunglasses, 5 keys on key ring (includes Chrysler key), reading glasses, 6 keys on ring, bank book, hearing aid, heart-shaped key ring with 6-8 keys, sunglasses w/sun sensor lenses & brown plastic frames. LOST AND FOUND, Bldg. 814, 844-7885.

Party Tonight; Kids See Santa Dec. 13

TONIGHT the holiday season officially starts with a super Christmas party for the Club membership. Happy Hour starts at 4:30, Gary Waters and guitar entertain in the main lounge from 5 to 7, platters of hors d'oeuvres are available, a sit-down dinner with choice of strip steak, beef Wellington or broiled lobster (at \$7.25 each) is served from 6 to 9, and "Southside" plays for dancing from 8 to midnight. Use your calendar discount ticket. No reservations for dining are necessary.

CORONADO GRANDSQUARES' annual potluck and Christmas party event is set for Monday, Dec. 8, starting at 6:30 p.m. The word is, "bring a dish and table service—beverages are provided." Square dancing with John Lewin calling follows dinner.

SANTA CLAUS drops by the Club Saturday, Dec. 13, at 10 a.m. for the annual Kids Christmas Party. Bring your little ones (and cameras) for a special visit. Puppeteers Ron and Mary Kay have a new show, a choir will sing carols. There's goodies galore for the little ones.

NEW YEAR'S EVE is a big, beautiful bash at the Coronado Club with dancing upstairs and downstairs, party hats, favors, good cheer and breakfast served shortly after midnight. The Freddie Chavez Foundation plays upstairs, Bob Banks and Trio hold downstairs. The lounge opens at 6 p.m. Tickets—member couples \$16, guest couples \$21; member singles \$8, guest singles \$12—*must be picked up by Thursday, Dec. 18.*

TRAVEL DIRECTOR Frank Biggs (4231) reports a few spaces are left on the Rosebowl parade/Disneyland/Animal Safari/Grand Canyon tour set Dec. 28-Jan. 4



SKI FASHIONS are modeled by "Hank" King and Harvey Morse (1714) to promote the Coronado Ski Club Ball scheduled Tuesday, Dec. 16. A fashion show by Aspen Leaf is part of the entertainment planned. Youngblood will play for dancing. Happy Hour prices will be in effect all evening. Reservations and tickets (\$2) are available from Harvey, 4-4350.

for \$315. Also open are seats on the charter bus trip to Las Vegas and Hoover Dam on Dec. 27-30. This package includes transportation, three nights lodging on the Strip, discounts on meals and shows, refreshments and snacks on the bus, and a tour of Hoover Dam for \$120.

Pre-trip meetings for both these tours are scheduled at the Club on Monday, Dec. 8. Rosebowl trip meets at 7:30 p.m. and Las Vegas at 8:30.

Frank also reports a few cabins are still available on the Jan. 3-10 cruise out of San Juan.

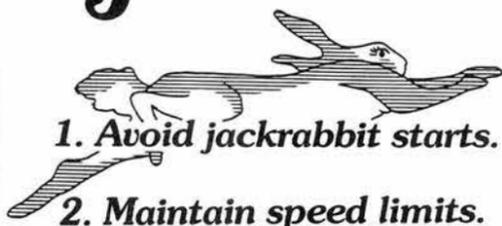
If there's some place you would like to visit, see Frank in the Club lobby tonight between 6 and 7. He's planning a number of short charter bus tours for next year and considering major tours. Now is the time to make plans.

Speakers

J. M. Hueter (3521), "Burnout," APS faculty conference, Lawrence Ranch, NM, July 25; "Creativity—Choice or Chance?" Native American Program College of Engineering, UNM, July 29; "What Is Expected of the Engineering Graduate," NMSPE/UNM, Aug. 27; "Creativity in Engineering," ASME student chapter, UNM, Oct. 23.

R. L. Iman (1223), "A Comparison of Distribution Free Procedures for the Analysis of Complete Blocks," invited paper, annual meeting of American Institute of Decision Sciences, Las Vegas, Nev., Nov. 6; "The Rank Transformation as a Robust and Powerful Tool for the Analysis of Experimental Designs," North Carolina chapter of the American Statistical Association, Research Park Triangle, NC, Nov. 10; "Rank Transformation as a Bridge Between Parametric and Non parametric Statistics," Statistics Seminar, NMIMT, Socorro, Nov. 20.

GAS TIPS



1. Avoid jackrabbit starts.

2. Maintain speed limits.

3. Keep your car tuned.

4. Check tire pressure.

5. And save gas by ridesharing.



PRESIDENT Morgan Sparks accepts a testimonial "... for his commitment to equal opportunity for all at Sandia National Laboratories" from Miguel Rios (4719) at the recent banquet of the Society for Advancement of Chicanos & Native Americans in Science. The banquet at the Hilton Hotel concluded two days of meetings of SACNAS; Miguel is president of the national organization.