

AN AWARD for technical excellence was presented recently to Bob Sowell (5833) and Dick Pettit (5824) by DOE's Division of Solar Thermal Technology. The Sandians perfected the black chrome plating process used for parabolic trough receiver tubes.



HONORED—John Otts (4713) and Bill Marshall (4755) received a DOE award for Management and Communications Excellence recently for their work on the Central Receiver Test Facility. (See article on Page Four.)

# LAB NEWS

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

## Nuclear Fuel Shipping Cask Undergoes Torch Test

As DOE's lead laboratory for nuclear materials transportation technology, Sandia has subjected various models of shipping casks for spent nuclear fuel to numerous destructive and spectacular tests. They have been dropped from a helicopter, smashed into solid concrete at

80 mph and burned for an hour in a pit of flaming jet fuel, to name a few. These tests obtain response data which are then used to validate computer models and code calculations.

Nuclear Materials Transportation Technology Department 4550 recently com-

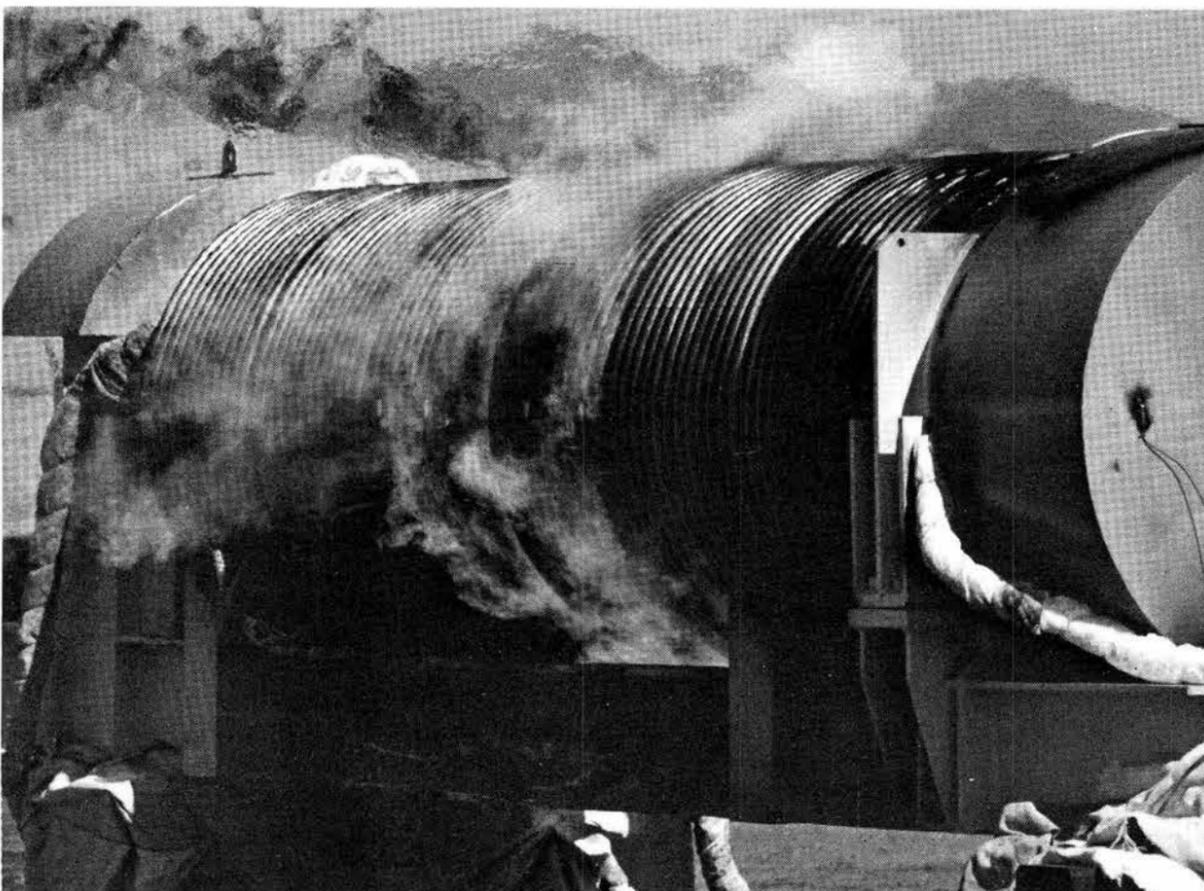
pleted another test in the series. In this, an instrumented shipping cask was exposed to a 2200°F (1200°C) "torch" flame, four feet in diameter, for a half hour. This environment simulates the accident situation where the relief valve of a liquified gas tank car has opened, the contents vented and ignited, and the resultant torch envelops the cask.

The torch facility, fueled by a propane and air mixture, is located at NMIMT at Socorro and is used as a standard test for railroad equipment by the Department of Transportation/Federal Railroad Administration which funded these particular shipping cask experiments. The shipping cask was subjected to four different torch tests with the flame at different locations on the cask.

Because of the high costs involved in designing and fabricating a new cask for experimentation, available casks were surveyed and the Hallam Nuclear Power Facility (HNPF) cask was selected for testing. To more accurately simulate modern casks, a corrugated shell which contains water as a neutron shield and steel-lined redwood impact limiters were designed and added to the steel/lead/steel HNPF cask. The modified cask weighs 45 tons. It has an outside envelope, 1.8 m (6 ft.) in diameter and 6 m (19.7 ft.) in length.

During the first two tests the neutron shield tank was water-filled, but the tank was emptied prior to the final tests to

[Continued on Page Two]



NUCLEAR FUEL SHIPPING CASK is subjected to 2200°F "torch" flame at a Department of Transportation/Federal Railroad Administration test facility at NMIMT at Socorro. Sandia is conducting the tests to refine an analytical model of the cask's performance in the flame environment.

# Supervisory Appointments

DENNIS MANGAN to supervisor of Project Engineering Division 1759, effective Nov. 1.

Following graduation from Notre Dame, Dennis came to Sandia in 1960 as a member of the Technical Development Program. He later earned an MS in EE and a PhD in nuclear engineering from UNM. The work Dennis has done at the Labs has been in three areas: neutron tube research and development, radiation effects studies, and safeguards and security. He served for one year as scientific advisor to DOE's Office of Safeguards and Security in Germantown.

Dennis is a member of the Institute of Nuclear Materials Management. He enjoys gardening and camping. He and his wife Kathie have two children and live in the NE heights.

\* \* \*

DONN STEWART to supervisor of Physical Electronics Section 1471-2, effective Nov. 16.

Donn has had two separate careers at the Labs but both have been with the same organization. He first joined Sandia in 1961 as supervisor in the physical electronics section. Seven years later he left to return to school. After receiving his BS in chemistry from the University of Denver, Donn returned to the Labs as a process engineer in his former organization. Since April he has been a project engineer with Project Management Support Division 4041.

Donn is a member of the American Ceramic Society. His off-the-job interests include woodworking, metalworking and fishing. He and Evelyn, his wife, have five children and four grandchildren. They live in the NE heights.

\* \* \*

JAN VANDERMOLEN to supervisor of Systems Analysis Section 3212-1, effective Nov. 1.



NEW SUPERVISORS: Standing (l to r), Rich Anderson (2142), Dennis Mangan (1759) and John Guth (2124); seated, Jan Vandermolen (3212-1) and Donn Stewart (1471-2).

Jan joined the Laboratories at Livermore in June 1970 as a secretary. She later headed a micrographics section and, more recently, was a systems analyst in Management Information Division 8215.

She earned a BS in science and business administration from the University of San Francisco and an MBA from St. Mary's College in Moraga, Calif. Jan's interests off the job include backpacking, bicycling, civic light opera and bridge. She and her husband Wil (1554) have three grown sons and four grandchildren. They live in the SE heights.

\* \* \*

JOHN GUTH to supervisor of Data Acquisition and Testing Division 2124, effective Nov. 16.

Since joining the Labs in 1962 as a member of the Technical Development Program, John has worked in the test equipment and evaluation areas for many of Sandia's weapons programs. The responsibilities of his newly created division include two areas of testing of large-scale integrated circuits: testing of samples of commercial ICs and of Sandia-designed circuits.

John earned his BS in EE from the University of Kansas and an MS in EE from UNM. His interests off the job include geology, railroad history, and weekend farming on his 10 irrigated acres near Los Lunas. John and his wife Barbara have two children and live in the NE heights.

\* \* \*

RICH ANDERSON to supervisor of IC Process Development and Control Division 2142, effective Nov. 16.

Rich's first assignment upon joining the Labs in 1974 was with the group formed at the Labs to develop integrated circuits; he's since continued to work with that department.

He earned his BS, MS and PhD, all in EE, from the University of Illinois. Rich is a member of the Electrochemical Society. He also plays trombone with the Albuquerque Philharmonia Orchestra and enjoys backpacking, photography and amateur radio. Rich and his wife Carolyn have three children and live in NE Albuquerque.

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## Torch Test

simulate a damaged shield. Eighty-three thermocouples were installed on the exterior corrugated surface, on the impact limiters, in the neutron shield shell cavity, on the exterior of the gamma shield, on the cask interior cavity and in the area of the cask closure seals. The measured temperature profiles through the various materials of the multilayered cask are the first data of this type ever recorded on a full-scale cask.

These measured temperature data will be used to refine the thermal analytical model which can later be used to predict temperature tolerances for other shipping casks designed to survive torch fire environments. Comparisons of the data show generally that the analytic model predicted the actual temperature measured in the cask. Torch data from the model are being refined to obtain even better agreement.

Mannie Vigil and Richard Yoshimura (both 4553) and Art Trujillo (4552) were responsible for directing and coordinating the analytical/experimental program. Brian Joseph (4553) and Dave Sandoval and Duane Stenberg (both MRL) prepared and instrumented the tests. Jay Anderson of Health Physics Division 3312 and Gary Phipps and Clarence Robertson of Photometrics Division 1556 also participated in the torch tests.

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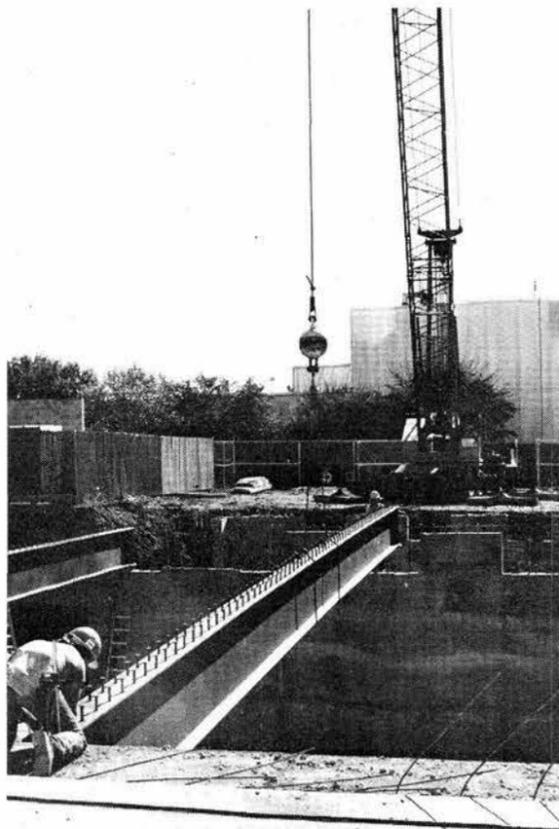
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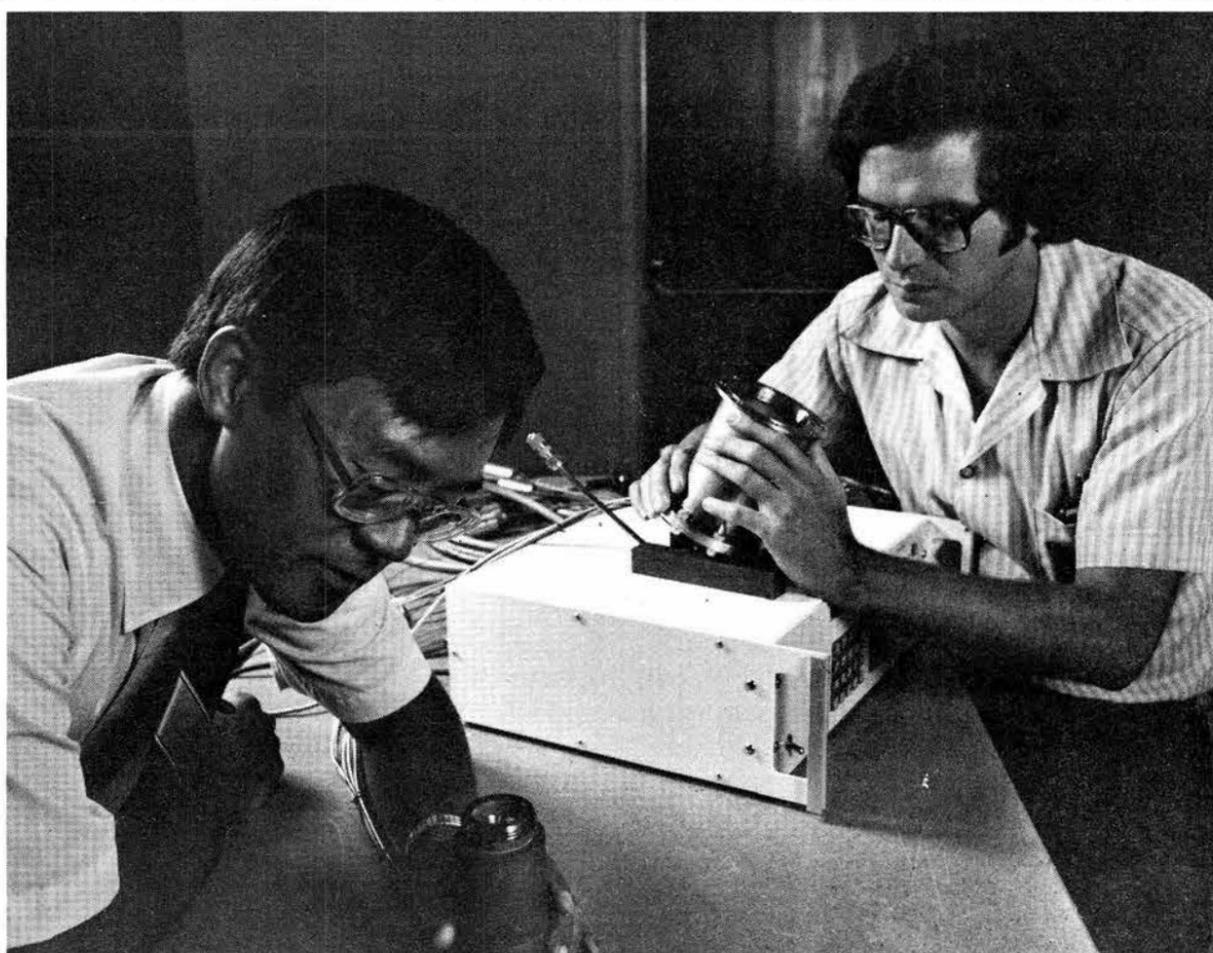
barry schrader reports livermore.



CONSTRUCTION of the underground addition to the SNLL Computing Center, now about 30 percent complete, is due to be finished by the summer of 1982. Ceiling beams, some 60 feet long, are here being installed. Wallace Webb & Son Construction Company of Hayward is project contractor.



GLENN RAMBACH (8521) could be considered a space shuttle buff if his collection of memorabilia, including 11 T-shirts and his presence at both landings this year, are any indication. Glenn drove down to Edwards Air Force Base for the April 14 landing and again on November 14 to witness the Columbia's touchdown back on Earth. Pressed up against the fence with thousands of other spectators about three miles from the landing, Glenn used binoculars to see the shuttle while being buffeted by the sonic boom. He was interviewed by NBC-TV at the site and explained that he went because he "wanted to be a part of a significant technological and scientific event . . . Just to be part of the crowd was an electrifying experience," he exclaimed.



JIM WANG (8521), at left, examines the fiber/filter component for the particle mass monitor that he designed. Eldon Porter (also 8521) makes an adjustment to the instrument.

## Particle Monitor Does Job Right Now

*Pollution Engineering* magazine recently presented its 5-Star Award to Sandia's Jim Wang (Combustion Research Division 8521), Harvey Patashnick, and Georg Rupprecht (Rupprecht & Patashnick Co., Englewood, Colo.) for their design of a particle mass monitor, which is a device for measuring particulate air pollution quickly and accurately. The mechanism in the particle mass monitor that measures the solid material carried by a gas stream has been given the imposing name of "tapered element oscillating microbalance," or TEOM detector, by its designers.

"Harvey came up with the original concept," says Jim. "He and Georg built the fiber element that traps the particles and I designed the rest of the instrument at Sandia. DOE sponsored a project to develop air-cleaning devices, and we wanted to find a way to monitor the performance of those devices.

"Clean air is important not only for people but for machines, too. Before, oil was the main fuel for power-generating turbines. Oil burns cleanly and it provides clean air for the turbine. But now more and more utilities are converting to coal which, while cheaper than oil, is also 'dirty.' That is, it produces fly ash particles which can erode the turbine blades."

The particle mass monitor that Jim, Harvey, and Georg designed is based on a

simple system which measures the oscillation frequency of a fiber that responds to the weight of material trapped by a filter mounted on the end of the fiber. The fiber—shaped like an inverted champagne bottle—is hollow in the center to allow exhaust from the combustor to pass through, while the particulates are trapped in the filter.

"Commercially available particle detectors are either optical devices which cannot measure particle mass directly," says Jim, "or they are physical sampling devices that don't provide real-time measurements. The TEOM detector is real-time, which means that measurements of dust in the air are available at the instant of the measurement. And, in the event of a failure in the combustor, the real-time feature enables the operator to know exactly when the malfunction occurs so that he can take appropriate action.

"We hope to see the TEOM detector used widely in industry to monitor the particulates in exhaust systems since the device can be modified for various applications. Currently, two monitors are being constructed for a hot-gas clean-up system at Curtiss-Wright. We'll also be performing experiments on a coal-fired power plant operated by the Tennessee Valley Authority, and Mercedes-Benz has inquired about a system for monitoring particulates in diesel engine exhaust."

## Take Note

A new show at the Wheelwright Museum in Santa Fe features storyteller dolls and pottery figurines relating to the Nativity by Helen Cordero of Cochiti Pueblo. The exhibit, entitled "Tales for the Season," is on view through Jan. 30.

\* \* \*

*Nacimientos*—Nativity sets of Southwest Indian artists—will be featured at the Adobe Gallery through Jan. 3. Over 50 potters and carvers will show *nacimientos* made of clay, some carved from saguaro cactus ribs, cottonwood root, and deer antler, and others sculptured from turquoise. The Gallery at 413 Romero NW in Old Town is open from 11 a.m. to 6 p.m., seven days a week.

\* \* \*

Part of the former camp of the Camp Fire Girls in the Manzano Mountains is for sale. Three one-acre lots in San Miguel Acres off South Highway 14 (eight miles south of I-40) are offered at \$5000 per acre. Contact Narosonia Spatz (husband Don works in 4341), executive director of Camp Fire, 265-8786. Sale of the property will benefit the group's new camp in the Jemez.

\* \* \*

The Tierra del Sol Council of Camp Fire is offering two recreation sessions for youngsters age 5-12 during the upcoming holidays. Activities include a horse show, hayrides, ice skating, gymnastics, movies, arts and crafts. The sessions are based at St. Mark's on the Mesa Episcopal Church, 431 Richmond Pl. NE and run from 7:15 a.m. to 5:45 p.m. during each of the four-day periods—Dec. 21-14 and Dec. 28-31. Cost is \$28 per session or \$50 for both. Call 265-8786 for more details.

\* \* \*

Retiree Felix Padilla continues his award-winning ways in the world of fine art. He picked up two honorable mentions in an eight-state regional competition held recently in Pueblo, Colo., at the Sangre de Cristo Arts Center.

\* \* \*

For the benefit of newcomers, one of the fine old Sandia Christmas customs is not, repeat not, to send cards to co-workers. Say "Merry Christmas" to them and donate the money saved to the office Christmas project. (If you don't have a local project, we recommend the South Highway 14 Village Project which will be making its annual trek to help poor families in the villages on Dec. 19. LAB NEWS is the contact.)

\* \* \*

UNM's Maxwell Museum has a new exhibit entitled "Fiestas of San Juan Nuevo—Ceremonial Art from Michoacán, Mexico." The release states: "The people of San Juan Nuevo produce elaborate ceremonial art which is rarely seen . . . over 300 objects including Tarascan Indian costumes and masks, ceramics and household furnishings, and ceremonial art

Continued from Page One

## Five Sandians Receive DOE Awards

Five Sandians have received awards for excellence from DOE's Division of Solar Thermal Technology "for significant contributions in helping the Division . . . meet its goals and objectives."

John Otts, supervisor of Central Receiver Test Facility and Thermal Technology Division 4713, and Bill Marshall, supervisor of Enhanced Oil Recovery Division 4755, received the Management and Communications Excellence Award, which cites them "for successful construction and initial operation of the Central Receiver Test Facility, the first major solar thermal energy systems construction project to be completed. John Otts was responsible for management of the initial design and construction of the facility which was completed on time and within budget. Bill Marshall has been responsible for the operation and the timely completion of critical program experiments at the CRTF.

"The international recognition gained by the CRTF is in large measure due to the individual efforts of these two men."

Bob Sowell of Process Metallurgy Division 5833 and Dick Pettit received the Technical Excellence Award which honors them "for development of the black chrome plating process used to form selective

absorber coatings on parabolic trough receiver tubes. Bob Sowell has been principally responsible for the plating process technology and its successful demonstration. Dick Pettit has been responsible for characterizing the optical performance and thermal stability of black chrome coatings, and for the development of accelerated aging tests." Dick has also done research to characterize optical surfaces for solar concentrators.

"As a result of this four-year effort," the award states, "there now exists an electroplating process for making durable black chrome coatings stable for a 30-year lifetime, at temperatures up to 300°C."

Virgil Dugan, manager of Geo Energy Technology Department I 4750, was also honored by DOE with an honorable mention for the Management and Communications Excellence Award. His citation read "for management and com-

munications excellence as project manager of the DOE Line-Focus Technology Development Program. Under his guidance, the program and the technology has reached the point where it can be transferred to private industry for continued development."

\* \* \*

objects—bread dough ornaments, flower decorations . . . are presented in reconstructed environments . . ." Museum hours during the week are 9 to 4, Saturday 10 to 4, and Sunday 1 to 5. It's at University and Ash NE.

\* \* \*

Next lecture in Medical's series on aging ("Let's Talk About Aging") is entitled "Aging and Hearing." Karl Hattler, PhD, of Albuquerque's Hearing Evaluation Center, is the featured speaker. He will discuss the relationship between aging and hearing and the problems occasioned by such loss within the family and on the job. The talk is scheduled for Tuesday, Dec. 15, at 12 noon in Bldg. 815 (outside). Spouses are welcome.

\* \* \*

Sandia's legions of amateur photographers will be interested in the 2nd annual Holiday Photography Show, sponsored by Images, The School for Amateur Photography, on Dec. 5 & 6, from 10 to 5. It's being held at the school, 1500 Indian School NE. There is no admission charge. The show provides an opportunity for the Guild's 119 members to exhibit their work.

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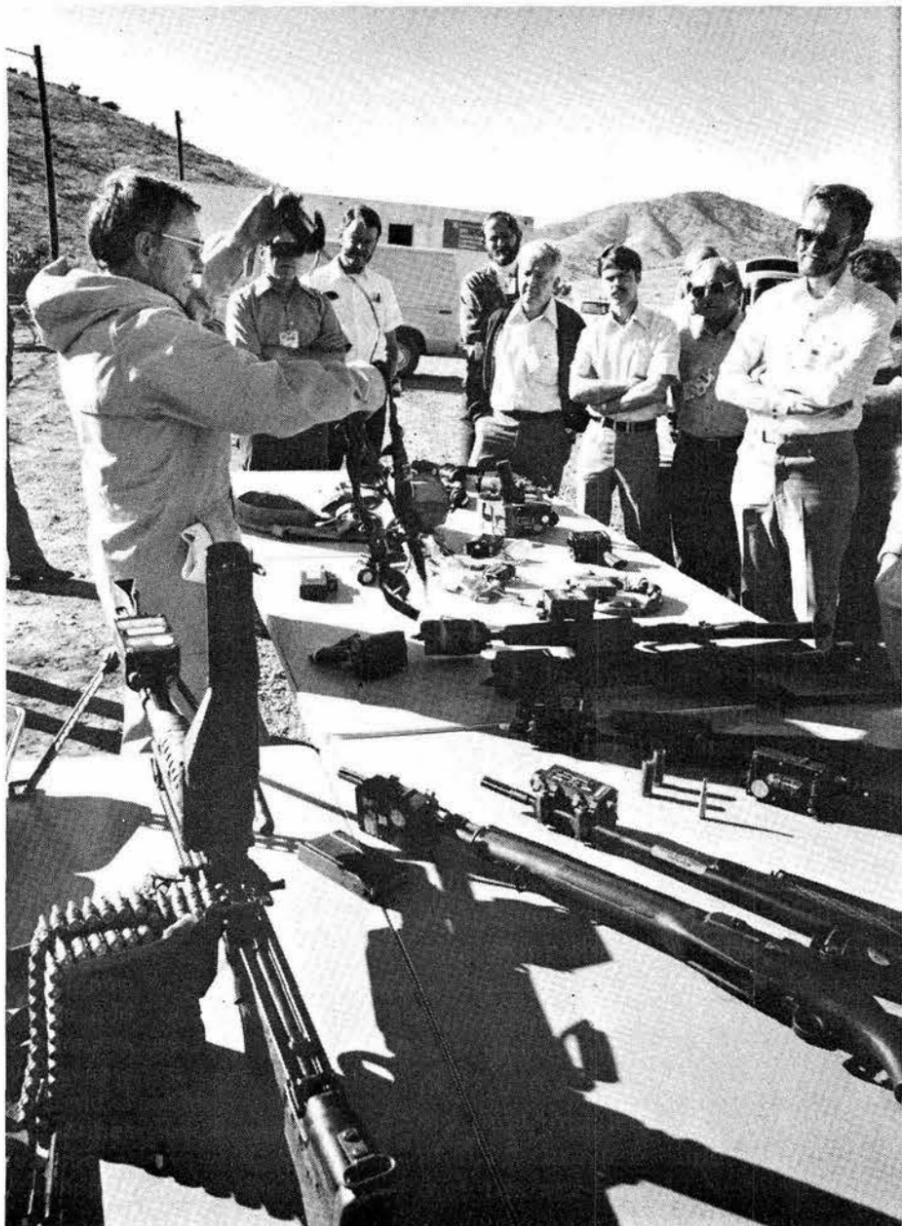
Colloquia coming up: on Dec. 9, "Prehistoric Astronomy in New Mexico," with Michael Zeilik of UNM's Dept. of Physics & Astronomy; on Dec. 16, "Science & Space Exploration," with Arden Albee, Professor of Geology at Pasadena College. Both start at 10 a.m. and are outside the Tech Area.

If you're interested in our jury trial system, the UNM Jury Research Project is looking for men and women of all ages, backgrounds and occupations to watch a videotaped trial and then to deliberate as a jury. Sessions run during the week or on weekends, and there is a modest stipend. Contact: 277-6115.

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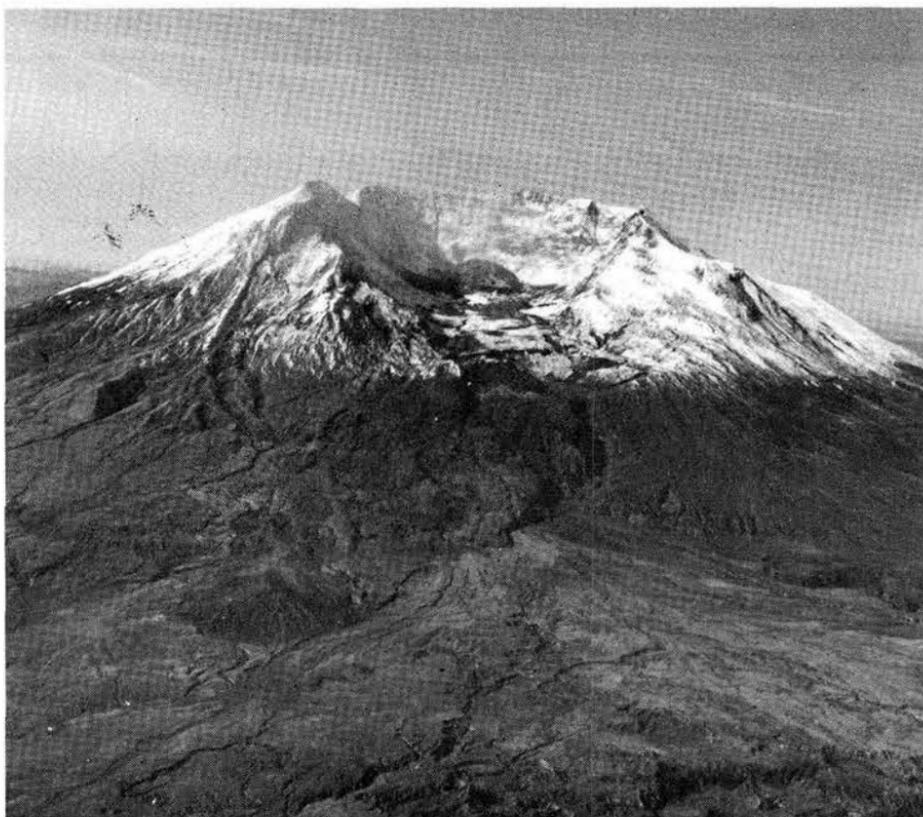
We noted an ad in the *New Yorker* magazine, "Gas-Saver Lighter . . . eliminates wasteful pilot . . . save up to 30% on gas simply by turning off pilot lights!" The device is hand-held and creates a spark, possibly using a piezoelectric material, as you squeeze it over the burner on your kitchen range. Seems simple and convenient enough and, for only \$9.00, is no big investment. But what does a pilot light cost? The Gas Company's energy conservation people, with whom we checked, say \$6 to \$12 a year, depending on size of the pilot (the pilot on the oven is bigger than the pilot(s) for the individual burners). Some stoves have as many as four pilots. So yes, you could realize a fair saving. Our 30-year-old Caloric has just two pilots . . . we'll settle for a box of kitchen matches.

While talking to the Gas Company, we touched on electronic ignition for the furnace and gas dryer (in lieu of their pilot lights). These run \$150 plus per retrofit. Conclusion: a desirable feature on new equipment but not on existing installations.



## Safeguards Show & Tell

SECURITY people associated with DOE installations around the country came to Sandia in November to learn about the latest techniques and hardware for protection of their installations. Sandia hosts were members of the directorate of Nuclear Security Systems 1700. As part of the technology tours, visitors had an opportunity to try their hands with some of the new equipment in Coyote Canyon. At left, Bob Wilde (1716) describes laser-equipped firearms used to train security forces while (above) Margaret Schumann from DOE/KCAO in Kansas City fires M16 carbine at pop-up target.



## Our Man at St. Helens

TERRY LEIGHLEY of Photometrics and Optical Development Division 1556 has been on special assignment with the U.S. Geological Survey, working in the crater of Mt. St. Helens. He is taking documentary photos of the crater and operating instruments which measure faults and cracks in the volcanic dome. Photo, left, shows huge crater following eruption. The dome is the dark area in the center of the crater. Photo at right is a closer view of the dome. Note USGS helicopter approaching for a landing. Terry commutes from Vancouver, Wash., in the chopper almost daily, spending most of his workday in the crater area. He wears protective clothing, carries emergency equipment in a backpack, and has worn out two pairs of heavy boots since starting the assignment.

## Fun & Games

*Triathlon*—Winner of the fifth annual Triathlon of Albuquerque, the Jay Benson Memorial was—for the fifth time—Ron McCurley (4441), who completed the three phases in 63:41. Sponsored by the Coronado Club, the Triathlon consists of a five-mile run, followed by a ten-mile bike ride, followed by a quarter-mile swim, all back to back. Retired Sandian O. J. Foster was, at 65, the oldest entrant. O. J. did the course in 100:45. One hundred and ten people participated in the contest.

\* \* \*

*Biking*—Walt Joseph (1713), who works with the City Bikeway Committee, informs us that APD has issued over 105 warnings to cyclists in the university area. Most were given for running stop signs, but others were written for running stop lights, no lights on the bike at night and riding the wrong way (against traffic). Next stop for APD: Sandia commuter routes "in a few weeks."

\* \* \*

*Skiing*—First trip of the new season by the Coronado Ski Club is set for next weekend, Dec. 11 to 13. Wolf Creek is the destination and Sharon Mackel, 4-6865, is the contact. The CSC Christmas ball and ski fashion show takes place Dec. 15 in the Coronado Club, 7:30 p.m. On the X-C scene, the beginner and intermediate cross country ski clinics sponsored by the C-Club are filling up. Cost is \$10 (\$8 if you have your own equipment). Contact: Tom Lenz, 4-8486.

\* \* \*

*Physical fitness*—"It is the condition that helps a person to look and feel well, to carry out his or her daily duties and responsibilities successfully, and yet have enough physical reserves to enjoy social, civic, cultural and recreational interests. In addition, it enables one to meet unusual or emergency demands." If this definition does not fit, or if you are concerned about your fitness level, call recreation manager Tom Lenz for a motivational package to help you start your fitness program.

\* \* \*

*Winter running*—Copies of *The Runner's Winter Running Guide* are available from Tom Lenz, 4-8486. It covers acclimatization, wind chill, hypothermia, proper clothing and other topics.

\* \* \*

*Wildlife*—A bus tour to the Bosque del Apache Wildlife Sanctuary is scheduled for Saturday, Dec. 12, by the Que Pasa Rec Center. Cost is \$13, the bus leaves from the center at 10, returns at 5, and bring a sack lunch. The Bosque is a wintering place for thousands of migratory birds. Reservations: 4-5420.

### Congratulations

Pat (2311) and Nancy Knight, a son, William Kenneth, Nov. 5.

Wayne (2543) and Loretta Leger, a son, Nov. 17.

## Quality Control Inspection

### New Role For QA Group

Quality assurance has always been defined as a "customer function." This is what a buyer does when he checks the quality of the merchandise he's purchased to make sure that it is indeed what he ordered and that he is getting his money's worth.

Quality control has always been defined as a manufacturing function—those activities that insure that quality is built into a product. A major part of quality control is the statistical sampling procedure that chooses the samples for thorough testing and measurement to make sure the product meets specifications and assesses the effectiveness of manufacturing process controls.

Most Sandians are familiar with the historical role of our Quality Assurance organizations—determining the status of the nuclear weapon stockpile, maintaining a program of continual checking, and scientifically guaranteeing that the weapons will perform as designed.

Sandia's formal inspection organization was discontinued in the mid 1960s when we ended in-house weapon component production and procurement.

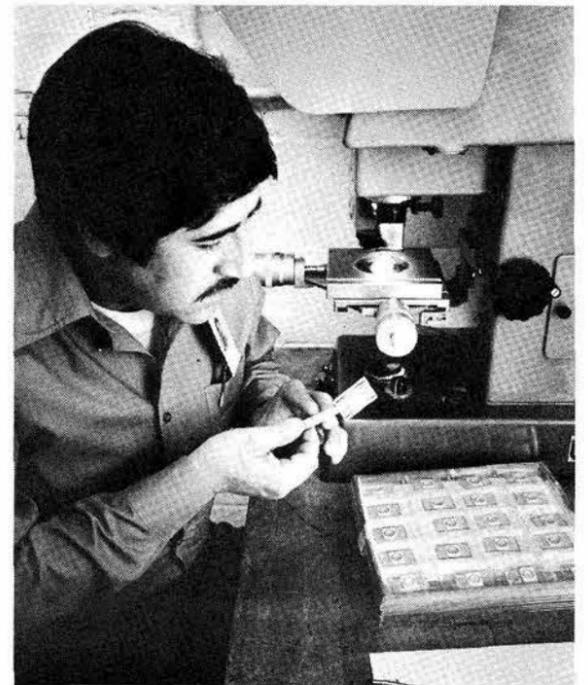
With this as background, we get to the point:

Back in August 1979, Bill Thomas, supervisor of Quality/Inspection Control Division 1411, surveyed our procurement practices and found that Sandians were waiving inspection in about 95 percent of their purchase requisitions. His group made a random survey of material received and found that up to 10 percent of incoming product being inspected was defective in some way. In estimates made then, this represented a potential dollar loss to the company of as much as \$500K—we might be paying for defective material if the percent defective in the above sample were extrapolated to include all incoming purchased material.

Now we can report some success. Since that time, and as a result of a QA educational campaign, 43 percent of Sandia purchase orders for technical items are specifically designated for an incoming inspection of some sort.

The consultant has several options for identifying receiving inspection requirements (SLI 6891) on a purchase requisition. If it's an electrical or mechanical item (usually special design or development material), it can be routed directly to the Development Shops inspection group for inspection before acceptance; or the consultant can assume the responsibility for inspecting the material as it is delivered. When applicable, field inspection can be specified if prior arrangements are made with Organization 1411-1. Waived inspection is discouraged and should apply only for items having loosely defined characteristics or where departures from specifications would be of little consequence.

A quality control sampling of W-coded (inspection-waived) purchases has been established. The sample of orders is evaluated to judge quality—to answer the



INSPECTING incoming shipments, Demmy Edwell (1411) examines microelectronics packages with an optical comparator. The work is part of a new QA inspection service.

questions, "Is Sandia getting its money's worth? Are we in fact buying what we ordered, and does it perform as specified?"

"In this activity," Bill says, "we utilize the expertise of many Sandia organizations from those performing repetitive inspection activities to those performing highly technical investigations—all with the aim of determining if we are getting what we ordered."

So, a new option for receiving ordered material is available. Mark your purchase requisition with a "Z" code to request receiving inspection quality control. The material will be pulled out by the receiving organization, and Division 1411 will arrange for it to be evaluated to your requirements before it is delivered to you—and possibly of equal importance, before it is paid for.

"We strive to release material within an eight-working-hour period and have been meeting this goal some 90 percent of the time," Bill says.

If you have special orders requiring particular care, give Van Luhrs, 4-6609, a call. He will set up an evaluation program with you and assist you in making sure the necessary inspection/quality requirements are included in your requisition.

## Death



Howard Viney, manager of Engineering Applications Department 1130, died Nov. 12. He was 61.

He had worked at the Labs primarily in field testing operations, including the atmospheric testing in the 1950s, since August 1948.

Survivors include his widow, a son and a daughter.

## Apprentices Graduate

Education and Training Dept. 3520 reports that 10 apprentices were graduated from Sandia's apprenticeship program in the past few months. The program extends over five years and calls for extensive classroom and practical work.

Graduates include the following: Carla Chirigos (1472), materials processing technician; Steve Barnard, Gilbert Lucero Johnny Rice, Brett Bedeaux (all 1474), electronic technicians; Ivan Alderete (1481), Henry Romero (1482), machinists; Harold Wade (3611), electrician; Christopher Flores (3612) and James Kadlec (3618), mechanical technicians.

Luke Heilman (1400) and Ward Hunnicutt (3600) presented certificates to the graduating apprentices.

### Sympathy

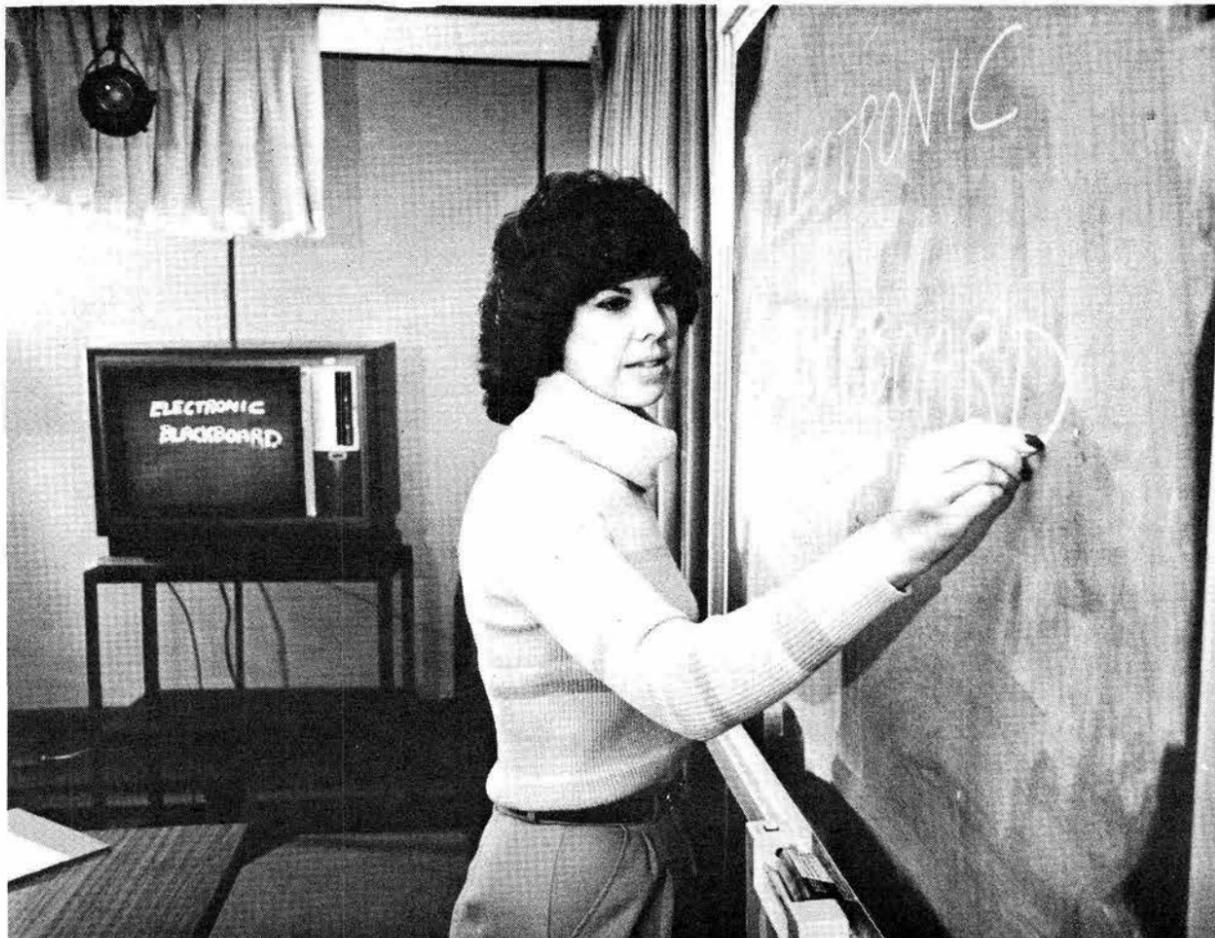
To Jim Nowak (5843) on the death of his mother-in-law in New Jersey, Oct. 27.

To Jerry McCorkle (1172) on the death of his stepfather in Oklahoma City, Oct. 6.

To Al Faychak (1172) on the death of his father in Detroit, Nov. 4.

To Don Davis (2141-2), on the death of his mother in Chicago, Nov. 24.

To John Cantwell (3163) on the death of his father in Albuquerque, Nov. 23.



DEMONSTRATING Education and Training Division's new electronic blackboard is Linda Stackpole (3522). As Linda write on the blackboard, the images are reproduced simultaneously on the TV monitor in the background.

### Electronic Blackboard

## Who Cleans the Erasers?

Technology has finally caught up with the humble blackboard. Yes, that same blackboard upon which so many of us

botched up algebraic equations in front of the whole class.

An electronic blackboard has been installed in room 211 of Bldg. 892. What, you ask, does an electronic blackboard do that a regular blackboard can not?

"As Sandians who have taken INTEC courses know," says Mike Rex of Education & Training Division 3522, "we have an overhead camera which transmits whatever the instructor writes or draws on a pad on the desk directly to the TV monitor.

"But many instructors feel more comfortable standing as they lecture and using a blackboard to emphasize important points. Well, as the instructor writes on the electronic blackboard, the images appear simultaneously on the students' TV monitors.

"The blackboard is actually a plastic surface with an electronic grid underneath. As the chalk presses on the surface, an electronic signal reproduces the image on both the monitor and on videotape."

Mike tells us that an electronic blackboard was first installed in the Bldg. 802 conference room. That particular blackboard is hooked up to a TV monitor in Livermore (and vice-versa). "We didn't identify a need for a long-distance capability, but one of our staff, Martin McDaniel, realized the benefit an electronic blackboard would be to both instructors and students in making possible a more relaxed and flexible classroom situation."

The electronic blackboard was developed at Bell Labs and is manufactured by Western Electric.

Now what we need is an electronic eraser cleaner.



DIFFERENT LOOKING solar collector is a point-focusing steam generating solar energy system designed by Power Kinetics, Inc. The unit is being tested at Sandia's solar test facility east of Bldg. 832. Collecting data are Norine Zuchowski (4721) and Paul Pond (Applied Concepts Corp.). The PKI collector consists of 864 one-ft.-square mirrors mounted on 108 curved support modules on a lightweight frame structure. It rests on a circular track and revolves on eight casters. The receiver is located at the end of the long boom. Water circulating through the receiver is heated to steam and delivered at 100 psi. Controlled by sensors and a microcomputer, the elevation and azimuth of the mirror panels are driven by small electric motors.

## Fiesta Encantada: A Holiday Celebration

Albuquerque's fourth annual Fiesta Encantada begins this weekend. Set up by the Albuquerque Convention & Visitors Bureau, the fiesta is a three-week holiday celebration culminating with the luminaria tour on Christmas Eve. All events are open to the public. Questions concerning the various events can be directed to the ACVB at 243-3696.

### *Fiesta Encantada Calendar*

**Dec. 6—(Sunday)** "Hanging of the Greens" at the Regent of Albuquerque. Brunch, 11 a.m., with the NM Symphony Orchestra and the Highlanders (singing group from Highland H.S.) performing. Hispanic dancers and mariachis perform at 1 p.m. during the hanging of the greens from the balcony.

**Dec. 6-27—Arts Festival:** amateur artists submit work on some feature of Albuquerque. The entries will be on exhibit at the Albuquerque Museum.

**Dec. 12-13—Muzzleloading matches** at Petroglyph State Park. Twentieth-century mountainmen, soldiers, explorers and frontiersmen compete with old-time muzzleloading weapons. Tomahawk throwing and other novelty matches will be held.

**Dec. 19-20—Living history encampment, 1845-1895:** "Fifty years at the Albuquerque Post," in Old Town, vicinity of the Museum. History recreated where it happened—hosted by the 1st N.M. Territorial Volunteers, 4th Texas Cavalry CSA, Co. "C" of the US Mounted Rifles, and Co. "D" of the 1st Colorado Infantry.

"Frontier Christmas and Pounding"—Benefit for The Storehouse. Admission is \$2 or a pound of food. The program



OLD TOWN PLAZA lit by luminarias.

includes square dancers, fiddlers, frontier costumes, horsedrawn carriages, an old-fashioned Christmas tree, and food booths. Most events will be held inside two large tents near Old Town and the Museum parking lot.

**Dec. 24—Christmas Eve luminaria tour.** A one-day ticket sale will be held Dec. 5 at 601 Yale SE, \$2.50. The tour by

Sun-Tran buses leaves at dusk and includes the Country Club, Old Town, and Los Altos areas. Forty hot-air balloons will be tethered along the route. The tour lasts one and one-half hours.

## Cherry Hill Shuts Down—Last Labs' Field Office

On October 31, Sandia's last Field Operations Office, located in Cherry Hill, New Jersey, was closed. The closing marked the end of a chapter in Sandia's history dating back to our early days. Back then, in the '50s and '60s, field inspectors from the Labs traveled throughout their assigned territories (and resided there), visiting Sandia's commercial suppliers to insure that components and other material being manufactured for weapon use met our specifications.

In the early '60s, field offices were operating in Cherry Hill, Hartford, St. Louis, Chicago, Beverly Hills and Albuquerque. More than 80 Sandians worked out of these offices. Division head was Harold Jeblick (now 3441).

Hank Neues and Mike Zapach were the last two to work out of Cherry Hill. Both have been reassigned to GE in Valley Forge, Penn., as Sandia's resident quality reps. The function is handled by Quality/Inspection Control Division 1411 under Bill Thomas. Arrangements for field acceptance support can now be made through Joe Pelletier in section 1411-1.

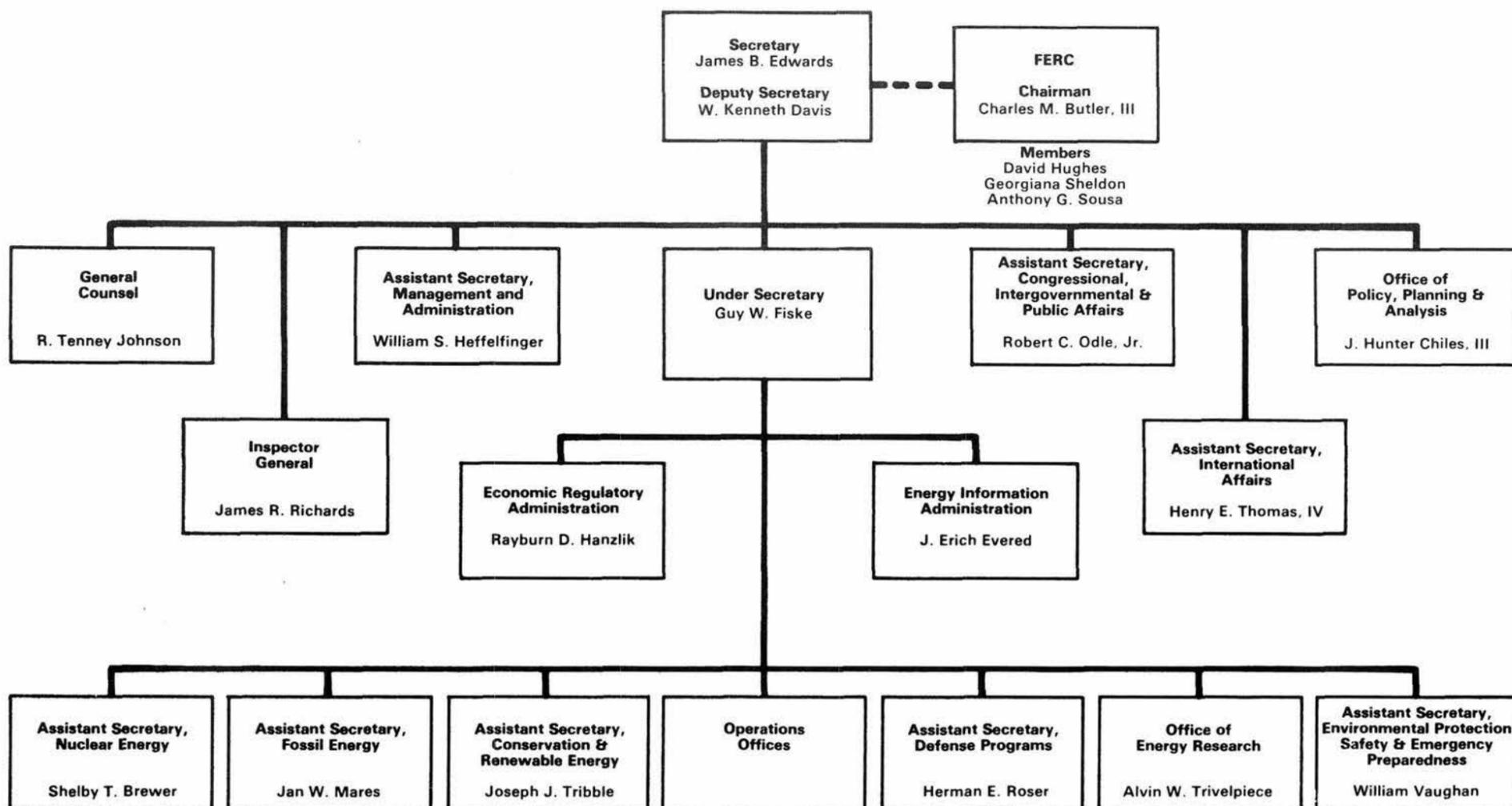
(The adjacent "Favorite Old Photo" shows some of the participants in the field operations activities.)

## My Favorite Old Photo

In March 1954 field inspectors from the Labs met in New York City. This particular group traveled throughout the Northeast visiting suppliers, and similar groups performed the same function elsewhere in the country. At one time, more than 80 people were in the field inspection function, led by Harold Jeblick. The function still exists under org. 1411, but in considerably abbreviated form. The people in this picture are, from left, Joe Tillman, Hurston Adkins (retd.), Harold Jeblick (3441), John Gustafson (retd.), Bill Boyes (1221), Ted Cannol, L. J. "Nels" Nelson (that's me, 1485), Sam Allen (retd.) and Clem Toft (deceased).



# THE DEPARTMENT OF ENERGY



LATEST DOE organization chart shows principal offices including that of Assistant Secretary for Defense Programs, now occupied by Herm Roser, formerly manager of DOE/ALO. Under "Operations Offices" are listed the following: Albuquerque, Chicago, Nevada, Oak Ridge, Richland, San Francisco and Savannah River.

## Events Calendar

- Dec. 4-6—"Contemporary Ironworkers," an exhibition of artisans' work in iron and steel, Armory for the Arts, Santa Fe.
- Dec. 4-6—Arts & Crafts Fair, Hilton Hotel, 884-2500.
- Dec. 4-7—"Cradle Song," a family show comedy, U of A, 831-1111.
- Dec. 8, 11, 12, 13—Beethoven Marathon, NM Symphony, Woodward & Keller Halls, UNM, 842-8565.
- Dec. 10-12—Our Lady of Guadalupe Feast Day: Comanche, buffalo or bow and arrow dance at Pojoaque Pueblo; Indian and Spanish Matachines dances at Jemez Pueblo.
- Dec. 10-13, 17-20—"The Red Shoes," Albuquerque Little Theater, 224 San Pasquale SW, 242-4750.
- Dec. 11, 13—Paul Schenly, pianist, with NM Symphony Orchestra, 8:15 p.m., Popejoy.
- Dec. 12—Spoon River Anthology—part of Christmas program including Las Posadas, caroling and refreshments, U of A, 831-1111.
- Dec. 12—The Vermeer String Quartet with NM Symphony Orchestra, 8:15 p.m., Woodward Hall, UNM.
- Dec. 18-20—Fantasy on Ice, Iceland Sports Center, 255-1628.

## Author

R. L. Iman (1223), J. C. Helton (4413) and J. E. Campbell (Intera), "An Approach to Sensitivity Analysis of Computer Models: Part II—Ranking of Input Variables, Response Surface Validation, Distribution Effect and Technique Synopsis," JOURNAL OF QUALITY TECHNOLOGY, October 1981.



RETIRING—Standing, from left, Filiberto Sanchez (3612), Bill Walton (2426), Bernard Brown (1485), Amy Kahoiwai (3742) and Dorothy Crosby (3212). In front, Mac McKinney (3613), Wallace Hansen (2451) and Arthur Bacon (1482).



RETIRING—Jack Sivinski (4545), Loran Anderson (4323) and Jim Murray (2520).

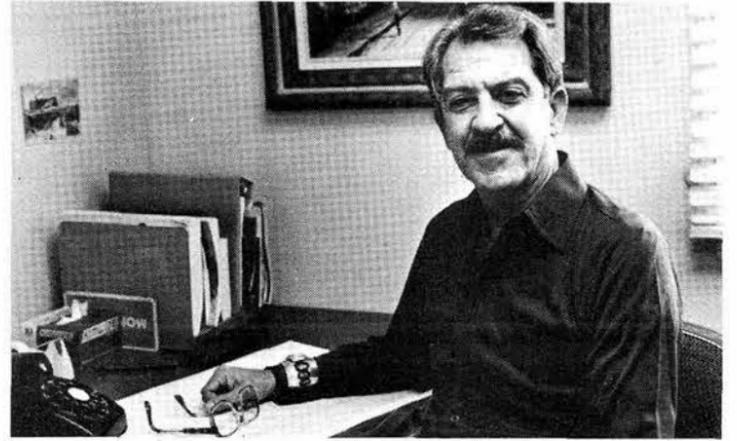
# MILEPOSTS

## LAB NEWS

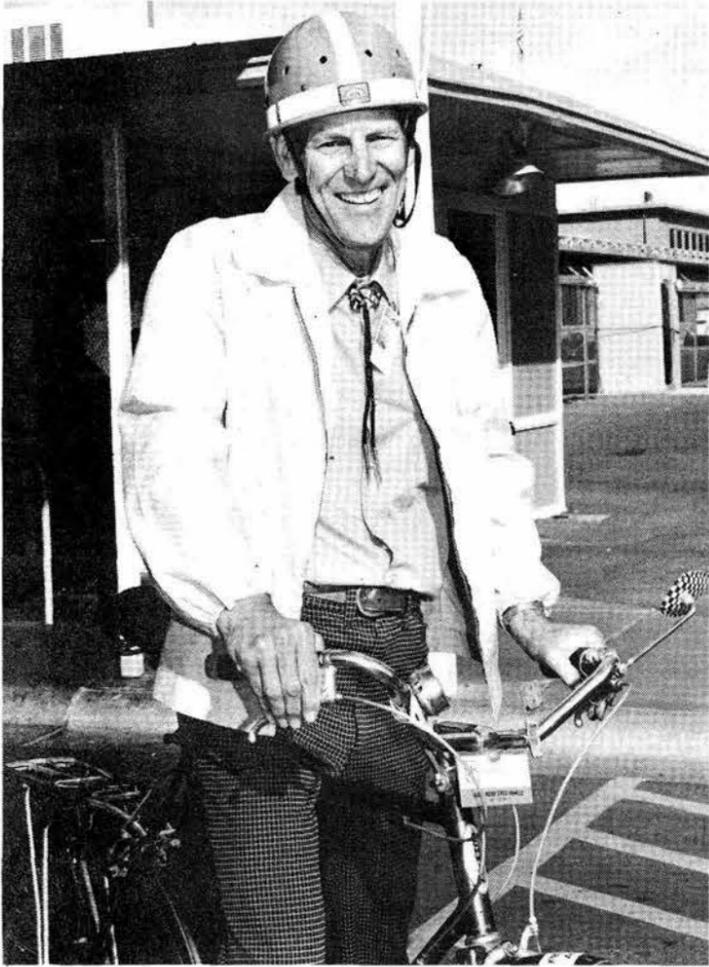
DECEMBER 1981



Don MacKenzie - 5634 25



Charles Balistrere - 2426 30



Johnny Stuckey - 3442 30



Earl Rush - 4717 15



Martin Wempe - 3631 15



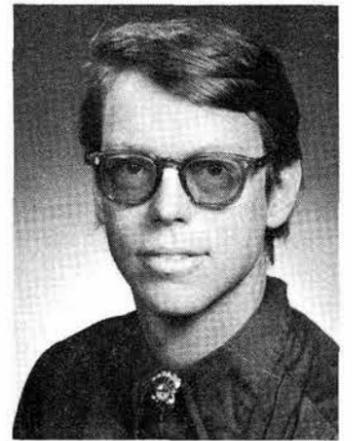
Larry Johnson - 4324 25



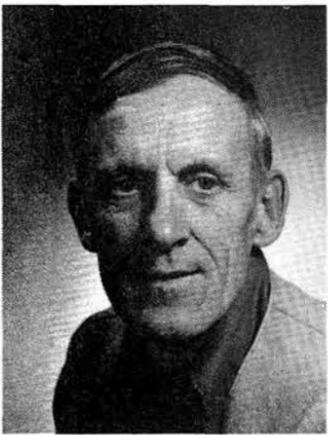
Emery Chavez - 3255 15



Melvin Johnson - 1535 25



Larry Ebinger - 1121 15



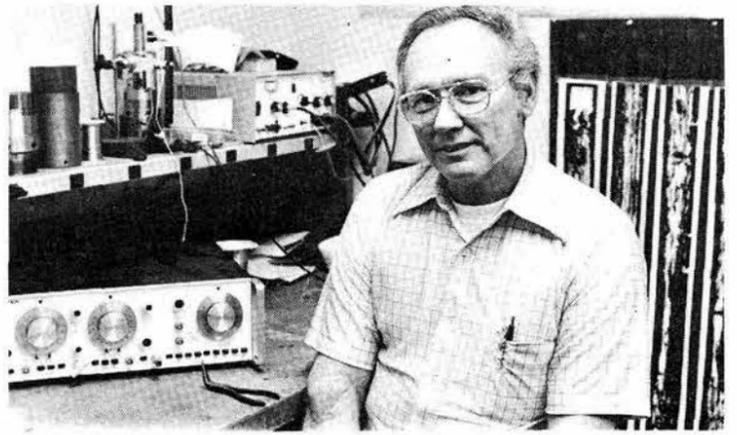
Jim Volkman - 2455 25



Frank Hensely - 1556 15



Thaddus King - 2543 30



Lloyd Faucett - 4741 25



Art Clark - 1210 30



John Melvin - 1263 25



Carol Patterson - 5640 15



Bob Grover - 4715 25

Safety's Marshall Tippy brought us an interesting release from the Firestone Tire Company relating to a not uncommon problem in winter driving. You're stuck on one side in ice or snow, you get impatient and gun the engine and the wheel that's stuck spins like mad while the one on pavement remains stationary. The maneuver hardly ever works and, says the release, is dangerous because the differential transmits all the power to the wheel that is rotating, thus doubling the speed of the rotating tire. So if you gunned the engine up to an equivalent of, say 70 mph, the spinning tire is actually experiencing 140 mph, putting stresses on it that the tire is

not designed to take. "The tire could fail explosively," says Firestone. Solution: carry some hardware cloth or expanded metal screen (used in plastering) to put under the spinning tire.

\* \* \*

## Take Note

United Blood Services sends a bulletin: they need blood, especially Type O. Seems that people with Type O feel that their type is so common it isn't much needed, but the reverse is true. It's easy to donate blood at Sandia; just show up any Tuesday at Medical.

The Red Cross and the Center for Anthropological Studies are jointly sponsoring an auction of Hopi and Navajo arts, including rugs, pottery, and jewelry, on Sunday, Dec. 13, at 2 p.m. in the Old Airport Bldg. on Yale SE. More than 300 items will be on the block. Additional information: Tim Brady on 265-8514.

\* \* \*

Beethoven freaks probably already know this. But just in case, the Beethoven Festival this year includes music by LVB at UNM on Dec. 8 & 12—chamber music—and on Dec. 11 & 13—a concert featuring Paul Schenly, pianist. Contact: 842-8565.

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

### CLASSIFIED ADVERTISING

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

**TIRES & RIMS:** 5 ea., 7.50x16" all-purpose 8-ply truck tires mounted on 8-hole Budd rims, will fit Chev. or Ford 1/2 ton PU, \$175. Snelling, 294-5751.

**MICROSCOPE,** all metal, up to 400x magnification, specimens, slides, \$100. Reynolds, 884-5148.

**SKI BOOTS,** Henken's size 9, Munari Pacesetters size 9 1/2, Munari Rentals, size 10 1/2; motorcycle helmet, Mondaline Stag w/visor. Caffey, 296-3320.

**GOODYEAR** fiberglass HR78-15, 2000 miles, \$25. Higgins, 299-4302.

**VW PARTS** from '67 Bug; fenders, bumpers, front & rear hoods, tires w/wheels, running boards. Chu, 298-1073.

**ALUMINUM** sliding window, 5'x4'. Mantelli, 298-2603.

**BUILDING MATERIALS:** 10 ea. Celetex siding, 4x8, new, \$22; 1 ea. 4"x6"x16' fir beam, new, \$13; 18 lbs. furring nails, \$15. Stewart, 298-3332.

**BASE 2** impact printer 100 CPS, tractor or friction feed, parallel or RS232 option complete w/TR5-80 cable, \$325. Shuster, 268-8491.

**TIRE CHAINS,** never used, Sears twist link, E78-14, 750-14, 6.70-15, etc., \$25. Neal, 821-4270.

**SAN GORGIO** ski boots, men's size 8; 15" 5-hole rims w/78OH tires; 20-gal. aquarium w/pump, heater & fittings; pr clothes line poles, best offer. Scales, 298-6254.

**BOXER PUPS,** 8 wks., 5 AKC brindle, 2 males, 3 females, \$175. Lewis, 299-9246 after 5.

**2 LOBO** basketball tickets (chair back) & parking, \$200. Konrad, 294-2807.

**CASSETTE TAPES,** Intermagnetic 60, some new & still in pkg., \$1/tape; used ones, 50 cents/tape. Hughes, 299-6674.

**WURLITZER** spinet piano & bench, \$1100. Bozone, 294-1127 after 5.

**TOOL BOX** for wide bed truck, \$50. Eiffert, 281-3053.

**CAMPER SHELL** for LWB truck: heater, dbl. bed, radio, cabinet space, \$900 or make offer. Fisher, 842-8560.

**FREE** to good home, part Labrador & Doberman female, 6 mos., house-broken, black. Menschel, 892-6475. 100,000 BTU furnace w/7"x20"x16' duct attached, used less than 10 hrs., \$550; '71 Husky motorcycle, \$275. Gonzales, 836-3039.

**ZODIAC CLOCK,** battery operated, 16" dia., hand carved replica, new, purchased \$60, sell \$27. Norwood, 292-0072.

**ROYCE CB** base station; 4 new Uniroyal SBRs P195-14R75; new gray safety shoes, size 8, best offers. Booth, 296-3955.

**CANON f/3.5,** 19mm FL wide-angle lens, \$150 or best offer; Bigelow 9'x12' oval rug w/pad, green, \$25; bin boxes, 25 cents ea., 5'x7' steel-frame windows, \$10 ea. Barnard, 256-7772.

**CLASSIC** Kenwood stereo receiver, tube model KW-60, \$50. Wampler, 293-5410.

**PR. Std. Head** skis, "Bellville, N.J." Brockway, 344-1901.

**WROUGHT IRON** RAILING, \$20 or best offer; wall plant hanger w/3 hooks, \$3. Simons, 821-9343.

**AMPROBE,** Model RS-2, AC volts, AC amps & ohms, for electricians, \$45. Still, 299-8825.

**CALUMET** 4x5 camera w/16" bellows, 90/210mm lenses, Polaroid & 4x5 film holders; Omega D2-V 4x5 enlarger, 80/135mm lenses. Garcia, 884-4229.

**BOOKSHELF** AM-FM-8 TR system, \$50; Airequipt slide projector, \$25; slide trays, \$1.50 ea.; High-Lift jack, \$25. Reed, 268-7484.

**GIRLS' 3-spd.** Schwinn bicycle, 26", \$50; 42" round solid maple coffee table, \$75; solid maple platform rocker, \$75. Puhara, 255-7447.

**LARGE** free-standing fireplace w/11" stovepipe (42"x36"), \$150. Higgins, 268-6886.

**SKI RACK,** Barrecrefter SR-91, small & intermediate cars, \$40; unused 13" radial tire chains, \$25. Gregory, 821-1429.

**COMPLETE** bedroom set, \$250; men's Schwinn 27" 10-spd., \$50; old radio in walnut cabinet, \$45. Korak, 296-1165.

**ZOOM LENS,** 35-105mm, w/haze filter, manufactured by CPC for Olympus cameras, \$85. Burgess, 345-2369.

**EXERCISE** treadmill, \$35. Chorley, 296-1454.

**PIANO,** upright, early 1900 vintage, \$300. Shear, 821-7846.

**SKI BOOTS,** woman's size 7, Koflach, \$20; car speakers, Realistic by Radio Shack, almost new, \$25; Christmas tree, 7' artificial, \$10. Shipley, 298-2433.

**FLY RODS:** graphite, new custom built, 8', 5/6 wt., \$80; 8', 6/7 wt., \$85; Marlin 30/30 lever action w/4X scope & ammo, \$150. Kindley, 296-7819.

**SUPER CAR** RADIO, AM/FM stereo, CB, 8 track, digital readout & clock, seek & scan, GM's best, \$280. Luther, 293-4462 after 5.

**SEALY** Posturepedic box springs & mattress, extra firm, \$100. Bell, 293-6432.

**REFRIGERATOR,** coppertone, GE, 11 cu. ft., \$35; 18"x70" wall mirror, \$40. Falacy, 293-2517.

**VACUUM** PUMP, \$100; refrigeration gauges, \$25; 115 volt arc welder, \$85; various tools & instruments. Barbera, 298-7049.

**TWO** Pimentel classical guitars at 1/2 Pimentel's appraised selling price, \$500 & \$1200. Muench, 867-5115.

**TRAILER** HITCH, Class I (2000# max trailer), fits 1974-1978 Chrysler & Ford vehicle, \$20 w/o ball. Jefferson, 293-3529.

**CLOTHES** WASHER, Lady Kenmore,

11-12 yrs. old, \$30. Johnston, 299-1830.

**WOMAN'S** size 12 full-length camel all-wool winter coat, double breasted, almost new, was \$200, asking \$55. Burstein, 821-6688.

**BICYCLE:** 20" dirtbike w/pads, \$60; racecar set: 3 cars, track on platform, transformer, controls, extra parts, \$20. Eckelmeyer, 296-2148.

**WORM** SEPARATOR, power driven, new, best offer. Young, 255-8193.

**NIKON** 2 FAS w/leather case, \$425; Nikkor 24mm, F2.8, \$170; Nikkor 55mm, F3.5 w/Pk-13 xtube, \$190; Nikon mt. Vivitar 135mm, F2.8, \$50. Ritchey, 298-6648.

**SCHWINN** bicycle, 5-spd, 26", \$35; cot size inner spring mattress & box springs w/legs, \$25. Gaeddert, 294-7723.

**NORTH** FACE mountain tent, very strong, 4 season, 2 person, A-frame, \$150. Huntington, 831-5755.

**CARPET:** gold sculptured pile (not shag), & foam pad, approx. 36 sq. yds., 11 1/2 x 15 1/2 & 12 x 10. Oberkamp, 292-4366.

**UNIDRUM** color print tanks, 8x10, 11x14, 34 oz. film developing tank, Nikkor 35mm reel, dbl. laundry tub w/faucet, stacking stand for washer/dryer, all 1/2 price. Berman, 296-5640.

**35MM** slide projector trays, fits TDC, B&H, Kodak, Sawyer, Keystone, etc., 75 cents each. Carr, 844-1198.

**SHOP** MANUAL, 1980 Chevrolet Citation, other x-bodies, \$10; 3 Fram oil filters, V-6 Citation, x-bodies, \$2 ea. Stuart, 299-9190.

**PHOEBUS** camp stove for backpacking, \$20; used hiking boots, size 9D, \$12. Benton, 877-2473.

**HOUNDS,** \$25 or trade, 9 weeks old by Christmas. Williams, Belen, 864-3617.

**ROCKING** HORSE, 16" girl's bike, pedal fire engine, child's kitchen set, mounted battery-run train set, car infant seats. Carson, 898-8847.

**AM/FM** radio, 3 steel wheels, black vinyl driver's seat, dwell tachometer, all for BMW 2002, best offer. Brinker, 293-0225.

**FULL** SIZE mattress, box spring, frame, \$75; 2 yogurt makers, \$5 ea.; 3 medalist flyreels, \$10 ea. Kinz, 293-0225.

**WHITE** standard poodle male puppy, AKC champion sired, loving temperament, excellent for obedience, companionship, protection, shots, born 9/17. Baca, 294-5249.

**CARPET,** used, avocado shag and gold shag, appx. 40 sq. yds. each. Hawn, 281-1419.

**SNOW** BOOTS, hooded mountain parka (size M), game bag, sheath knife, DeVilbiss humidifier. Bailey, 294-4218.

**BABY** SWING w/plastic tray, Swyngomatic, 15-min. mechanism, used 2 weeks, assembled. Pitti, 256-1629.

**DAYBEDS,** two, new covers & bolsters, new pads; desk chair, antique, arms, swivels, casters; double bed, French provincial, upholstered headboard. Weems, 281-5837.

**MOTORCYCLE** helmets, one full-face w/liftable visor, size large, spare visor, \$30; one older model, medium, use as bicycle helmet, \$3. Shunney, 265-1620.

**HANDMADE** 36" rag doll, \$35; calico hobby horse, \$12; cornhusk flower wreaths, \$30. Konnick, 298-1422.

### TRANSPORTATION

'64 FORD Galaxie X-L, new paint job, \$2500. Martinez, 831-0876.

'79 T-BIRD, T-top, many extras, 20,000 miles, still has 18 mos. of Ford Motor Co. warranty. Cox, 268-9334.

'67 OLDSMOBILE 98 convertible, extra top, PS, PB, PW & P seats, AM/FM/8 TR; nearly new tires, shocks, \$4750 soft. Hughes, 299-6674.

'74 DATSUN 260-Z, AM-FM cassette, AC, new tires, \$4000. Potter, 831-0155.

'74 1/2-ton truck, 302 engine, walk-in camper, PS, PB, has AC, radio w/stereo, heater, \$2500. Kasnic, 299-5583.

'62 CHEVY 1/2-ton pickup, LWB, small V8 283 engine. Helling, 345-0678.

'66 CHRYSLER stn. wgn., it runs, \$400. Ellison, 296-6645.

'78 LE CAR, 22,000 miles, FWD, AM/FM, sunroof, 40 combined mpg/ reg., fender damage, \$2500 firm. Henning-Sachs, 266-9841.

'75 CORVETTE convert., 2 tops, 4-spd., PB, PS, new custom paint, turbine wheels, \$8700. Perryman, 294-6113.

'79 KAWASAKI KX80 motocrosser, never raced, 6 hrs. riding time, \$525. Barnard, 831-4114.

'67 FORD LTD, 4-dr. HT, PS, PB, AT, \$500 or best offer. Spencer, 296-6250.

'78 HONDA CVCC, SW, AT, AC, new radials, low mileage, reg. gas, \$4150. Roady, 281-1388.

'78 CHEVY pickup 4x4, 400 engine, Silverado pkg., many extras, AC, PB, PS, AT, \$4500. Hornsby, 265-4396.

**SCHWINN** boys' 5-spd. Stingray, 20", \$60; 2 snow tires, one on 5-hole wheel, size 78-14, \$20. Atkins, 298-5762.

'74 MG MIDGET, 42,000 miles, AM-FM, 4-spd., \$2000. Shear, 821-7846.

'74 HORNET Sportabout, \$1195. Folkins, 344-5917.

10-SPD, BIKE, Steyr Austrian made, Weinmann center pull brakes, Simplex derailleur, 21" frame, \$100. Kaiser, 296-5215.

'74 PORSCHE 911, Targa, 5-spd., AC, AM, FM, alloys, Pirellies, fresh 2.7 liter engine, \$12,500, consider trade. Jones, 255-7924.

'73 DODGE Crestwood stn. wgn., seats 9, AC, PW, new rear tires, 126,000 miles, \$675. Huntington, 831-5755.

'76 MERCURY Cougar, \$2700, 2-dr., AT, AC, PS, 350 V8, 46,300 miles. Cook, 294-0457.

**DATSUN** PICKUP, 5-spd., AC, short bed, camper shell, \$3500. Padilla, 831-3500.

'63 CHEV. Impala, AT, AC, 283 V8 engine, runs, needs work, \$100. Julius, 299-1105.

'74 FORD Maverick, 2-dr., 250 6-cyl., AT, PS, AC, one owner, asking \$1100. Chavez, 836-4069.

'73 WINNEBAGO motor home, Class A, 21', 26,000 miles, always garaged, fully equipped with over 100 extras (list available), \$12,900. Fry, 884-4459.

'77 MONTE CARLO, PS, AC, AT, many extras, asking \$3500. Garner, 298-2562.

'74 TOYOTA Celica, 5-spd., newly rebuilt engine, dual exhaust, Bluebook \$2150, price \$2000. Rexroth, 293-6025.

**SCHWINN** 20" boy's bike, \$60. McLellan, 299-0266.

'69 CHEVELLE, stn. wgn., rebuilt 350 engine, AT, PS, AC, luggage rack, CDW ignition, maint. records, \$850. Lambert, 344-9012.

'79 YAMAHA, 750 cc, fully dressed, many accessories, \$3400. Jones, 296-1755.

**BICYCLE,** girl's 20" Spyder, \$30. Lewis, 296-7896.

**MOTORCYCLE** trailer, holds three, \$225. Shunney, 265-1620.

### WANTED

**SILVERPLATE,** Rose pattern, 12 place settings. O'Bryant, 268-9049.

**SCIENTIFIC** & engineering instruments, brass, e.g., sextant, microscope, barometer, telescope, working or repairable. Hughes, 299-6674.

**TRASH** BAGS, city distributed, 4 boxes, will pay \$5 ea. Hefley, 268-7891.

**WOOD** LATHE in good cond., prefer Rockwell. Mooney, 299-1774.

**FABRIC** covered recliner in good condition. O'Neil, 892-6754.

**MAGNAVOX** TV chassis for parts, Mo. T-985 or T-986. Meikle, 299-4640.

**ELECTRIC** GUITAR and amp. Oravec, 281-3667.

**PICCOLO** in good condition. Hicker-son, 892-6699.

**FOUR** BARREL (straight) carburetor for 1966 Chevrolet w/283 engine. Padilla, 296-7471.

**CEMENT** MIXER, electric-powered. Weems, 281-5837.

**USED** bicycle rollers. DePuydt, 281-3092, after 6.

### REAL ESTATE

**RECREATIONAL** PROPERTY, Pinetop, AZ, 1/2 acre, water, sewer, elect., cul-de-sac, near rec. center. Ig. pines, cash or terms. Spatz, 299-0410.

**1.71 ACRES** in Moriarty on Hwys. 66 & 41 in center of Moriarty, zoned commercial, utilities; 1 acre on S. Frontage 66 on paved road, 2 1/2 miles E of Tijeras, MH o.k. Liston, 281-3283.

**700 FLORIDA** SE, \$61,500, 1500 sq. ft., 3-bdr., 1 1/2 baths, hardwood floors, assumable FHA 1 1/2%, lg. corner lot. Henderson, 255-1941.

**LEASE** AND/OR BUY: 4-bdr., 1800 sq. ft. Charter house near Tramway & Montgomery, great room, energy pkg., security system. Szenasi, 299-1495.

**12 x 65** TOWN & COUNTRY split level, 2 1/2 bdr., 1 1/2 bath, 1/2 acre bldg. lot, 6' chainlink, 11x15 bldg., \$27,500. Bordenave, 877-0675.

### FOR RENT

**FOR LEASE:** 4-bdr. house, Candlelight Hills, avail. Feb., 1982, \$575/mo. plus gas & elec. Shear, 821-7846.

### RIDE WANTED

**RELATIVES** coming from Texas for Xmas? Two student riders will help pay for gas from Lubbock. Yio, 821-3569.

**Coronado Club Activities**

# Holiday Party, Buffet Tonight

NO RESERVATIONS are required tonight for the Club's gala holiday party and buffet. The action starts right after work with Happy Hour prices in effect all evening. Natural Persuasion featuring singer Charlie Baca plays for dancing. The buffet (\$8.75 per person) includes steamship round of beef, ham, fried chicken, assorted vegetables and desserts plus a giant salad bar. Club manager Tom Ross and chef Bill Potts promise a spectacular evening. It will set the pace for the holiday season.

WHILE PRIVATE PARTIES hold the ballroom and dining room for most of the December calendar, Happy Hours will continue on Fridays, Dec. 11 and 18, in the main lounge and lobby areas.

ON MONDAYS this month, continue to meet your friends in the main lounge and watch the NFL action on the tube. The Club offers a super sandwich and two drinks for \$2.75 starting at 6:30 p.m.

TUESDAYS in the lounge, see Happy Hour prices in effect and a free spread of munchies and goodies at 5:30. On Wednesdays, it's three for one—the best deal in town—from 4:30 until 6:30.

SANTA CLAUS promises to show at the Club's annual party for children on Saturday morning, Dec. 12, at 10 a.m. Puppeteers Ron and Mary Kay have a new show, cartoons are scheduled, and Santa will hand out stockings full of goodies.

NEW YEAR'S EVE PARTY—The Club's New Year's Eve package is un-



HAPPY NEW YEAR—Toasting the Coronado Club's New Year's Eve party package are Rick (DOE) and Tippy Sneddon. It's the best deal in town at \$34 a couple. Included are admission, dancing, party favors, champagne, open bar all night and breakfast. Pick up tickets by Dec. 19.

beatable. The price of \$34 per couple (\$17 singles) buys the works—admission, dancing to Spinning Wheel, open bar all evening, a split of champagne, party favors, noisemakers, and breakfast. Make reservations at the Club office (265-6791) and pick up your tickets by Saturday, Dec. 19.

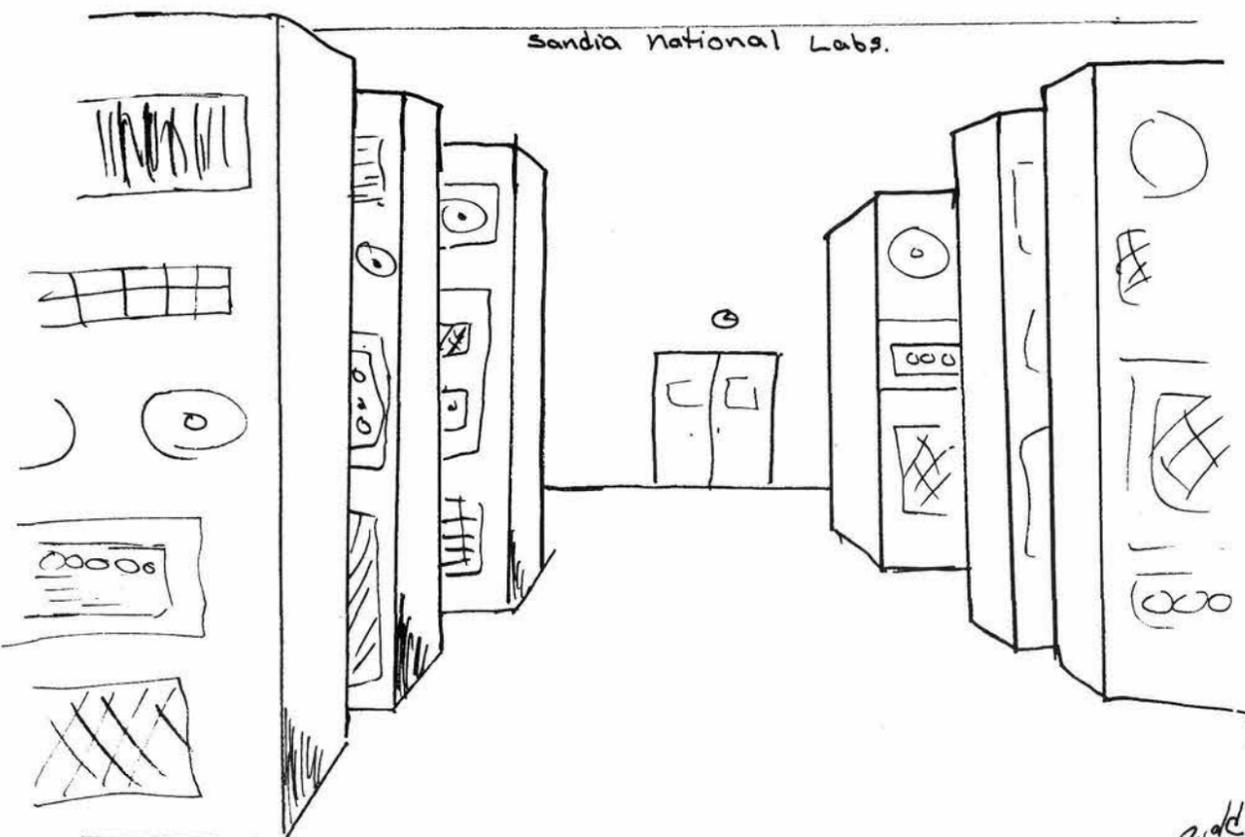
A SPECIAL HAPPY HOUR is announced for Thursday, Christmas Eve, Dec. 24. Special prices will be in effect until 7 p.m., and some special goodies and munchies will be spread.

TRAVEL DIRECTOR Frank Biggs (4231) reports that a few more signups are needed to make the Disneyland, Rose Bowl Parade, Catalina Island, San Diego Wild Animal Park, etc., holiday package (Dec. 26-Jan. 2, \$368) a go trip. A pre-trip meeting is set for Dec. 16 at 8 p.m. at the Club.

Check with the Club office about availability of the Caribbean cruise (Dec. 13-20, \$1031). Pre-trip meeting for the Las Vegas tour group (Dec. 27-30) is set for 7 p.m. Dec. 16.

Signups are being accepted at the Club office for the Washington, D.C., area tour package (April 3-10, \$300 plus airfare). The tour includes transportation, lodging, visiting the Washington monuments, Smithsonian Institution, Mt. Vernon, Monticello, Charlottesville, Richmond, Williamsburg, Yorktown, Jamestown and Civil War monuments. See Frank in the lobby tonight between 5 and 7.

CORONADO SKI CLUB mounts its annual Christmas party on Tuesday, Dec. 15, with its usual exuberance—music by Youngblood, Happy Hour bar, a fashion show, dips and munchies, and door prizes. Starting at 7 p.m., the party costs \$2 for ski club members. More info from Harvey Morse (1714), 4-4350.



"Tomorrow we take over—Pass it on." D. Steigerwald

(Artist Debby Steigerwald, age 14, was much impressed by what she saw at Sandia on Family Day. She's the daughter of George (2341) and is a freshman at Highland High.)

**NOTICE**  
Cancellation of a private party has opened Friday, Dec. 11, to an all-member Happy Hour. Enchantment plays for dancing from 8 to 12; the dining room offers a la carte menu service from 5:30 until 9.