

We Made a Million!

If any of you out there happen to be feeling like a million bucks and aren't quite sure why, then read on.

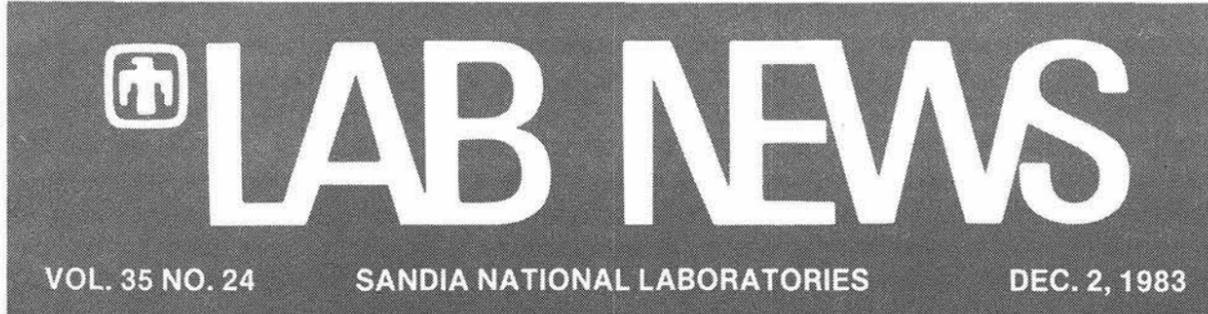
The unprecedented generosity of 87.2 percent of Sandians pushed the 1983 ECP campaign past its goal of \$975,000. Pledges and contributions totaled \$1,038,658—the first time we have reached a million dollars.

"This year's campaign statistics once again demonstrate that Sandians care and share," says campaign chairman Waylon Ferguson (3710). "I want to thank the

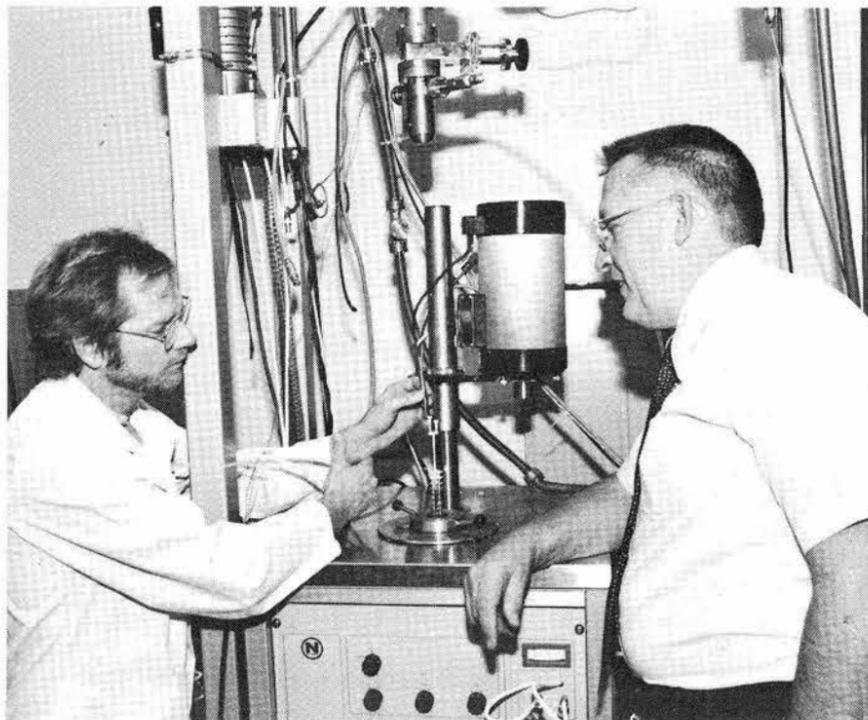
employees for a successful—our *most* successful in fact—campaign. My thanks are not only on behalf of the ECP committee

See President Dacey's ECP Comments, Page 8

members but also of the many deserving agencies that will now be better able to serve the community."



THIOKOL'S Wendell Christensen (at right) watches as Don Meeker (8313) runs a sample of the nozzle material through the differential thermal analyzer.



Toward Nozzle Knowledge

Space Shuttle Problem Researched

Sandia scientists became unexpectedly involved in the NASA space shuttle program recently when a problem that developed in one of the rocket booster nozzles on a recent shuttle flight was brought to them for analysis.

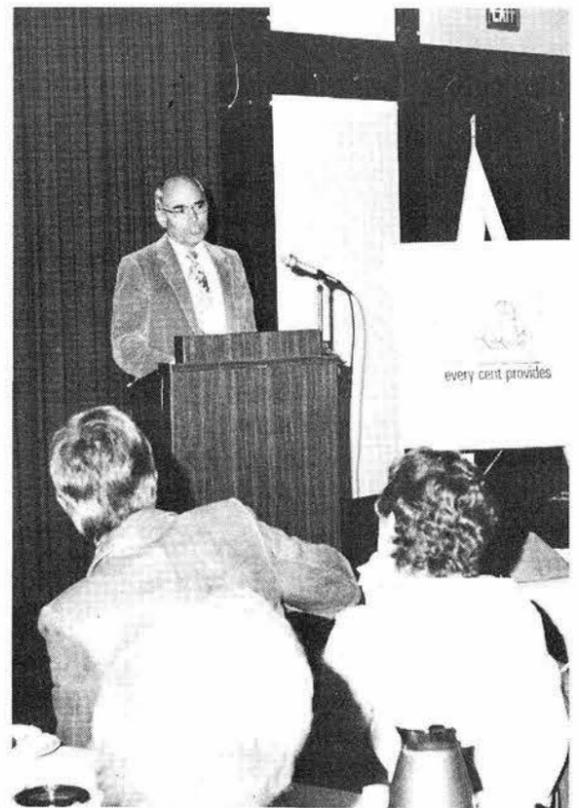
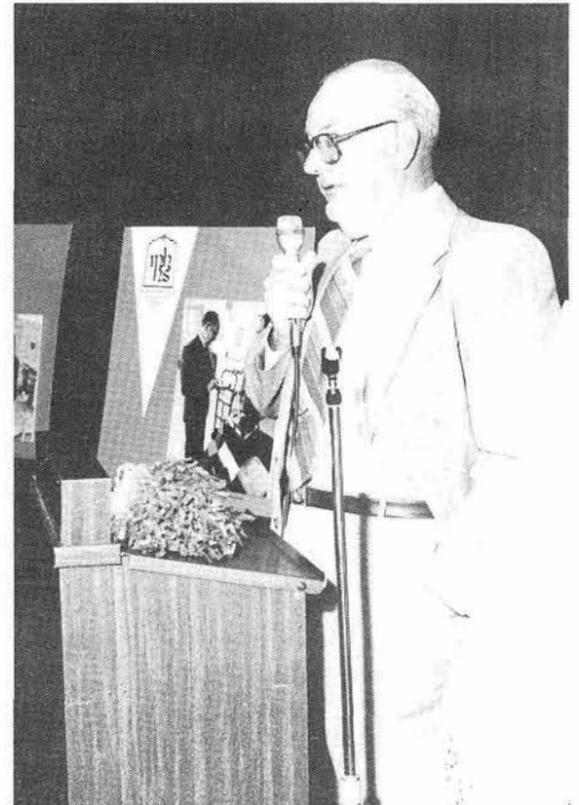
A dozen staff members in the five divisions were called together on short notice when Wendell Christensen, lead engineer for Morton Thiokol (NASA contractor for the solid propellant motors) asked for assistance. "His (Wendell's) call came to us on a Friday morning, that afternoon we agreed we could give him some help, and he flew in for a Monday morning meeting to get started," said Bob Carling (8313) who, along with Ray Mar (8201), coordinated the project.

The problem developed when the rocket motors from the space shuttle's eighth mission, launched Aug. 30, were recovered and analyzed by NASA and Thiokol. The ablative insulation material, a phenolic-impregnated carbon composite, from one of

the engines was severely eroded. Wendell said, "Although the engine performed as designed, the amount of erosion we observed was unacceptable." As a result, the Shuttle 9 mission, which had been scheduled for Oct. 28, was delayed until an explanation and cure could be found.

Wendell brought with him to Sandia samples of ablative materials from different vendors and different lots. Included were materials from the Shuttle 8 and 9 missions, and materials suspected of being faulty because of processing irregularities. Thiokol had already run numerous tests on these materials in an attempt to find discernible differences, but the results were inconclusive. "Not knowing what exactly to look for, we attacked the problem with just about every tool in the Materials Department," said Bob. "The results from thermal gravimetric analysis, gas chromatograph/mass spectrometer

(Continued on Page Three)



CELEBRATING our first million at the ECP luncheon on Nov. 10 are (from top) President Dacey, ECP committee chairman Waylon Ferguson (3710), and Mary Rodriguez (3412) displaying a mock TIME cover with ECP committee secretary Julia Gabaldon (3163) as "Woman of the Year."

Antojitos

Look, Mom, No Hands—One of the wonders of the Information Age has arrived at the LAB NEWS! It's a word processor, in fact, four of them, and we're collectively spending most of our time getting acquainted with the habits of our new beasts of (word)burden.

I approached the arrival of the much-touted marvels with feelings akin to those of an adolescent lad facing a heavy date with, say, Loni Anderson—awe, delight, and fear.

Having survived that first encounter, I'm now gradually—very gradually—learning the rituals that enable me to worship this new god properly. It's true that each of us now has a 10-foot Library of the World's Greatest (DECmate) Literature. But finding out how to do what you know you need to do is hard enough. Far be it from me at this point to look for the rituals that cover capabilities that I don't even know I need. For that reason, I suspect I'm using my word processor in much the same way that a rich idiot would use a Ferrari as a golf cart.

But I'm on my way to the glories of Machine Mastery—not bad for a guy who has to read the instructions every time he uses a can opener. And if I just press this key . . . look, Mom, it's typing!

* * *

A Colon-el of Truth—Okay, okay, computerists, astronomers, and probably practicing polygamists have colons in their times. 13:00. There! (But on a cafeteria sign?)

* * *

Cash Is Cash, Right?—Wrong. I quote from the same Nov. 14 letter you received too: "In either case the cash contribution must be in the form of a check or money order (no cash please)." ●BH

If you let a smile be your umbrella, you'll end up with a mouthful of rain.



QUIN SAN HAMEL (4000)

San Hamel To Legal VP

Quin San Hamel, currently Director of Legal and Patent 4100, has been named General Attorney, Secretary, and Treasurer 4000, effective Jan. 1.

Quin first came to Sandia in 1974 and served as one of two lawyers in Legal. In 1979 he accepted a position with Western Electric's legal group and stayed at Headquarters until 1982 when he transferred back to Sandia as a director.

He graduated from Loyola University in 1960, served in the Coast Guard, and received his J.D. from the DePaul University School of Law in 1966. After five years of private practice in Chicago, his home town, Quin joined the AT&T System with a three-year stint at Teletype just before coming to Sandia.

"We have a new five-year extension on our contract and some really challenging legal problems facing us," says Quin. "I'm looking forward to working with other Sandians, the old timers and the new faces, in an exciting period.

"And, yes, I'm most pleased to be back in New Mexico. Sandia is a good place to work, a friendly place with a very important mission. And I love the state — even if it's not ideal for sailing. But I look forward to more fly fishing, skiing — I intend to take up cross-country this year as well as continue downhill — tennis, and maybe some sailing too."

Quin's promotion comes on the heels of Charlie Ross' retirement. Head of Sandia Legal for a total of 16 years, Charlie plans to spend most of each year in Florida. But he'll be back for some fly fishing in Colorado and the Grand Tetons most summers. So Albuquerque will be his western base for summer travels.

Quin lives in the University area.

Sympathy

To Lynn Surma (2153) on the death of her father in Hanover, Ill., Oct. 29.

To Jerry Allen (2155) on the death of his mother in Brandenburg, Ky., Oct. 21.

To Dwight Jennison (1151) on the death of his mother, Oct. 30.

VIVE LA LITTERATURE TECHNIQUE — EN ANGLAIS!



Didier de Fontaine [U. of California Berkeley] has said that the French would not be so quick to press for scientific French if they saw the awkward, stilted, ungrammatical, unpoetic garbled English becomes in the mouths of international scientists. "Do the French really want their beautiful language to be thus bastardized?" he asks. "No. To defend the language of Molière (or Mitterand) the contrary is necessary: to forbid its (French's) use in international scientific meetings and publications.

— Stephen Strauss in *Globe & Mail* (Toronto)

Events Calendar

Dec. 3 — Beethoven Festival: NM Symphony Orchestra, featuring the Cleveland Quartet, 8:15 p.m., Woodward Hall, UNM; **Dec. 6** — 8:15 p.m., Keller Hall; **Dec. 10** — with Mark Kaplan, violinist, 8:15 p.m., Popejoy.

Dec. 3 — Nacimiento show and sale, 3-5 p.m., Pueblo Gallery, Pueblo Cultural Center, 2401 12th NW.

Dec. 3-4 — "The Clown Prince," Albuquerque Children's Theatre, 1:30 and 3:30 p.m., Popejoy.

Dec. 4 — Folk Music of Eastern Europe performed by Svirka women's chorus, 1 p.m., Maxwell Museum of Anthropology.

Dec. 5 — Second annual chamber music concert, Albuquerque Philharmonic Orchestra, 8:15 p.m., St. Andrews Presbyterian Church, 5301 Ponderosa NE.

Dec. 8 — Soviet-American Siberian Expedition: discussion of 1976 joint expedition, 8 p.m., Maxwell Museum of Anthropology.

Dec. 9-11, 16-18 — "El más pequeño de mis hijos," the story of the apparitions of the Virgin of Guadalupe in 1531 to the Mexican Indian, Juan Diego. (Dialogue is in Spanish with English narration.) La Compañía, 8 p.m. Fri. and Sat., 3 p.m., Sun., KiMo.

Dec. 13 — Christmas Chorus concert, NMSO and chorus, 7 p.m., KiMo.



LAB NEWS

Published Fortnightly on Fridays

SANDIA NATIONAL LABORATORIES

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LIVERMORE, CALIFORNIA
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Take Note

An Excellence in Presentation award was recently given to Charlie DeCarli (8229) for a presentation made last year at the 69th annual American Electroplaters Society technical conference and exhibit of surface finishing. His winning presentation was on "Statistical Investigation of the Effects of Citrate Gold Plating Process Variables on Throwing Power." His co-authors were Rudy Johnson (8312) and Jack Dini, a former Sandian now with LLNL.

Sympathy

To Bill Irwin (8466) on the death of his mother in Fremont, Oct. 18.

To Bruce Nevin (8463) on the death of his father in Butte, Mont., Oct. 19.

Congratulations

Wendy and Sam Paolucci (8125), a son, Christopher, Oct. 1.



CONDUCTING FIREFIGHTING training on a Saturday, fire marshal Bob Ware (8263) puts the Wells Fargo security guard force through a series of exercises including this hose handling by (left to right) Les Sundberg, Marsha Monell, Maria Mandia, and Pat Lull. The guards were also trained in handling fire extinguishers, coupling hoses to fire hydrants, and directing the water flow to a target.



KEY SANDIANS at the Helium Workshop were (from left) Dick Claassen (8000), George Thomas and Bill Wilson (both 8341), and John Crawford (5100).

Continued from Page One

Space Shuttle Research

analysis, vacuum mass spectrometry, and electron microscopy were particularly informative."

Ray explained what Sandia was able to do: "On very short notice we assembled a dozen or so scientists with various specialties and expertise to look at the problem using state-of-the-art equipment. As Dick Claassen (8000) had said just two weeks earlier in his State of the Lab message, 'One of the strengths here at this lab is our ability to respond to problems very quickly.'

"It was not possible for us to provide a definitive answer to NASA's problem. We did not have all of the samples we needed, and the history of some of the samples were incomplete. Nevertheless, we were able to generate some new and illuminating information. For example, Rob Allen, using the electron microscope, has found unexpected differences in oxidation morphology. We've also been able to detect

minute particles containing sodium on some of the materials, and we've seen differences in the rates of oxidation."

A new motor nozzle with a different ablative material has been fitted into the Mission 9 shuttle, which was launched Nov. 28. "With the help of insight gained from our work," said Bob, "NASA and Thiokol now know a little more about the materials they are using, and they can take steps to guard against the use of questionable parts on future shuttle flights."

Ray pointed out that the 12 Sandians involved had to fit this special project in around their other assignments, and it required some long hours and extra effort on everyone's part. Key participants in the project were Rob Allen and Steve Orth (both 8316), Ray Mar (8201), Rich Behrens and Jan Collins (both 8443), Bob Carling, Don Meeker, and Cecil Bonzo (all 8313), Dan Doughty, Bill Even, Erik Kong, and Larry Thorne (all 8315).



SANDIA LIVERMORE NEWS

VOL. 35 NO. 24

SANDIA NATIONAL LABORATORIES

DEC. 2, 1983

Sandia Sponsors Helium Workshop

The behavior of helium in metals and metal tritides is one of the more intractable areas researchers face. To help establish lines of communication among them—and exchange up-to-the-minute results—a workshop was recently organized by Bill Wilson and George Thomas (both 8341).

"This subject has a wide range of interests for Sandia and for many other labs. Helium properties affect programs as diverse as neutron generators and fusion reactors, for example," says Bill. "Engineers, physicists, and materials scientists at Sandia and other labs are studying both the practical and fundamental aspects of helium behavior."



"It's because of this diversity that some of the workshop participants weren't aware of work that relates to the problems they're facing," says George. "That's why opening the communications lines is so important."

Some of the recent advances in understanding helium behavior in metals attracted a good deal of attention. For example, "self-trapping" effects—helium atoms can spontaneously damage the metal structure. Another example—the newly discovered phenomenon of room temperature mechanical embrittlement.

Helium is considered insoluble in metals, but it can be present when materials have been irradiated with neutrons, implanted with helium ions, or exposed to a tritium environment, according to George. "It is just this insoluble nature of helium that causes relatively small quantities to have deleterious effects on materials properties."

The 75 participants in the workshop represented Los Alamos, Lawrence Livermore, Savannah River, Mound, and GE's Nuclear Device Facility as well as several Sandia organizations. To ensure an intense and vigorous exchange of ideas and information, attendance was limited to researchers currently involved in helium-related programs. Edward Teller was the speaker at a banquet during the three-day meeting.

"Both the speakers and participants did an outstanding job," reports Bill. "Feedback was generally very favorable."

Sandians Developing Intelligent Machines

To some, the idea of robotics and artificial intelligence brings to mind some of the more adorable androids of recent Hollywood science-fiction such as R2D2 and his flappable sidekick, C3P0.

Many engineers are skeptical about "robots" as portrayed in film and the popular press. But few of them question the practical applications of intelligent machine technology. Recently, Intelligent Machine Division 6228 was created to pursue the technology of intelligent machines as it relates to Sandia programs. Reactor maintenance is the first task assigned to the new machines.

"Visionaries tend to ascribe more capability to technology than is currently achievable, or perhaps more than is even desirable when finally accomplished," says Jim Banas, supervisor of Division 6228. "The intelligent machine technology that we envision does not attempt in the near term to eliminate human intervention and/or control. Rather, this technology simply extends — and multiplies — the capabilities of the human operator and utilizes him or her in a supervisory role.

"As development continues, intelligent machines will become increasingly autonomous. But achieving completely autonomous devices would require a long-term commitment to engineering R&D."

Most current efforts in intelligent machine technology (often called robotics) concentrate on improvements in manufacturing processes. Most Westerners are quite aware of Japan's extensive use of robots in automobile manufacturing and other industries. In the United States, manufacturing robots are being used in a growing number of industries — automobiles, electronics, and aircraft. But other applications areas can also benefit from this technology.

Sandia began about two years ago to provide a robotic maintenance capability for one of the pulsed nuclear reactors it operates for DOE — the Sandia Pulsed Reactor (SPR) III.

The SPR III Maintenance Robot Project will use an intelligent machine to maintain the reactor and thus reduce the occupational radiation exposure experienced by the workers who currently perform the task.

A chain-driven sled normally used to deliver experiments to the SPR III will bring in the robot. The robot is mounted on a programmed motion turntable, and the reactor rises through the center of the turntable.

The robot has vision and force sensors to allow it to determine automatically its position relative to the reactor. Visual image pattern recognition allows the robot to "see" specific features on the reactor while a force-sensing wrist allows the robot to "touch off" and accurately index itself to the reactor.

After establishing the location of the robot in relation to relevant items on the SPR III, the robot will begin a programmed sequence of operations (in conjunction with the turntable and an overhead hoist) to



"SIT" is the electronic command that Jim Banas seems to be giving the robot. Actually, his group is programming the loon-lookalike machine to perform maintenance operations on SPR-III—a Sandia-operated DOE reactor. Jim is the head of Intelligent Machine Division 6228, which was recently created to pursue the technology of intelligent machines as it relates to Sandia programs.

carry out required operations.

The automatic operations will be remotely monitored by a 3-D vision system so an operator can interrupt the sequence at any time. The robot will also be manually controllable remotely with the aid of the 3-D vision system to allow operations beyond those programmed.

Two related technologies, sensors and computers, are important contributors in the ongoing development of intelligent machine technology — the next engineering step in the evolution of controls.

Sensors assess the working environment; computers provide the logical decision-making capability to analyze sensor information and control "effectors," the actual task performers.

"The continuing evolution of computers and sensors that integrate the transducer and the processor allows us now to consider very flexible, adaptable machines requiring less human intervention," says Jim. "With development in key areas such as computer vision, tactile sensing, and planning systems, the technology is beginning to emerge under names like manufacturing robots, remote maintenance machines, automated remote handling equipment, autonomous vehicles, and computer-aided manufacturing."

Of special interest to Sandia are several areas of intelligent machine technology application — weapons design, evaluation, and production; nuclear waste management; and nuclear security. Division 6228 people also support the Nevada Nuclear Waste Storage Investigation program by creating conceptual designs of automated remote handling equipment for use in the waste facilities.

"Enthusiasm for intelligent machines as an area of technology R&D has been quite high among people both inside and outside Sandia," says Jim. "Engineering and computer science students are very interested in our activities."

To further stimulate academic ties, Sandia is working with the University of New Mexico in technical areas associated with intelligent machines.

"Gregory Starr of UNM's Department of

Mechanical Engineering is doing research on robot manipulators," says Jim. "Greg's goal is to understand robot control based on sensory inputs. In fact, through his training at Stanford's Robotics/AI Lab and his experience at UNM, Greg has helped Sandia to bootstrap itself up quickly in some aspects of intelligent machine technology.

"We're also working closely with George Lugar of UNM's Computer Sciences Department — he's developing high-level computer languages that'll provide sophisticated decision-making capability in a computer controller — and John Brayer of the Computer Engineering Department. John is involved in vision research — the development of image-processing systems and algorithms for computer vision."

A related activity in artificial intelligence has also begun in Strategic Offense Division 334. This group's work will initially concentrate on the development of expert systems — structures of high-level software designed to make expert knowledge available for a larger user community.

Robotics: A Bit of Background

Intelligent machines have been around longer than most of us realize. They began by being really stupid — like the 19th-century steam engine with a flyball governor, and the Jacquard loom, which had a rudimentary form of digital control, and progressed to the not-so-dumb stage when, early in the 20th century, Herman Hollerith demonstrated a key punch system to simplify the census. In the 1930s, petrochemical plants used analog controls to regulate distillation columns, catalytic crackers, and other equipment for processing continuously flowing material. During World War II, feedback control theory was developed for fire control of weapon systems utilizing analog computers. Such applications, known collectively as examples of controls technology, have moved toward more sophistication and complexity with the development of the digital computer, sensors, and microelectronics. But they're still far from "intelligent" on the human scale.

Mortgage Program Announced

Bell Laboratories and Western Electric recently announced a mortgage program available through Bell System credit unions for all their active and retired employees. This program is now available to all Sandia active and retired employees through the Sandia Laboratory Federal Credit Union.

The Employee Mortgage Program offers unprecedented convenience in obtaining a mortgage to buy or refinance a home. The plan, which enables employees to apply for a mortgage by telephone, is designed to provide employees with mortgages at a lower overall cost than other lending institutions.

The program offers competitive charges for credit reports, appraisals, title policies, and other general mortgage closing items. It also provides a guaranteed interest rate for 45 days from the application date, protecting applicants from the uncertainties of changing economic conditions.

Initially, the Employee Mortgage Program will provide 30-year and 15-year fixed rate conventional mortgages; however, in the future, the program will offer a broad spectrum of home loans—second mortgages, adjustable rate mortgages, and a form of graduated payment mortgages to assist first-time home buyers. Mortgages secured through the program can be used to purchase a range of properties including a single family home, duplex, triplex, fourplex, a unit within a condominium project, a unit within a planned development, or an owner-occupied second home. (Condominiums for investment purposes cannot be financed through the program.)

In addition, the program allows employees to refinance existing mortgages for purposes of equity extraction, home improvements, or simply to take advantage of lower interest rates.

Maximum loan amounts, of course, will vary according to the ability of the employee to repay. The rule of thumb for determining that ability is: the monthly

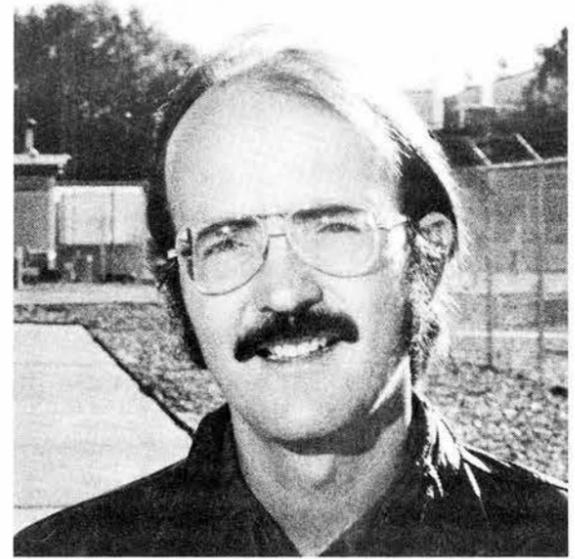
mortgage payment, including principal, interest, taxes, and insurance, should not exceed 28 percent of the borrower's gross monthly income; nor should the borrower's total monthly mortgage and installment obligations except 36 percent of gross verifiable income.

Sandia Laboratory Federal Credit Union will participate in implementing the Mortgage Program and will provide brochures that describe the program and mortgage-application packets for those interested.

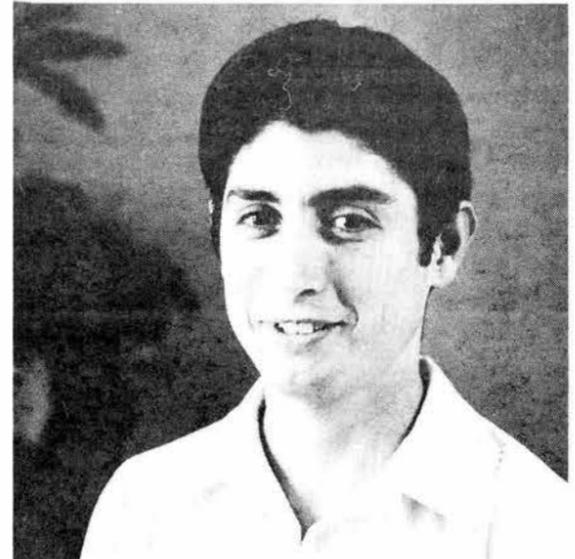
The Credit Union will also provide current information about mortgage rates and fees. Norwest Mortgage Inc. (Norwest), one of the largest mortgage bankers in the country, will process applications, underwrite mortgages, and arrange for closings. Charges include a \$10 fee for the mortgage application packet and a \$250 fee toward the cost of a credit report and property appraisals. Applicants who qualify for mortgages under the program will receive full credit for both fees at their mortgage closings.

To apply for a mortgage under the program, the applicant (active or retired employee) must first obtain a mortgage-application packet from the Credit Union or call a toll-free number listed in the brochure provided by the Credit Union. After completing the mortgage application, the applicant would call the number listed in the brochure for a telephone application interview and then mail the application materials to Norwest.

The completed application will be reviewed promptly, and the applicant will be notified of Norwest's decision by mail. Closing will be handled through a network of three national title companies that have been selected by Norwest for their expertise and wide national distribution. Representatives of these companies and Norwest will coordinate closing activities with each applicant and realtor, if any, arranging for the closing to be held at a convenient location.



KEN BERGERON (6424)



JERRY GALLEGOS (3613-1)

Supervisory Appointments

KEN BERGERON to supervisor of Advanced Reactor Safety Analysis Division 6449, effective June 16.

Ken joined the plasma physics division at the Labs in 1974, providing theoretical support to the particle beam fusion program. He transferred to the solar energy program in 1978 and, for the past two years, has been with his current organization in nuclear reactor safety. Ken's specialty is computer code development for severe reactor analysis.

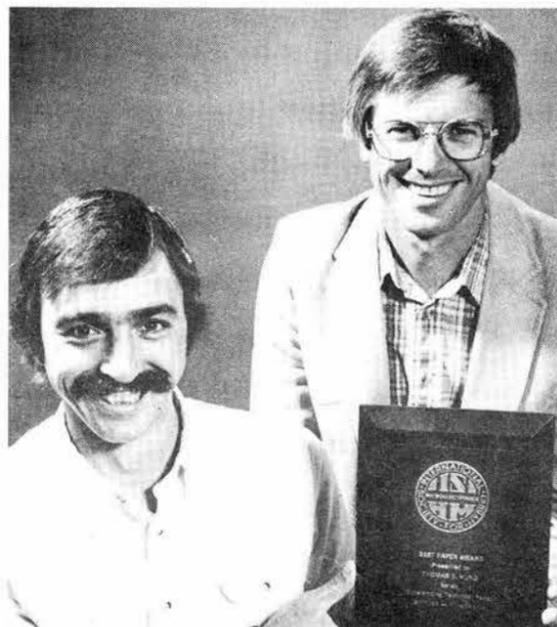
He received his BS in physics from Brown University and his MS and PhD, also in physics, from Brandeis University. Ken enjoys woodworking and backpacking. He lives in the NE heights.

* * *

JERRY GALLEGOS to supervisor of Electrical and Mechanical Modifications Section 3613-1, effective Nov. 4.

Joining the Labs in 1970 as an electrical apprentice, Jerry graduated from the program in 1975. He worked for an additional three years as an electrician and then transferred to the maintenance operations section as a planner. He remained in this job until his current promotion.

Jerry graduated from TV-I's electronics program. He served in the Air National Guard for six years. Jerry coaches a Little League baseball team and enjoys hunting, fishing, and skiing. He and his wife Anita have two sons and live in NE Albuquerque.



BEST PAPER of the Session Award at the recent meeting of the International Society for Hybrid Microelectronics in Philadelphia went to Tom Hund (2122) and Steve Burchett (1521), co-authors of "Stress Production and Relief in the Gold Silicon Eutectic Die Attach Process." The paper was the result of a project in support of the semiconductor lab in Sandia's Center for Radiation-hardened Microelectronics.

Phone Sales End Today

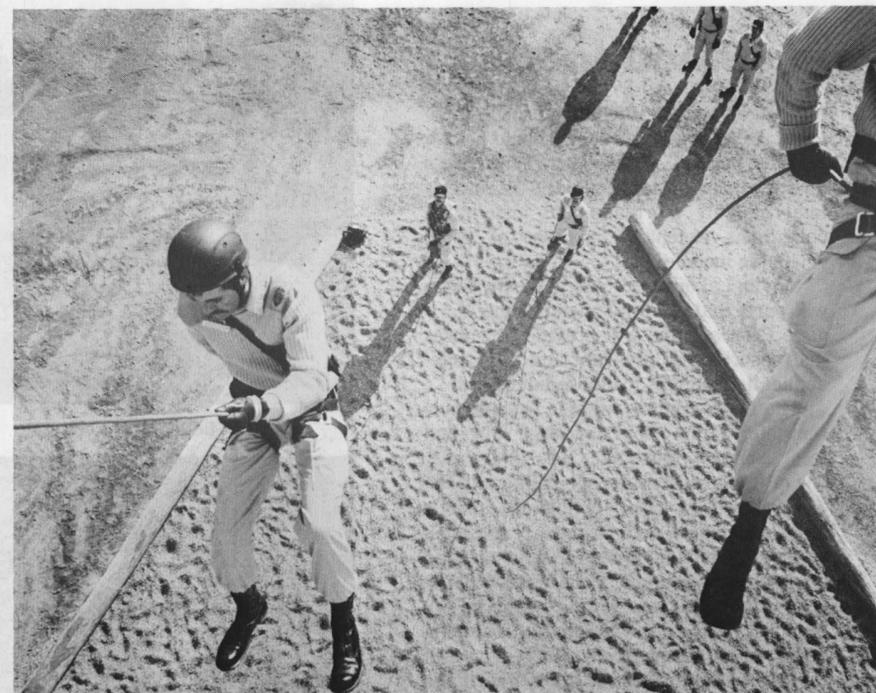
Employees and retirees are reminded that the Western Electric employee telephone sales program ends today. All sales requisitions, with the accompanying check or money order, must be received in the Benefits Administration and Employee Services Division 3543, Bldg. 832 East (or Org. 8426 at Livermore), by the close of business today. All requisitions arriving after that date will be returned to the sender.

Congratulations

Lydia (314) and Andy Boye, a daughter, Christina Marie, Nov. 13.

Patrick (5211) and Kerrie Sena, a daughter, Juanita Marie, Sept. 18.

Nigel (3161) and Sue Hey, a son, Jonathan Aaron, Nov. 21.



RAPPEL technique, useful for descending a wall of a building containing adversaries, is performed by Jim Kaiser (above) and Ken Edwards (below).



RUBEN GARCIA and weapon, an M-60 machine gun.



ENTRY TEAM practices clearing a room.

New Security Capability

STOP — A Sign of the Times

With the headlines screaming about terrorists, extortionists, radicals, saboteurs, and other species of extremist, it should come as no surprise that Sandia's Security Department has created a new response force, one that specializes in dealing with physical threats to an R&D lab that works with nuclear reactors and develops nuclear weapons.

For years we've relied on a defensive force trained to contain an adversary until help arrives.

But sometimes waiting won't work. Enter an offensive combative force called STOP (Special Tactical Operations Personnel). One of the first teams of its kind among DOE labs, it's an elite cadre of Sandians with special characteristics, special training, and special tools.

Special characteristics? Each of the members of this 32-person team, male and female, must meet fairly rigorous physical requirements — the ability to run a mile in 8 minutes 30 seconds, and to cover 40 yards in 8 seconds, starting from a prone position. But that's just to qualify for the training.

Special training. This is where it gets rigorous, both physically and mentally. Each of the two captains and seven lieutenants has been trained by the kind of Special Weapons and Tactics ("SWAT") team that grabs our attention on TV. They have been taught basic and advanced tactical measures — how to enter a building held by armed adversaries. How to negotiate with hostage takers. How to search and secure an area, inside or out. How to recognize and deal with explosives. How to engage in combat with armed and desperate terrorists. How to immobilize, or even neutralize, an intruder or intruders.

After the SWAT training, the officers modified these SWAT skills to make them "site specific" — applicable to Sandia, in other words — and are now teaching them to the team members. The team, already proficient in self defense techniques, is learning to be the aggressors against those who threaten nuclear mayhem against our society.

And special tools. In addition to the weapons assigned to the defensive force (an M-16 rifle and a 12-gauge shotgun), the STOP team is becoming proficient with .45 automatic handguns, .308 caliber sniper rifles, M-60 machine guns, 40-mm grenade launchers, and other weapons. The team is backed up by a fleet of armored vehicles and — if necessitated by, say, a continuing siege — can call on Sandia's new Mobile Command Post, a vehicle crammed with multi-channel radios, mobile phones, protective headgear, bulletproof vests, and an arsenal of weapons and ammunition.

Not all Sandians have seen the new force — and some who have haven't been sure they're seeing Sandians. The STOP team wears khaki, rather than the traditional blue. And they often carry weapons no security inspector at an Area I gate would be allowed to carry.

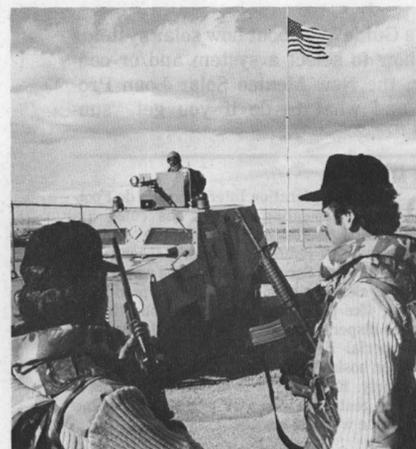
Typically, the team operates from a headquarters in Area II and patrols Areas III, V, and the Coyote Test Complex. Makes sense, of course. That's where the action is

likely to be — terrorists, after all, seldom stage a raid to read a secret document. When they're not called the STOP team, they're called the South Force; the Area I, II, and IV security group is called the North Force.

Byron Gardner (3435) is the captain of the STOP team. "It's a self-selected group — its members have a good deal of pride in their abilities and the willingness to improve themselves on their own time as well as on Sandia's."

"We've had excellent cooperation as we have used Labs facilities and expertise in our training sessions — we especially want to thank the people in Area V, the people in Nuclear Security Systems 5200 — Bob Wilde's division in particular — and explosives experts Paul Cooper (7132) and Stan Kurowski (2514).

"And reassure everybody — we may appear a little threatening sometimes, but we're highly trained, and we're there to protect Sandia and Sandians."



MARV (Motorized Assessment & Response Vehicle) is flanked by Mike Benavidez (left) and Jim Kaiser.



ONE SHIFT of the STOP team includes (l to r, top row): Mike Benavidez, Jim Kaiser, Ron Biddle, Lt. Greg Seymour; (bottom): Ken Edwards, Jim Duffy, Ruben Garcia. Other lieutenants for the team are: Dave Stout, Louie Trujillo, Grant Aguirre, Celso Montano, Willie Johns, and Claude Potter.

Fun & Games

Winter Sports — S.E.R.P. (Sandia Employees Recreation Program) has another full schedule of Nordic (—) skiing programs lined up for the winter season. Here are the times and dates for the clinics and outings. In the past, these activities have filled up quickly, so call Recreation Manager Tom Lenz early to reserve your spot; he's on 4-8486. And save this section — it should answer nearly all your questions.

Cross-Country Ski Clinics

Classes: indoor session, 7-8:30, at Coronado Club.

Outdoor session (4-5 hrs.) in Chama or the Sandias.

Costs: \$17 or \$12 (with or without rentals, respectively).

Checks: make out to C-Club X-C Ski and route to Tom Lenz.

Beginning Clinics

(indoor/outdoor/location)

Dec. 6 / Dec. 11 / Chama

Jan. 3 / Jan. 7 / Sandias

Jan. 3 / Jan. 8 / Sandias

Jan. 19 / Jan. 22 / Sandias

Jan. 19 / Jan. 29 / Sandias

Feb. 14 / Feb. 19 / Sandias

Intermediate Clinics (indoor/outdoor)

Dec. 20 / Dec. 26 / Chama

Jan. 17 / Jan. 15 / Sandias

(indoor session is a post session)

Feb. 7 / Feb. 12 / Sandias

Winter Camping & Touring

Indoor sessions: Mar. 19 & 21, 7-9 at Coronado Club.

Outdoor sessions: Mar. 24 & 25. (Participants provide own equipment). Tentative location is Chama.

Cost: \$15.

Moonlight Treks

Leisurely guided trek (2-3 hours). Campfire at halfway point: wine, cheese, etc.

Jan. 23 — Sandias.

Feb. 19 — Jemez Mountains.

(No rank beginners, please).

Triathlon Results — 20 Sandians, spouses, retirees, and dependents were among the 150 participants in the recent Jay Benson Memorial Triathlon. The win/place/show rack-up: Jim Harrison (5111), fifth overall; Jackie Snyder (2341), first in women's 20-29; Jack Kidd (7621), second in men's 50-59; Larry Johnson (5123), second in men's 60 & up; O.J. Foster, (ret.), third in men's 60 & up.

Classes — The KAFB Arts & Crafts Center has classes that start immediately in: jewelry making, apron sewing, animal stuffing (toy ones), and macrame. Call 4-0222 for information.

flex:liback

Q. Many of us use the facilities in Bldg. 632 for out-of-hours classes, TIE classes, department meetings, etc. If we approach this building from the north, we must cross a rock-strewn area. Can access to this much-used building be improved?

A. There is now a blacktop walk from the sidewalk north of 632 to near the northeast corner of the building. It is true that if you are coming from the northwest it is slightly shorter to cut across the graveled area. However, soon we will be placing another temporary building in that corner so we cannot add another walkway through there.

R.W. Hunnicutt - 3600

Q. Why does it take from one hour to four days to get a print from Sandia's film banks?

A. Drawing print requests are normally filled on a first-in, first-out basis. With a volume in excess of 60,000 prints requested each month, some queues are unavoidable. Requests for four to five prints are usually filled in 10 minutes to 2 hours depending upon the queue. Requests for prints of inactive or archived drawings cannot be filled at the Satellite Film Banks (Bldgs. 836 and 892), and additional time is required to obtain them from the Master Film Bank in Bldg. 802.

To meet urgent needs, the requester may ask the Film Bank operator for priority service and have the request filled before others in the queue. If other priority requests are not being processed, prints can be available in a matter of minutes. Actual time depends upon number of drawings and sheets to be printed.

H.W. Schmitt - 7600



Death

John Timmons of Purchasing Division 3726 died Nov. 4 after a long illness. He was 60.

He had worked at the labs since March 1952.

Survivors include his wife and two daughters.

Take Note

The South 14 Bookstand — For Christmas giving, consider the book. It knows no gender, nor does the potential owner's size and color preference matter. And, if by chance the recipient is indifferent to the content, *you* probably aren't (since you picked it out) and you can always borrow it on extended loan. The ideal gift! Here are the UNM Press titles the South 14 Bookstand now has in stock that have been our most popular: *Albuquerque, A Narrative History* by Simmons (\$17.50); *Comida Sabrosa*, a cookbook by Sanchez and Yund (\$9.95); *A Brief History of New Mexico* by Jenkins (\$4.95); *Edible Native Plants of the Rocky Mountains* by Harrington (\$9.95); *Hikers and Climbers Guide to the Sandias* by Hill (\$9.95); *New Mexico, The Shining Land* by Sinclair (\$10.95); *Guide to the New Mexico Mountains* by Ungnade (\$7.95); and *New Mexico Place Names: A Geographical Dictionary* by Pearce (\$6.50). For X-C skiers, we also have *Ski Touring in New Mexico* by Sandian Sam Beard at \$4.95. The Bookstand is located in the LAB NEWS office in Bldg. 814. Special orders for any title published by UNM Press can be quickly filled.

* * *

To kick off DWI awareness week, the local MADD (Mothers Against Drunk Drivers) chapter will join a nationwide candlelight vigil service on Dec. 11 at 6 p.m. at United Blood Services (1515 University NE). The service will honor victims of drunk drivers. The chapter also asks for blood donations in behalf of these victims. More info from Dick Thompson (7621), chapter president.

* * *

"Entrepreneurial Engineering" is the provocative title of a Spring '84 course at UNM. Designed for off-campus engineers as well as on-campus engineering students, the class will be "clinical in nature but also provide a basic understanding of the important elements of entrepreneurialism, such as finance, manufacturing, marketing, management, and legal." John Sharp (7601) and William Gross (UNM Mechanical Engineering Dept.) are two of the course instructors. Prospective students who wish to have a proprietary idea or patent considered for class business development should contact Gross immediately at 277-6297.

* * *



The ECPro

The American Red Cross will demonstrate first aid for choking and provide a CPR demonstration on Wednesday, Dec. 7, from 11:15 to 1 in the lobby of Bldg. 802. This is another in the ECP Agency Awareness programs.

GCD on ECP

It was a highly successful campaign. Our success has to lie in the attitudes and dedication of our people.

As Sandia president — and more important in this context — as head of the entire community's United Way drive, I commend those who worked at promoting it — the ECPro and Variety Show innovations, all the other publicity — those who did the actual campaigning — an enthusiastic and dedicated group — and most of all, of course, those who contributed — we led the entire Albuquerque effort.

We can also be justly proud of the fact that we are among the leaders, if not *the* leader, in the entire Bell System.

Our contribution, employee plus corporate, amounts to some 25 per-

cent of the total Albuquerque campaign. That total, some \$4.5 million, is merely the tip of the iceberg, the grease on the wheels of the agencies. The money pays for supplies, rent, administration of the 38 United Way agencies.

But there's a multiplier effect here — the community gets far more than \$4.5 million worth of good out of the agencies. That's because of a tremendous volunteer effort — some 5000 people — who actually deliver the services to the recipients — last year some 100,000 of them. And Sandia volunteers are involved with all or nearly all of the agencies.

So I leave this year's campaign with admiration and gratitude for Sandians — you exemplify good citizenship in our community. I'm proud to be one of you.

Shalako ceremonies at Zuni pueblo are Dec. 10-11 this year. The YWCA is again providing tour buses — leave town at 6 p.m., stop for dinner and a briefing on Shalako rituals in Gallup, and observe the dancing and ceremonies in the Shalako houses at Zuni from midnight to 3:30 a.m. Price is \$51; deadline was Nov. 30, but there still may be some room available; call 247-8841 right away.

* * *

Five recent publications about energy conservation and solar energy use are available to New Mexicans free by calling the toll-free "Sundial" (1-800-432-6782) located at the New Mexico Solar Energy Institute at New Mexico State University.

The five publications are "Solar Electric Systems" — about producing electricity using photovoltaics; "Solar Economics" — addressing the economics of installing solar systems; "Tying Into the Wind" — a brochure describing a booklet about wind energy use that is available at cost; "Movable Window Insulation" — how to keep the heat in your home from escaping through your windows; and "The New Mexico Solar

Buyer's Guide" — about how solar systems work, how to select a system and/or contractor, the New Mexico Solar Loan Program, and what to do if you get "sunburned."

SOCCER MADNESS

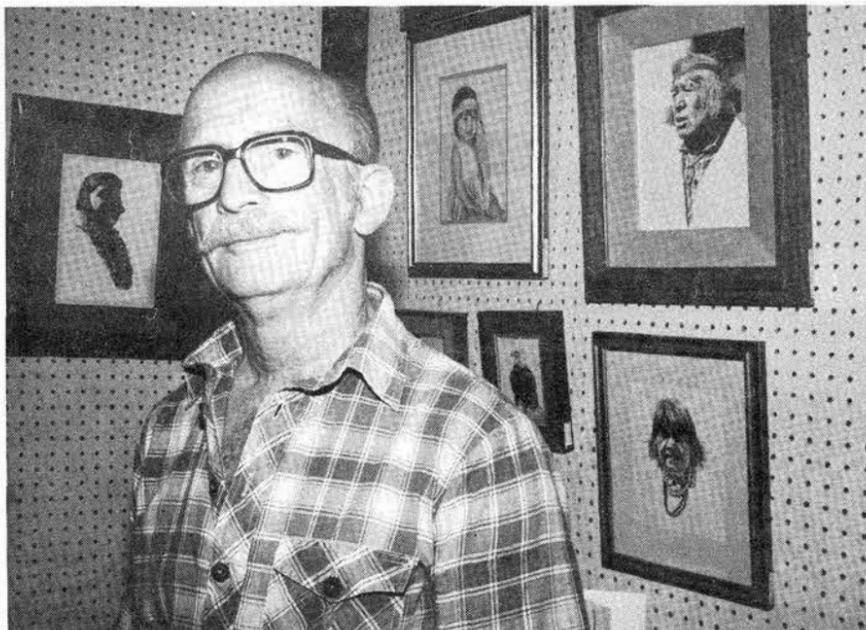


The Fédération Internationale de Football Association (FIFA) has ruled the global professional sport since 1904; it binds 147 national members, second only to the United Nations. Soccer — most of the world calls it football — is clearly a handcrafted British product of high quality, like parliaments and the Rolls Royce, that became dispersed over the world in the halcyon days of imperial Britain. The port cities of Latin America, then hosts to large British colonies, acquired the game early. Everywhere it moved from being a sport of the gentry to being a professional game appealing to the working masses.

* * *

It was the play of history that seems to have made football so preeminent in Europe and Latin America. The game arrived suddenly, to find nearly everywhere no indigenous team sport on the scene. Its simple rules, its open, visible, varied and uninterrupted flow and its freedom from equipment allowed it to catch on. In the U.S. and in commonwealth countries such as Australia and India, however, professional baseball or cricket were already in place. In most countries soccer was the first professional team sport and remains the only one. It is the first team sport for amateur participation as well.

— *Smithsonian*



TECH ARTIST Jim Walston (3155) showed off his aesthetic talents last month at the Southwest Arts and Crafts Show. "A good mix of art and craft, lots of interesting people both in the booths and in the crowds—and good sales. It was wonderful," reports Jim.

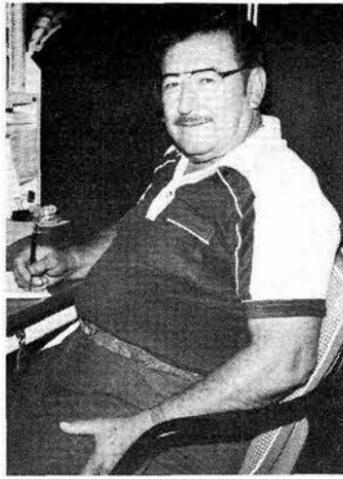
Retiring



Ralph Work (7257)



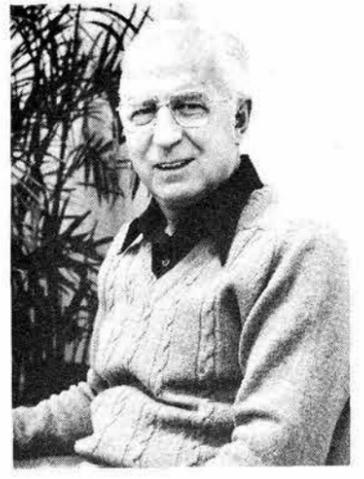
Joseph Langdon (7473)



Ray Baldonado (7212)



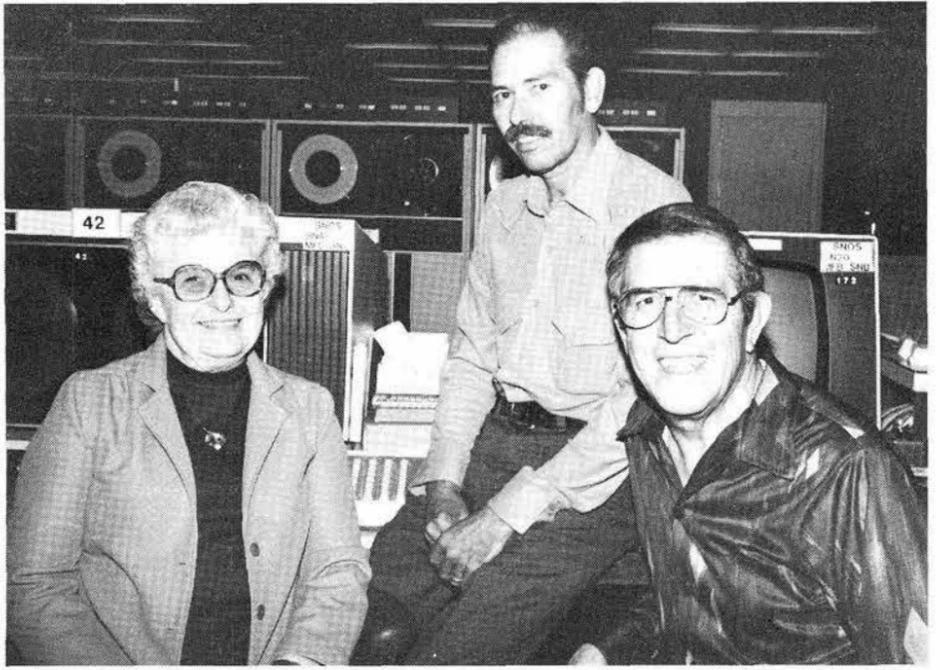
Andy Ellingson (7251)



Bob Taffe (2140)



Frank Mistretta (7474), Damacio Sandoval and Wilbur Drake (both 7482)



Evelyn Garman (2631), Manny Chavez (2632), and Frank Lucero (2631)



Maury Orrell, Earl Noel, Curtis McMurtrey (all 3435)



Paul Adams (7531), Jan Robertson and Bill Gardner (both 7500)



Mac Shannon, Howard Nunez, Bob Jones, and Harold Thomas (all 7541)



Luther Beatty and Richard Cash (both 3435)

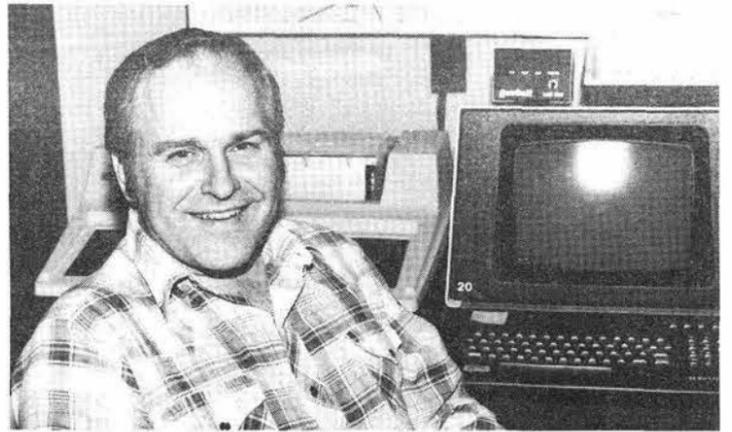
MILEPOSTS

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Thurlow Caffey (5334) 20



James Enlow (7172) 25



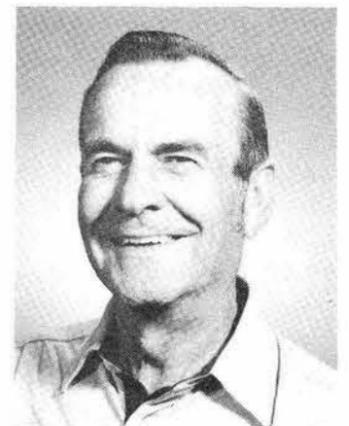
Al Cherino (3435) 25



Jim Thompson (3423) 25



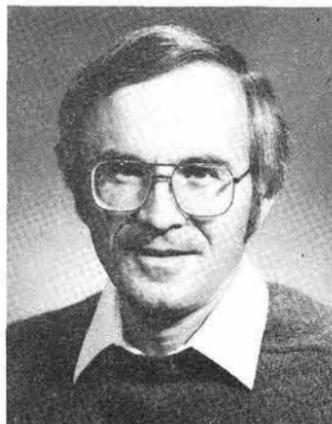
Allan Fine (3441) 30



Joe Sieglitz (3424) 35



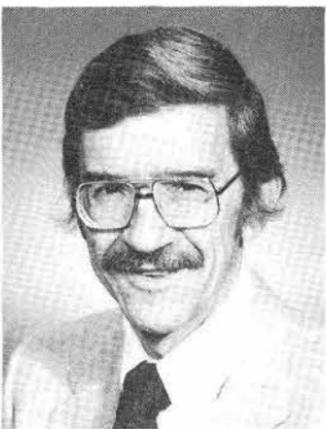
Kerry Sturgeon (2116) 15



Dan Blazek (7624) 20



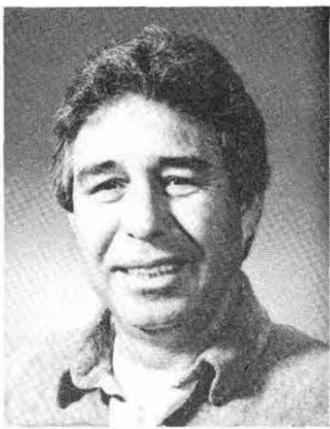
Kenneth Dunbar (5152) 20



Murl Moore (3663) 25



Roger Rizkalla (3615) 15



Salomon Moya (3618) 15



John Miller (3418) 25



Mac Shannon (7541) 35



Bruce Caskey (2642) 25



Paul Benson (2153) 25



Gene Moore (154) 10



Here is a volunteer opportunity for employees, retirees, and their families. If you are interested, call Karen Shane (4-3268).

Adelante Development Center is a United Way agency that teaches handicapped persons vocational

skills (all clients are employed). It needs volunteers in two areas: (1) consulting engineers and technicians to advise staff on setting up assembly and designing adaptive equipment for use by physically handicapped persons; (2) a business person to advise staff on marketing.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

CLASSIFIED ADVERTISING

Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.

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 and organization.
9. Housing listed here for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

LOUVER DOORS, 2-two-section doors for 32"x80.5" openings, wood painted white, incl. hinges, \$25. Wawersik, 884-7690.

FRIGIDAIRE elec. range, white, self-cleaning oven, time bake, \$120; GE pot scrubber port. dishwasher, butcher block top, \$90. Barnhart, 255-0574.

AZTEC radiant heater (19x24), \$25; Koehring KRB-8 9300 BTU kerosene heater & kerosene can, \$150, nearly new. Umland, 888-3395.

ANTIQUA jeweler's bench, \$100; 20-gal LP tank, \$20. Swanson, 884-8650.

SKI BOOTS, Nordica size 5, \$20; artificial Christmas tree, 9', \$50 OBO; U-Haul boxes, assorted sizes & prices. Roeske, 344-5659.

ELECTROLUX vacuum cleaner, all new attachments, warranty until Christmas, \$55; 19" B&W TV, \$20. Sherwood, 299-8146.

35MM slide projector & case; beaded projection screen; stove hood & exhaust fan. Adams, 256-7265.

'83 COLT, AC, AM/FM cassette, 4-way speakers, still under warranty, \$1500 down & take over low monthly payments. Vargas, 242-7097.

35MM Minolta camera, lenses, flashes, \$300; skis, \$25; ski boots, ladies size 7, \$25; wet suit (full), ladies size 9, \$100. Downs, 255-6524.

LAWN MOWER, \$25; men's 26" bicycle, \$25; BBQ grill, \$5; truck bumper, \$10. Martinez, 296-2762.

AUDIOVOX 8-track/FM stereo, \$40; Toyo 8-track stereo w/AM/FM, \$55; Craig Pioneer 8-track, \$45. Webb, 294-8341.

WATER BED, king size, includes frame, heater & headboard, \$150. Hunter, 865-5745.

4 BAR STOOLS, hardwood legs, vinyl cushion, \$40. Clough, 897-1539.

SEARS AM/FM stereo, record player, & speakers, \$50. Easterling, 298-7083.

ENCYCLOPEDIA, *World Book*, includes 12 year books, 1963-74, \$75 OBO. Kubiak, 265-6525.

UNIROYAL Tiger Paw All Season SB radials, P205 R75-14, used for 20K miles, four \$60. Booth, 296-3955.

80 YDS. chocolate brown medium shag carpet, pad, \$3/yd. Wilcoxon, 296-8295.

MONTGOMERY WARD washer, 10 yrs. old, \$70; 22" self propelled lawn mower w/side catcher, \$100; Mac 6 chain saw, 16", w/case, \$125. Benedict, 296-8542 after 5.

STOCK: 3 shares AT&T, 1 share GM, 10% below market, no brokerage fees. Casper, 268-4464.

ENCYCLOPEDIA *Britannica III w/Science and the Future*, & year books 1976-83, \$850 value, half price. Sharp, 293-1824.

TWIN BED, mattress, foundation, oak headboard & footboard, \$65. Swahlin, 294-2126.

DRAPES: bed headboards; folding window shade; twin box springs & mattress; give away dishwasher, you haul. Freshour, 266-1662 after 6.

FLUTE, Bundy, \$95; matching cocktail table & lamp table, dark wood/glass tops, \$130. Rouckus, 266-8577.

TWO adjacent spaces in Sunset Memorial Park, price negotiable. Richardson, 1-817-694-5434, Rt. 1 Box 232-F, Whitney, TX, 76692.

SIAMESE kitten, 5 mos. old, male, choc. point, affectionate, to indoor home only, \$75. Mericle, 299-0280.

CYMBALS, Zildjian 16" crash, \$15; Nuvader 20" Ride, \$40; 14" Hi-Hats, \$40; or set for \$90. Holmes, 292-0898.

TWO pair ski boots, size 5; pool table; dbl. maple bed w/box springs & mattress. Bolin, 299-5880.

'81 TERRY travel trailer, 31', loaded w/options. Sayers, 877-8094.

FENDER repair panels for GM pickups, weld or rivet. Bentz, 299-3448.

COIN MASTER (Whites) 5000/D metal detector, battery, charger & ear phones, \$150. Ridlon, 298-4729.

SKI BOOTS, Nordica Aries, fits ladies w/size 6 reg. shoes, \$35 OBO. Davis, 293-1287.

HEATHKIT TV & cabinet, pecan cabinet w/doors, 25", color TV, Mod. No. GRD900-5 w/manuals, \$300. Newell, 299-3236.

9-DWR. CHEST, \$50; 36" elec. stove in oak cabinet, \$50; recliner, \$150. Daniel, 268-8335.

CHAISE LOUNGE, new, never used, maroon w/small print chintz cover, cost \$365, sell \$275. Wright, 256-9210.

POLAROID Sun 640 instant land camera, never used, \$25. Gaither, 298-1043.

DINING TABLE, drop-leaf, 2 arm, 4 side chairs, & credenza, contemporary, fruit-wood finish, 2 additional leaves & custom-made pads, \$550. Syme, 883-0521.

WATER BED, 1981 king-size Somma w/new seamless tubes, fits std. king bedframe, \$400. Appel, 292-0463.

ATARI 2600 w/17 cartridges, \$200; 4 tires & rims, 750x16 8-ply, 8-hole pattern, Ford, \$240. Wright, 296-3850.

ELEVEN tubes (2 oz.) Shiva acrylic artist paints, basic colors except blue, black & white. Moore, 299-6780.

KIMBALL piano, console, \$995. Lopez, 296-6813.

MADAME Alexander dolls: Elise ballerina 17", blonde, \$70; Spain, 8", \$40. Anderson, 296-3352 after 5.

PIT GROUP, brown, \$225; 2 mini blinds, 71 & 35, cinnamon, \$40 ea.; dryer, \$40. Pate, 293-5393.

TWO port. sewing machines, Universal straight stitch, \$100; Signature, all attachments, \$125. Haid, 292-0159.

ETHAN ALLEN maple trundle bed, firm mattresses, \$350. Ruvolo, 296-1316.

SEARS 18" port. dishwasher, 3 yrs. old; microwave oven cart w/cabinet.

Rugh, 293-8581.

BUILT-IN Sears elec. oven, works OK, \$1 or less. Elliott, 266-7612.

SOFA, \$300; early American hutch, \$100; ceiling fans; freezer, \$150; assorted lamps, misc. items; modular shelving, \$125. Sons, 294-3953.

OSCILLOSCOPE, Tektronix 555 dual-beam 31MHZ, manuals & plug-ins included, \$250. Miller, 242-1894.

FURNACE, 120K BTU input, gas-fired, updraft w/4-spd. blower, \$125; 4-pc. sectional sofa w/loose cushions, lt. brown, \$150. Glauner, 299-0277.

CHAIN LINK FENCE, 50'x50'x50' including 6' wide gate, 6' tall. Lynn, 293-2485.

9 1/2' MITCHELL camper, 2-way refrig., stove w/oven, furnace, monomatic toilet, Mitchell loader, \$2750/offer. Stronach, 294-5271.

30x60 OAK desk & chair; 18" elec. lawn mower w/catcher, best offer. Bateman, 255-9020.

CONRAD 12-string elec. guitar, \$55; Ken-Tech cassette recorder player, \$35. Greer, 296-7310.

SKIS, boots & bindings, \$15; Head 360 metal skis, 205 cm long, Lange boots. Sherman, 292-3297.

SOFA, 7' yellow/orange velvet brocade, oak wood, \$125. Ayers, 299-1055.

LEISURE LIFT recliner chair w/lift seat, electrically operated, brown naughyde, 3 yrs. old. Verardo, 1012 Dakota SE, 255-6385.

60" ROUND wrought iron table, 4 chairs, \$300 w/new glass top, \$225 without; Sterling Buescher flute, \$325. Brooks, 265-4615.

ATARI 400 home computer w/basic cartridge, \$170. Stevenson, 245-7635.

35MM SLR cameras: Pentax Spotmatic w/50mm f/1.4 lens; Olympus OM-10FC w/lens; Tony Mottola (guitar) 2-record album, \$4. Hughes, 299-6674.

TRAILER, 22' Monterey Cavalier, self-contained, \$3500; lined drapes, lt. green; children's outdoor playset; metal gate. Showers, 822-8494.

WHIRLPOOL trash compactor, never used, under counter model, best offer. Butler, 292-8823.

2 COMPLETE sets cross country skis, \$20 each. Parker, 821-5999.

COMPUTER system, quality NEC 280 computer w/2 drives, monitor, expansion unit, cp/m, software, \$1690. Dellin, 293-8318.

MOLNAR USA 180 cm skis w/Tyrolia 150 bindings, used 3 yrs., \$70. Fisk, 294-7252.

FORD pickup factory sliding rear window, '69-'72 models, will install, \$55; chrome spot light, \$30; tire chains, 7.50x16 & G-78x14, \$25 ea. Edmund, 881-7974.

LUMINARIAS, to benefit Abq. Youth Symphony Orchestra, \$3 per dozen, delivered. Miyoshi, 821-9118.

THOMAS organ, Bicentennial model 1776. Simmons, 292-5316.

UPRIGHT mahogany piano, rebuilt, \$800; 2 artist's display boards, 4x4 & 3x5, \$85 & \$50; hamster cage, exercise ball, food, \$20. Adams, 881-6836.

WATER HEATER, gas, 40-gal., 11 years old, \$25. Trump, 299-5162.

TIRES: 2 Goodyear Custom Polysteel radials, BR78-14, \$55; '81 Datsun truck wheels, 5 1/2x15, never used, \$75 set. Miller, 281-3655.

TWO pair 170cm skis, beginner, \$35; intermediate, nearly new, \$70; Ladies Munari boots, size 6 1/2-7, used 1 season, \$75. Lassiter, 299-1492.

40 CHANNEL CB radio, used twice, \$40; Proline golf bags, Hogan, \$60, Palmer, \$40. Fjelseth, 881-1469.

EXERCISE BIKE, Sears dual action, rowing, cycling model 671.283, \$35. Rainhart, 821-3690.

ELECTRIC START 110VAC gasoline generator, 350 watts, less battery, \$150. Meikle, 299-4640.

DINING ROOM set, Spanish style, hand carved by noted local craftsman, large scale, table w/2 leaves, buffet, 6 chairs, \$1800 new, sell \$600. Stevens, 299-6086.

HORSE trailer, \$400; glass doors for fp, \$50; metal pipes for FP, \$15; cow hay, \$1.50; ducks, \$7. Lackey, 898-6638.

PECANS, this year's crop from Las Cruces, \$3.75/lb. Plein, 884-3749.

MAPLE bar stools, four, \$37.50 ea. or all four for \$125. Syme, 883-0521.

TRANSPORTATION

'73 RANCHERO, AT, AC, PS, PB, air shocks, shell, \$1950. French, 293-3451.

BICYCLE, girl's 20", hi-rise handlebars, banana seat, \$20. Roeske, 344-5659.

'73 AUDI 100LS, std. shift, 23 mpg, \$850. James, 281-3045.

'72 VOLKSWAGEN 411, AT, 4-dr. Robles, 298-2456.

'81 VESPA P-200, 60+ mpg, metric tools, helmet, 6555 miles, \$1700 new, consider any reasonable offer. Sharp, 293-1824.

1/4 SHARE in Cesna Skymaster, 6 seats, fully instrumented, 20 hrs. since annual. Sarason, 281-1335.

'71 VW Super Beetle, seat covers & tires recently replaced, \$1700. Troy, 821-6812.

'80 YAMAHA XS400, 3700 miles, extras included, \$1200. Buza, 298-1531.

'76 MGB, low miles, AM/FM, tonneau cover, new alternator, disc brakes, convertible top, one owner, \$3250. Chirigos, 884-5686.

BMX bicycles: Schwinn Phantom Scramblers, \$100 w/mag wheels, \$80 w/spoke wheels. Wright, 296-3850.

'81 TRANS-AM Turbo V8, T-top, cruise, 4 disc brakes, positraction, AC, warranty, more, consider older truck or 4x4 trade. Arana, 299-1214.

'76 PINTO, canary yellow, 4-spd., AM/FM cass., low miles, \$1500. Christopher, 299-5712.

'76 FORD Granada, AT, PS, PB, AC, new radials, 57K miles, \$2000 OBO. Siemers, 296-0651.

'75 YAMAHA Enduro 100cc, \$325. Starkey, 877-7515.

'37 CHRYSLER Roadster, 75% restored, \$7K. Perryman, 281-3020.

'78 LANDCRUISER, extras, 2 tops, big tires, chains, ski racks, AM/FM cass., sun roof in HT, \$6k negotiable, trade. Klarer, 344-0612.

'75 CORVETTE coupe, silver/silver, AC, PS, PB, PW, tilt/tele, AM/FM stereo, 9720 orig. miles, always garaged, \$12,900 negotiable. Smith, 821-3199.

'67 FORD Galaxie, 2-dr., make offer. Chavez, 242-3971, 836-3055.

'81 HONDA ATC 250R, ported & polished. Underhill, 299-8642.

'76 HONDA CB400F, 6800 miles, shield, etc., \$700; bicycle, 20" Huffy, \$20. Chou, 255-6746.

'83 HONDA XL600R, dual purpose motorcycle, 4" supertrap, 600 miles, \$1850/offer. Stronach, 294-5271.

'67 BMW R69S motorcycle, \$1500. Gwinn, 299-7167.

'76 PORSCHE 914, 2 liter, AC, AM/FM/cass., 46K miles, \$6500. Gibson, 298-9170.

'78 SUZUKI GS750, \$700. Spencer, 296-6250.

'82 SUZUKI GS100E, 2300 miles, w/extras, \$3100 OBO. Gunckel, 255-4325.

10-SPD. French touring bike, Motobecane Nomade, medium size frame, cotterless cranks, new rubber, powder blue, \$125. Shunny, 265-1620.

'81 YAMAHA 80 Enduro, 750 miles, \$300. Gutierrez, 268-9916.

'80 JEEP CJ7-HT, PS, AM-FM, Auto-Rev cassette, Golden Eagle pkg., 258 CID, 6-cyl., 4-spd., 19K miles, \$7500 OBO. Northcutt, 299-6958.

'81 YAMAHA YZ465, \$1100. Healer, 298-6967.

SEARS 10-spd. men's bicycle, \$50. Whan, 268-0687.

'79 SUBARU, 4WD, SW, AC, new radials, reg. gas, 39K miles; '73 F-250 (Ford pickup), 4 spd., V8, AC, PS, PB. Workhoven, 281-3246.

'68 OLDS Cutlass Supreme, 2-dr., 350 4-barrel, AT, AC, rebuilt carb., new tires & transmission. Eldredge, 881-4528.

REAL ESTATE

10 LOTS near Costilla Ski Area, some double lots, price negotiable. Richardson, 1-817-694-5434, Rt. 1 Box 232-F, Whitney, TX, 76692.

3.68 ACRES in S. Valley, 4-bdr. house, many extras, excellent for horses. \$166K. Starkey, 877-7515.

1.3 ACRES El Pinar Estates, 14 miles east off frontage road, wooded, electricity, phone, \$8K. Perryman, 281-3020.

SOUTH of Los Lunas: 3-bdr., 1 bath, fp, garage, carport, on 1/4 acre, in the \$40s. Sanchez, 865-6548.

4-BDR., fp, 1 1/2 bath, 1450 sq. ft., near Princess Jeanne area, \$12,500 down. Pickle, 293-6990.

4-BDR., 2-car garage, den, LR, formal DR, util. rm., cov. patio, Morris & Montgomery area, 2175 sq. ft., \$32K down, refinance balance \$65K. Northcutt, 299-6958.

WANTED

TO SEND small, fragile package to Denver by car before Christmas. Arnold, 898-1467.

SOUNDTRACK to *The Magnificent Seven*, Elmer Bernstein score; will pay to tape. Lenz, leave message at 256-7440.

BOOK SHELVES. Cox, 294-8084.

REASONABLY clean 55-gal. drums, to be used for non-drinking water storage. Riley, 869-2119.

BOOK, *Grapes Into Wine*, by Phil Wagner. Scheibner, 345-9351.

FRONT and back door for passenger side of '81 Escort wagon. L. Gallegos, 836-0407.

BABY CLOTHES, furniture, etc. to support neighborhood clothing bank in South Broadway area; tax deductible. Shepherd, 296-1328 after 6.

TUTOR for 6th grade (grammar & arithmetic), New Holiday Park area. Appel, 292-0463.

REMOVABLE hard top for 1966 MGB. Trompak, 296-5438.

PROJECTOR for 8mm home movie film. Rogers, 256-0066.

SHARE-A-RIDE

RIDERS wanted for Sandia-Eubank bus if route includes the Juan Tabo area north of Montgomery; call Daniel Barnette (1621), 4-4278.

Holiday Parties: Adults Tonight, Kids Tomorrow

A NEW LETTER of understanding between the Labs and the Coronado Club was signed this month that develops and promotes a closer relationship between the Labs and the Club. The new agreement provides for closer coordination and use of the Coronado Club building for Labs/DOE-sponsored events as well as Club events and recreational activities.

A redecorating effort is underway that should be completed before the Christmas holidays. Why not stop by and take a look?

TONIGHT, Club members (and their guests) start the holiday season by enjoying a festive buffet of roast beef, baked ham, and seafood thermidor (lobster, shrimp, and crab) at a special price of \$13.95 for two. Call the Club office, 265-6791, *right now*, and find out about reservations. The buffet will be served from 5 to 8:30 (note new hours), free western dance lessons instructed by Karen Edwards are scheduled from 7:30 to 8:30, and the W.D.C. Bands plays country and western-style from 8:30 until 12:30.

TOMORROW starting at 9:30 a.m., the annual Coronado Club Christmas Party for Kids gets underway. Mike Michnovicz (7632) with accordion will conduct a sing-along, Ron and Mary Kay Day with puppets, original songs, comedy, melodica, guitar, and pizazz will present an original Christmas program, and a man in a red and white suit from the North Pole is scheduled to arrive to talk with all the little ones. Each kid will receive a gift, and there will be refreshments available. Admission is a can



PHIL HOGIN, a member of Sandia's Board of Directors from 1968 through 1980 and again from 1982 until his recent retirement, reminisces with President Dacey at a dinner in his honor. At Western Electric, Hogin was an executive vice-president.

of food to be donated to the South Highway 14 Village Project. Members and their families only, please.

THE MONTH of December is traditionally reserved for private organization parties at the Club, but the main lounge is always open to members. Happy Hours will continue from 4:30 until 6:30 Mondays through Fridays. On Saturdays, the lounge opens at noon. The Club will be closed from Saturday, Dec. 24, until the New Year's Eve Party starts on Saturday, Dec. 31.

MAKE RESERVATIONS and pick up tickets for the Club's end-of-the-year celebration soon. Tickets go for \$7.50 each and cover admission, hors d'oeuvres, a bottle of champagne, hats, horns, favors, noisemakers, a door prize drawing, dancing, and a breakfast buffet. Spinning Wheel plays upstairs while Bob Banks and the Trio hold downstairs. Now this is a New Year's Eve celebration, but there's more. Special drink prices include draft beer for 25 cents; can beer, 50 cents; well drinks and wine, 50 cents; and special strawberry, peach and banana daiquiris, 75 cents. Breakfast is a festive spread of scrambled eggs, green chile, ham, sausage, and assorted goodies.

CORONADO SKI CLUB holds its annual Snow Ball on Tuesday, Dec. 20. Starting at 7 with a social hour with munchies and goodies, the event proceeds to a fashion show at 7:30 exhibiting the latest in male and female ski fashions, then dancing follows with the W.D.C. Band making the music. The usual great Ski Club door prizes will be given away during the evening. Tickets are \$5. Contact Gwen Gorman (3322), 4-5545, for more information.

HOLIDAY TRAVEL PACKAGES offered by the Club include Las Vegas by bus, Dec. 26-29 for \$99 or San Diego by air for \$339 on Dec. 26-31. The trip includes unlimited rides at Disneyland one day, admission to the San Diego Zoo, Sea World, and a ride on the San Diego Duck, a WWII amphibian.

Also scheduled is a trip to New Orleans at Worlds Fair time, May 25-29, for \$568.



THAT'S PRIDE—and relief—in Dick Fairbanks' (3511) face as he's congratulated by Wendell Chino, governor of the Mescalero Apache tribe. The occasion was the success of the recent AISES (American Indian Science and Engineering Society) conference, which attracted some 225 Indian students from around the country. Sponsored by Sandia, the Conference, entitled "2003: Challenging the 21st Century," was organized by Dick and included addresses by Chino, Peterson Zah (chairman of the Navajo Tribal Council), Ada Deer (a Menominee Indian now on the University of Wisconsin faculty), and President Dacey.

EXPERTISE REVISITED



"The energy produced by the breaking down of the atom is a very poor kind of thing. Anyone who expects a source of power from the transformation of these atoms is talking moonshine." (Ernest Rutherford, physicist, 1871-1937)



"I really like my new word processor except for one thing. Liquid paper doesn't work on it as well as on paper."