



**YOT CLUB**—Fifty YOTs (Youth Opportunity Trainees) worked this summer at Sandia. They attended a recognition luncheon and toured the Labs before heading back to school.

 **LAB NEWS**  
 VOL. 34, NO. 17    SANDIA NATIONAL LABORATORIES    AUGUST 20, 1982

**Bit Hydraulics**

**New Lab Tests Drilling Bits**

A small test chamber developed for studies on the hydraulics of drag bits, particularly those incorporating polycrystalline diamond compact (PDC) cutters, is now operating in Geothermal Technology Development Division 9746.

Tests in the Bit Hydraulics Laboratory are designed to identify fluid and heat transfer processes occurring when drill bit nozzles discharge fluid to clean and cool bits. (Drag bits have no moving parts. They are attached at the end of drilling pipe, called the drill stem, which rotates.)

Inefficient hydraulics can cause excessive and uneven bit wear. Penetration rates may also suffer if drilling fluids do not effectively lift rock cuttings from the hole bottom and carry them up the borehole.

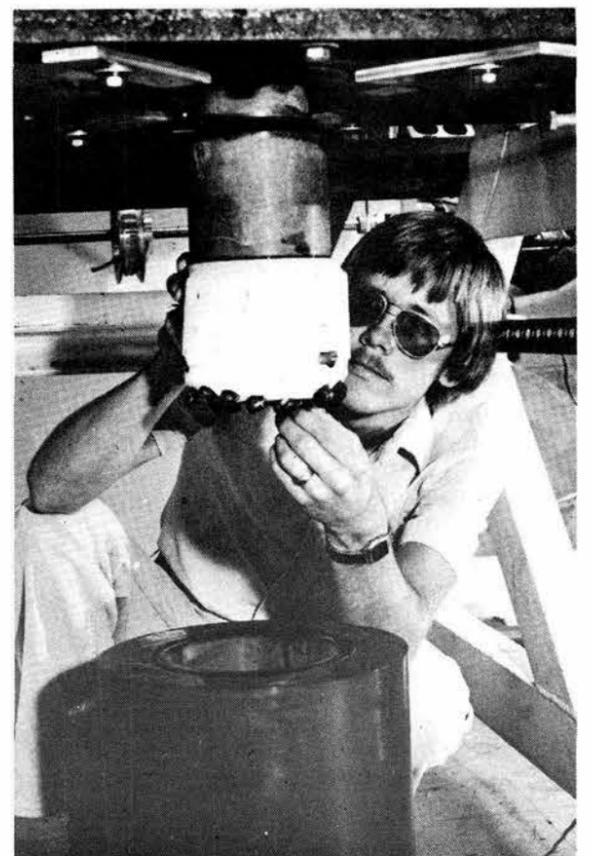
The test chamber, which can accommodate bits up to 17 inches in diameter, is a seven-foot length of drill pipe inserted in a transparent plastic base that simulates a borehole. The pipe, with bit attached, is rotated at speeds up to 900 rpm, covering a range of conventional drilling procedures, including operations using downhole

motors.

Water flows through the drill pipe, out the bit nozzles, and up the borehole as in a typical field operation. Tracers—3-mm-diameter plastic spheres—are injected through a rotating seal equipped with tubes so that the tracers can be carried to a specific nozzle. Tracers can also be pumped through all nozzles simultaneously.

High-speed photography records the movement of tracers through the test chamber, providing data about fluid velocity across the face of the bit. The pictures also reveal, among other things, spots where the fluid stagnates, thus becoming ineffective.

Thin-film resistors attached across the bit at 28 locations on the PDC cutters are heated electrically, creating temperature differentials between the cutter surfaces and the fluid. Measurements of the electrical power required to maintain these temperature differentials provide data about flow across the cutter, an essential



**DAVID GLOWKA (9741)** prepares a PDC drag bit for testing in Sandia's Bit Hydraulics Laboratory. During testing, the rotating bit is situated inside the transparent plastic base (in foreground) that simulates a borehole.

[Continued on Page Two]

# Antojitos

On Assuring a Competent Staff--An R&D organization like Sandia is basically a problem-solving organization. That's our mission, our raison d'être (excuse my French). Although we hire only those graduates with the highest of GPA's (an acronym for Generally Productive Academicians), it is not easy to assure continuing competence on the job.

Thus, Sandia periodically subjects its employees to a stringent test of reasoning ability in which each employee is asked to solve a specific problem with identical parameters. We have just come through such a company-wide exercise--to wit: arrange your Sandia phone book to reflect the spring reorganization. (Preliminary data from the test suggest that, in many organizations, it's the secretary who should be credited with the ability to solve the really major job-incurred challenges.)

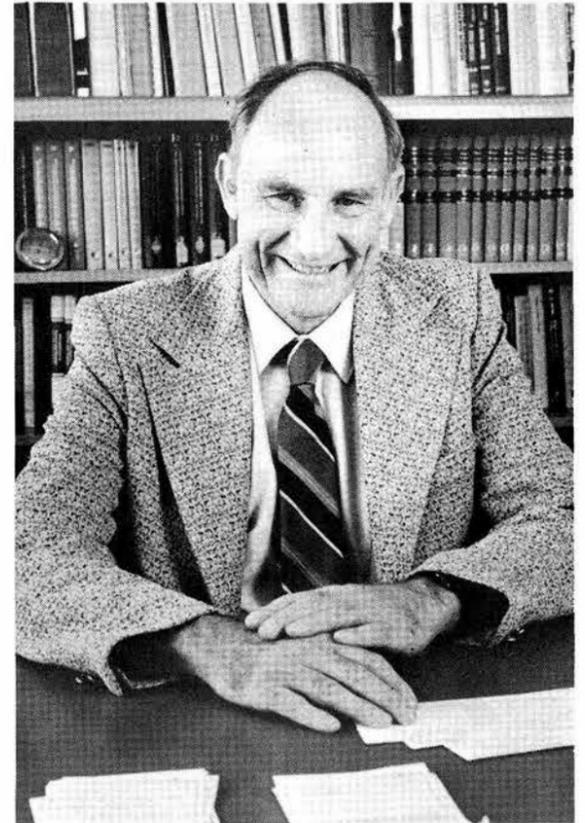
Although the test is not officially scored, beware of confessing to your colleagues that you could not reach them by phone because you could not find them in their new organization's phone book listing. An even greater caveat (excuse my Latin) is to avoid asking colleagues their new organization numbers--there's a credible probability that they have not been able to solve the phone book rearrangement problem and so don't have the vaguest idea of their proper numerical identification.

(It should, of course, be noted that the exercise had nothing whatever to do with rank-ordering employees under the Performance Evaluation Plan.)

•BH

\* \* \*

Lower Concourse Graffiti--There are two kinds of airline luggage: 1) carry-on, and 2) lost.



WALT HERRMANN - 1500

## Engineering Sciences Director Named

Walt Herrmann was named Director of Engineering Sciences 1500 on Aug. 1. He fills the vacancy created when Orval Jones was named as Vice-President 7000.

Before coming to Sandia, Walt worked for seven years at M.I.T.'s Division of Sponsored Research. "We were working on computer simulation," Walt says, "and there were some good people at Sandia with whom I had been collaborating. The Labs hired me to start a computer simulation program here. That was in 1964 and I'm still with the 'same show.'"

"So this is the one position at Sandia where I feel I can bring something to the job," Walt continues. "Engineering science is a challenge because it supports everything that's done at Sandia. It uses a substantial amount of the total computing power available at the Labs, and it's an exciting prospect to ensure that we use it properly."

Walt headed the Deformation Structures Division from 1964 to 1967 when he was promoted to manager of the Solid Dynamics Department 1530.

He earned his BS and PhD in ME from Witwatersrand University in Johannesburg, South Africa. Before joining M.I.T., he taught fluid mechanics and heat transfer at Cape Town University, SA.

Walt is a member of the American Society for Mechanical Engineers, American Physical Society, American Geophysical Society, and the Society for Natural Philosophy. He enjoys hiking, mountain climbing, photography, carpentry, and travel. With a group of other Sandians, Walt has climbed mountains in Uganda, Nepal, and Peru.

He and his wife Betty have a son and a daughter--14-year-old Inga, and 16-year-old Peter; both will be attending Sandia High School this fall.

**Continued from Page One**

## Drill Bits Tested

function of bit hydraulics.

Tests are conducted with any combination of open and plugged nozzles. Special metal inserts can also be used to alter nozzle shape or direction of discharge, changes that drilling researchers believe could sharply affect bit performance.

Results of initial tests, conducted with a 6½-inch-diameter PDC bit, indicate that increased cooling and cleaning can be achieved by plugging six of the bit's ten nozzles.

"Even with this improvement, high-speed photography reveals that several 'gage' cutters (which cut the outside circumference of the hole) on the periphery of the bit are located in zones of flow stagnation," says David Glowka (9741). "This suggests the need to redesign the bit to ensure that gage cutters are placed in zones of adequate flow to increase cutter life."

Analysis of early laboratory work also reveals that the high level of friction at the cutter/rock interface has more influence over bit temperature than convective cooling provided by drilling fluids.

"Friction could become so severe that, under certain conditions, drilling fluid simply would not provide cooling necessary for adequate bit lifetime," Glowka says.

Laboratory analysis appears to confirm that the amount of friction created during PDC drag bit operation rules out air drilling--systems that use air instead of special fluids to provide downhole cooling. PDC-equipped drag bits have no moving parts. They cut with a lathe-like machining action as they rotate rapidly. Traditional bits use roller cones with interlocking teeth to grind and crush rock.

Studies are now under way with a variety of bit configurations to develop general guidelines for PDC bit design. These studies are part of DOE's Geothermal Drilling and Completion Technology Development program managed by Sandia.

## LAB NEWS

Published Fortnightly on Fridays

### SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA  
TONOPAH, NEVADA

Editorial Offices in Albuquerque, 87185  
Phone 505/844-1053 FTS 844-1053  
In Livermore 415/422-2447 FTS 532-2447

BRUCE HAWKINSON, Editor  
DON GRAHAM, Assistant Editor  
CARL MORA, NORMA TAYLOR, writers  
LOUIS ERNE, photographer  
GERSE MARTINEZ, assistant  
BARRY SCHRADER, Livermore reporter

Member, International  
Association of Business Communicators

## Supervisory Appointment

ARNOLD SCHUK-NECHT to manager of the Personnel Department 8210, effective Aug. 16.



He began his career at Sandia Albuquerque in 1952 as an employment interviewer in personnel. Next, he worked in employee services and benefits before transferring to Sandia Livermore in 1957 where he was an administrative assistant to one of the technical departments. In 1959 he was promoted to section supervisor in budgeting and accounting. Arnold was then transferred into wage and salary administration, then to management information systems for a year. He was promoted to supervisor of the computing division in 1966.

Arnold's education includes a bachelor's degree in industrial psychology from the University of South Dakota and a master's in personnel service from the University of Colorado.

His hobbies are water skiing, fresh water fishing, and spectator sports. He and his wife Esther live in Livermore and have two grown sons and two grandchildren.

## Take Note

Seven Livermore Sandians took part in the 26-mile San Francisco Marathon on July 12. They were among 7900 runners, with some 5800 finishing the grueling, hilly course.

Leading the Sandia finishers were Len Hiles (8113) with a time of 2 hours and 56 minutes, Tom Jefferson (8330) with a 3:01 time, and John Martin (8161) turning in a 3:09. All three are masters runners and qualified to compete in the 1983 Boston Marathon.

Also completing the course were Bill Mason (8122) in 3:11, Morey Reynolds (8161) in 3:33, Barry Bolden (8212) in 3:36, and Mike Stephenson (8112) in 3:39. Running part of the course as pacers were Dave Bray (8466) and John Lippold (8314). The finishers received a two-inch medal emblazoned with a bridge and cable car, symbols of the city.

\* \* \*

David Abrahams (8413) and his wife Jolene are into their 10th year as coordinators for the Jerry Lewis Muscular Dystrophy Telethon in the Tri-Valley. They are seeking volunteers from Sandia and elsewhere to assist in the two-day telethon that runs from 5:30 p.m. Sunday, Sept. 5, through 5 p.m. Monday, Sept. 6 (Labor Day). Needed are people to handle phone calls from those pledging money to the charity drive as well as mail sorters and clerical helpers. It all happens at the Shannon Community Center in Dublin. Four-hour shifts are desirable but any length of time is welcome, according to David. He can be reached at home by

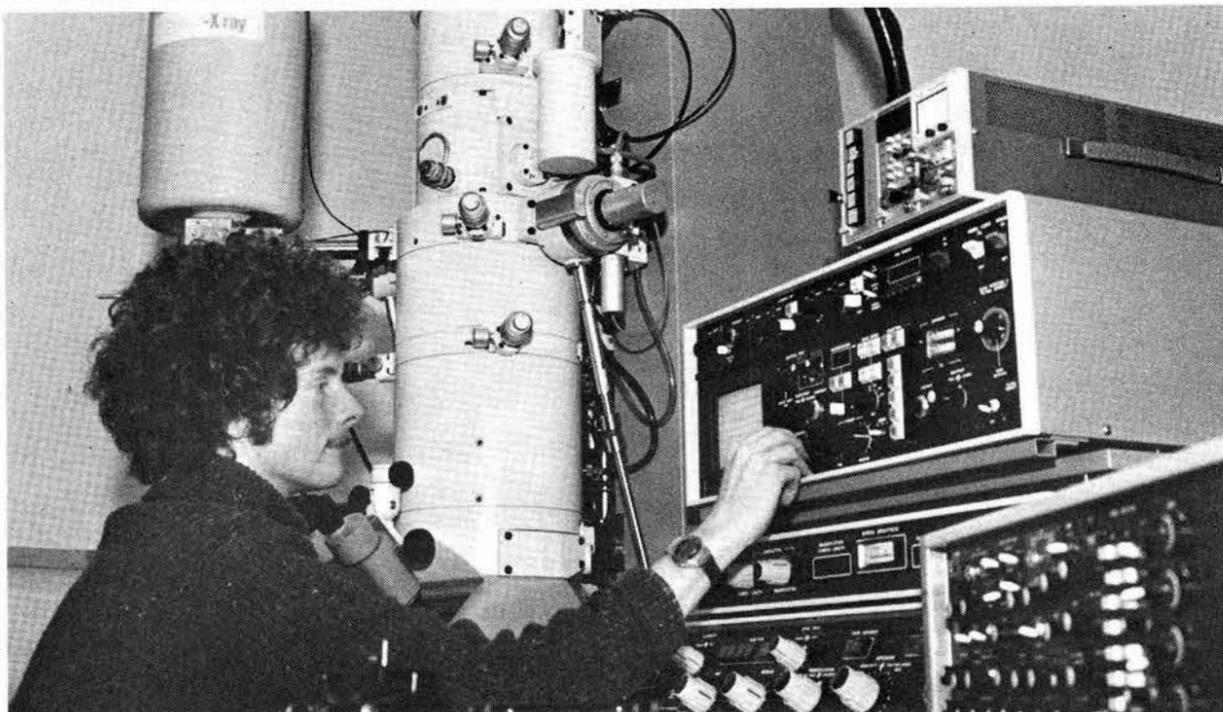


# SANDIA LIVERMORE NEWS

VOL. 34, NO. 17

SANDIA NATIONAL LABORATORIES

AUGUST 20, 1982



FOR BETTER SCRUTINY of the material under study, Rob Allen (8316) adjusts the signal mixing system on the STEM to electronically mix different images of the sample.

### Scanning Transmission Electron Microscope

## New Instrument Aiding Research

Sandia's powerful new state-of-the-art microscope is providing researchers with increased knowledge in the study of coal particles and in the evaluation of chemical elements in weld samples.

Acquired about a year ago, the Scanning Transmission Electron Microscope (STEM) can reach 300,000 times magnification in its standard mode; it has been checked out at 1.4 angstrom resolution (the spacing of one atom) as an electron transmission instrument as well.

The STEM provides the highest achievable spatial resolution for chemical microanalysis. It is possible to look at a standard thin transmission electron microscope sample and do a chemical analysis on the object at two different points as close as 250 angstroms (about 125 atoms) apart.

Explaining its varied uses, Rob Allen (8316) says that he and Fred Greulich (also 8316) have been looking at the micro-segregation of various chemical elements in different samples, such as welds. "Chemical segregation in welds can cause them to be brittle and even to crack during cool-down. Because of the rapid solidification rate of the weld pool, this

### Sympathy

To Vera Dashner (8273) on the death of her mother in Corning, Calif., July 10.

To Anna Furenza (8212) on the death of her father in Livermore, July 10.

To Diane Bell (8124) on the death of her father in Columbia, Mo., July 18.

calling 447-9386. Last year the Dublin pledge center received \$46,000 in donations.

segregation can occur on a very fine scale, and we need the STEM to measure it."

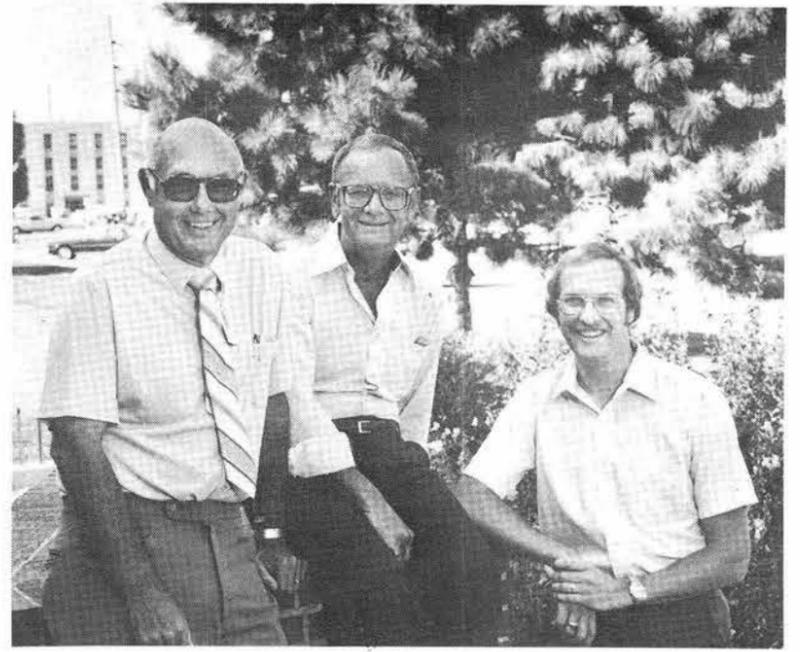
Rob and Steve Orth (also 8316) have also used the STEM to examine particles in conjunction with a research project under way at the Combustion Research Facility. "We first characterize the mineral matter in coal samples. Then, when those samples are burned, we look at what has happened to the minerals during the combustion process. This is particularly important because the mineral matter is responsible for most of the deleterious effects that coal combustion produces," Rob says.

With the STEM, users can not only do chemical microanalysis but can also form images of the sample—images that give them a spatial sense of what is going on inside the material. With auxiliary equipment, x-rays from the sample are used to do chemical analysis. "We normally use electrons to form different images of the sample. We can get transmission images like those from a conventional electron microscope, or we can look at the sample surface by using the STEM as a scanning electron microscope," according to Rob. They also have a backscattered electron detector and an annular dark-field electron detector to look at electrons that have been scattered by the sample.

The signal-mixing system, which is an auxiliary piece of equipment, enables researchers not only to form the different images but also to electronically mix them together. "We are one of the first labs in the country to add the signal mixing capability on the STEM. It is useful for doing chemical microanalysis and for relating sample surface features to underlying microstructure," Rob explains.



ROGER CHAFFIN (1140), PRES HERRINGTON (0322), BILL CHANDLER (3550), JOHN OLSEN (1242), and ROGER THORP (0154).



KARL WAIBEL (0130), JACK LAWRENCE (0122) and DAVE CARLSON (9443).

## Supervisory Appointments

ROGER CHAFFIN to manager of Device Research Department 1140, effective Aug. 1.

With the Labs for 15 years, Roger has worked in both radar fuzing and research organizations. In 1974 he was promoted to supervisor of a radar development division; most recently he has headed the Solid State Device Physics Division 5133.

Roger attended the University of Wisconsin where he earned his BS, MS, and PhD in EE. He is a member of IEEE. Active in the search and rescue activities throughout the state, Roger is also an amateur radio operator. He and his wife Nancy have three daughters and live in NE Albuquerque.

\* \* \*

PRES HERRINGTON to supervisor of Sensor Systems Division 0322, effective Aug. 1.

Pres joined Sandia in 1964 as a member of the Labs' Technical Development Program. He has worked with rocket projects, balloon projects, and in Safeguards. More recently, he worked in Strategic Petroleum Reserve Geotechnical Division 9773. During his time with this group, Pres completed a one-year assignment at the New Orleans SPR project management office.

Pres earned his BS in EE from Mississippi State and his MS from UNM. He enjoys camping and golf. He and his wife Lisa live in the NE heights.

\* \* \*

BILL CHANDLER to manager of Salary Administration Department 3550, effective Aug. 1.

Bill joined Sandia in 1951 as a staff member with a systems group. He was later promoted to section supervisor in the business methods organization and, in 1957, was promoted to supervisor of the Labor Relations Division. For the past several years, Bill has headed the Salary Administration Division 3542.

He received both bachelor's and master's degrees in industrial management from the University of Texas.

Bill enjoys fishing and gardening. He

and his wife Betty have four grown children. The Chandlers live in the NE heights.

\* \* \*

JOHN OLSEN to supervisor of Target Experiments Division 1242, effective Aug. 1.

John joined the Labs in August 1970 as a staff member in a laser research division. In 1974 he transferred to the electron beam department. John was on temporary assignment for one year in Garching, West Germany, where he worked with a laser plasma experiments groups. Returning to Sandia in 1976, he continued his work in electron beam research. For the past year he has worked with the PBFA accelerator on ion diode development.

John received his BS and PhD in physics from Ohio State. He is a member of the American Physical Society. A Black Belt in judo, John also enjoys motorcycling and running.

\* \* \*

ROGER THORP to supervisor of Payment Processing Division 0154, effective Aug. 1.

Roger first came to Sandia in 1956 and attended UNM part time. He received his BA in accounting in 1963. The following year, he left the Labs to join GE in Florida. He moved to the AEC's Bendix Kansas City office and, in 1968, joined AEC Headquarters in Washington, D.C. Roger stayed at Headquarters for 11 years, through the ERDA and DOE changes. He returned to Sandia's budgeting department two years ago. For the past year, he has been with Audit Coordination & Compliance Division 0111.

Roger enjoys tennis and bowling. He and his wife Anita have one daughter still at home. They live in NE Albuquerque.

\* \* \*

KARL WAIBEL to manager of Policies and Procedures Department 0130, effective Aug. 1.

Joining the Labs in 1959 as a staff auditor, Karl worked in contract auditing, budgeting, and the systems and analysis

divisions. In 1969, he was promoted to supervisor of a systems integration division. He later headed divisions for property management, budget, financial applications and, for the last three years, the Management Information and Results Division 3213.

Karl received a BS in accounting from Denver University. He enjoys hunting and fishing, and is currently president of the Crazy Eights Square Dance Club. He is a former member of the Credit Union Board of Directors.

Karl and his wife Marie have five children, including six-year-old twins. They live in the NE heights.

\* \* \*

JACK LAWRENCE to supervisor of Contract Audit Division, West, 0122, effective Aug. 1.

Jack joined Sandia as an accountant in 1952. For the next few years he worked in internal auditing and the budget organization; however, the majority of his 30 years at the Labs has been with the contract auditing group, mostly as a senior auditor.

Jack earned his BS in accounting at the University of Montana. He enjoys swimming, woodworking, and gardening. He and his wife Barbara have four grown children and six grandchildren. They live in the north valley.

\* \* \*

DAVE CARLSON to supervisor of LWR Safety Division 9443, effective July 1.

Since joining Sandia in 1976, Dave has worked in the Nuclear Fuel Cycle Systems Safety Division 9412. He was on a one-year temporary assignment in Washington, D.C., during 1979-80, working with the U.S. Senate investigation of the Three-Mile Island accident.

Dave received a BS in astrophysics from Indiana University and an MS in astronomy and an MS in nuclear engineering from the University of Illinois. He is a member of the American Nuclear Society.

He enjoys basketball, racquet ball, golf, camping, photography, and travel. Dave, his wife Laura, and their two-year-old daughter Tracy live in the NE heights.

## Take Note

L'Ecole de l'Alliance Francaise d'Albuquerque announces that classes for the fall semester begin the week of Sept. 13. The Alliance Francaise offers conversational and business language classes, as well as a cooking class. For the schedule of classes or more information, call Margery Storrs, 821-5788.

\* \* \*

Another call for docents—this one from the Albuquerque Museum. If you're interested in learning about art, history, and science, then in sharing your knowledge by conducting tours of the Museum's exhibits, come to the Museum on Aug. 30 at 10 a.m. for a cup of Docent Coffee and learn more. Questions? Call Donna Hankinson at 898-1476 or Jean Pederson at 255-9442.

\* \* \*

A mouse that prefers brand name to generic noodles is a reminder that exterminator service at Sandia is available by calling Telecon on 4-4571. Subject Mouse visited Norm Richardson's (7551) work location in Bldg. 860 and not only nibbled his noodles but engaged in distinctly anti-social behavior as well.

\* \* \*

If the child of a Sandian is a finalist in the Preliminary Scholastic Aptitude Test/National Merit Scholarship Qualifying Test, he or she is eligible to compete for a Western Electric Fund Merit Scholarship. The test will be offered in October to students who will graduate from high school in 1984. No action is necessary until the student is recognized as a semifinalist; then the student should identify the parent's work location as a Western Electric facility.

\* \* \*

The 1982 American Institute of Aeronautics and Astronautics Convention, scheduled for Dec. 1-3 in San Francisco, is a joint government and industry conference on Cost/Schedule Control systems. Conference brochures are available by calling AIAA at 213/450-0500.

\* \* \*

Chinese language classes for beginners and intermediates will begin Aug. 29. The classes will be taught at UNM for 12 weeks on Sundays from 2 to 4 p.m. Tuition fee is \$25. More info from Margaret Chu (9413) on 4-9931.

\* \* \*

Retirees and pre-retirees may be interested in the annual New Mexico Conference on Aging to be held Aug. 31, 1 p.m., to Sept. 2, 1 p.m., at Glorieta Baptist Conference Center. The theme is "Coordinated Action for an Improved Quality of Life." Registration fees range from \$15 to \$70 depending on options selected for the three-day period (fees include meals and lodging). Workshops include: administration, senior coalition, long-term care, minority elderly, and nutrition; a total of 35 workshops will be presented. Several special speakers will



SOME RECENT ADDITIONS to the Anniversary and Retirement Awards program are pointed out by Amy Faucett (3450). The hishi necklace (left front) is a 10-year addition. The small desk clock (right front) is a new 15-year choice, and the International clock behind it has been added to the 20-year selection. Watches are among the choices for 25 years. Additions to the 25-year program include a quartz for women and a pocketwatch (in Amy's hand) for men; a new edition (key-wound) Stratford mantle clock (left rear); or up to \$200 of Nambeware. The two wall clocks are new additions to the 30-year awards. Not shown are two 35mm cameras and four calculators (both scientific and business/financial) for the 25-and-up service awards. Thirty-five year employees have a choice of any of the earlier awards or \$250 of Nambeware. No changes were made in five-year awards. All awards can be seen in Amy's office in Bldg. 832, Rm. 55A, or in the concessionaire area of Bldg. 880. In Livermore, the awards are displayed in the lobby of Bldg. 911, or see Dottie Wiemken (8216).

address the 500 people expected at the conference. More registration information is available from the State Agency on Aging at 505/827-2802 or any local senior center.

\* \* \*

A firewood cutters workshop, sponsored by the city parks and recreation department, is scheduled Saturday, Aug. 29, from 1 to 3 p.m. at the Heights Community Center, 823 Buena Vista SE. Representatives of the U.S. Forest Service and a chain saw manufacturer will discuss where to cut wood, what woods are legal, permits, chain saw safety and maintenance. For more information, call Mickey Chirigos, 766-7138.

### Congratulations

Lee (3721) and Sharon (9268) Ellis, a son, Brian Lee, July 24.

Adrian Romero (7481) and Judy Montoya, married in Albuquerque, Aug. 7.

Gwen (3715) and James Germany, a daughter, Jaime Nichole, July 12.

John (2144) and Amy Rouse, a daughter, Lacey, Aug. 8.

Fred (2142) and Debbie Sexton, a daughter, Amy, Aug. 5.

Georgia Rivera (3723) and John Gronager (9421), married in Santa Fe, July 10.

Dora Montoya (9410) and Fred Gunckel (2545), married in Albuquerque, Aug. 7.

## Career Enrichment Center Offers Special Courses

With school starting later this month, parents of high school students may be interested in contacting the Albuquerque Public School's Career Enrichment Center, a special educational facility offering a number of specialized or advanced courses available to all Albuquerque high school students, even those enrolled in private schools.

Located at 807 Mountain Road NE (near Bulldog City), the CEC offers special courses in business (including extensive data processing and word processing classes), foreign languages, home economics and cosmetology, industrial arts, math (including scientific programming and computer languages), science (including practical nursing), and aerospace education (including pilot training).

The courses are supported by extensive laboratory facilities and special equipment such as computers and word processors. All courses stress practical career opportunities.

Many of the industrial arts programs teach job entry skills in electronics and building trades. Others, such as data processing, lead to jobs in business for program graduates.

One of the more ambitious programs is the practical nurse program which trains students in several local hospitals. They receive academic training and work environment experience. Graduates are pre-



STUDENT NURSES enrolled in a program offered by the APS Career Enrichment Center get practical experience in local hospitals. Julie Lopez, Albuquerque High, instructor Marian Nordberg, RN, and Loretta Martinez, Rio Grande High, take blood pressure and temperature of patient Erin Long at St. Joseph's Hospital. The CEC offers a number of specialized career-oriented courses available to all Albuquerque high school students.

pared for an entry-level practical nurse or assistant nurse position or with an excellent background for additional college-level training to become registered nurses.

The CEC provides courses that individual high schools seldom offer because of the need for special facilities and special teaching abilities, or because the demand in the individual school is insufficient to justify the course.

Classes at the CEC are scheduled mornings, afternoons, and evenings. Transportation from all APS high schools to and from the Center is provided.

Students may pick up CEC course descriptions from their high school counselors. Parents who may wish to visit the CEC are urged to call the CEC counselors—Marie Cain or Don Brockwell—on 247-3658.

"We are happy to meet with parents and students any time," Marie says. "We can discuss the special opportunities at CEC, or career planning. Our computerized files contain a wealth of quickly accessible college preparatory information and information about specific colleges."

### Colloquium

## Burning Issues Of Our Time

If we continue using wood stoves at our current frenetic pace or heedlessly burning coal to keep Los Angeles barely visible through the smog, will the Earth eventually become a burnt crisp—a second Venus? Or, barring that extreme, will we release too much carbon dioxide into the atmosphere and warm it sufficiently to melt the polar ice caps, converting Albuquerque into a deep-water port?

Answers to these burning questions were not forthcoming at a recent colloquium entitled "Climatic Warming from Increasing Carbon Dioxide Concentrations." Michael MacCracken from LLNL discussed the present state of knowledge on the effects of increased carbon dioxide levels on global climate.

Although scientific measurements indicate a gradual warming over the last 100 years, it is not at all certain that carbon dioxide is a causative factor, according to MacCracken. Many factors can influence climate: solar variability, the earth's rotation, polar wandering, volcanoes—even continental drift. Though increased carbon dioxide levels lead to more solar absorption and consequent trapping of infrared radiation which raises surface temperatures, other mechanisms such as water vapor, clouds, and surface albedo cause the same effects.

Measurements also show a seasonal cycle

in carbon dioxide atmospheric levels, probably caused by the annual decay and growth of vegetation. Present estimates indicate a doubling of carbon dioxide concentrations after 2050 due in large part to increased fossil fuel use in developing countries. If present energy use trends continue, the global average temperature is projected to increase by a few degrees over the next 100 years, with large increases in polar regions and lesser changes in low latitudes.

MacCracken points out that the effects of climatic warming might not necessarily be all bad. It could result in higher temperatures and increased rainfall in areas such as Canada's grain belt, which now has a short growing season. Besides, temperature changes are not uniform in all zones of the same latitude.

"We don't have good test cases of what really happens over 50 to 100 years to test our models on," says MacCracken. "We don't really understand what causes an ice age. There's no clear evidence that carbon dioxide is warming the climate because it's very difficult to isolate the factors that would cause such a change."

Even if increased carbon dioxide levels do cause a general warming of global temperatures, trying to change climatic effects will be much more difficult than adapting to the new conditions. Injecting

aerosol into the stratosphere or preserving polar ice are not exactly simple tasks. More practical measures would be large-scale planting of trees and using more biomass fuels.

MacCracken also described DOE's National Program for Carbon Dioxide. Established five years ago, the program deals with climate modeling, the effects of carbon dioxide on vegetation, and the effects of warming on the polar ice caps. This year's \$12 million budget will be reduced to \$8 million next year.

### **Sympathy**

To Tom Morgan (3543) on the death of his mother in Dallas, July 29.

To Walt Herrmann (1500) on the recent death of his mother in South Africa.

To Ralph (3423) and Alfredo (3154) Pena on the death of their sister in El Paso, Aug. 2.

To Elizabeth Cook (3154) on the death of her sister in Texhoma, Okla., Aug. 4.

To James Wright (7243) on the death of his father in Florida, Aug. 2.

To Melanie Tuck and Denise Benco (both 2141) on the death of their father in Albuquerque, Aug. 8.

## Bennett Tours Holland, Germany

[Ed. note—Taken an unusual vacation lately? Tell us about it. Call 4-1053.]

Marilyn Bennett, loan officer with the Sandia Laboratories Federal Credit Union, recently completed a month's visit in Europe—a visit that took her to the birthplace of her great-grandfather in a tiny village in Germany, behind the Berlin Wall to a visit in East Berlin and Dresden, and into the Netherlands for nine days where she looked at "billions and billions of tulips."

"Since I was a little girl," Marilyn says, "Holland has been special to me. I've always loved tulips, and reading about windmills and wooden shoes has always delighted me."

Marilyn, single and traveling alone, signed up for two tours with a local travel agent. The nine-day Netherlands tour was called "Holland in Bloom" and took her to the major cities and through the beautiful countryside of the small, "storybook" country.

"Marvelous," she said. "We stayed in nice places, ate in famous and in out-of-the-way restaurants, kept a tight schedule with plenty of free time, and the tour group was just great—a lot of very nice people."

Marilyn then rented a car and drove to Belgium and on into Germany. She forgot to change her kroners into marks and started to worry about fuel for the Fiat around Trier. Late in the evening, she stopped for gas but, "no money, no petrol." She figured that rule would also apply to a hotel for the night, so she found a park, locked the doors, and slept in the car.

"I felt so dumb," she says, "but it wasn't bad. Next morning early I found a bank, cashed some traveler's checks, and drove on."

Her destination was Merchingen, a tiny village of about 100 families which she felt was the birthplace of her great-grandfather Ludwig. There is another town called Merchingen in Germany, but other relatives had found no evidence of her family there. At the village, she located a church undergoing repair and was not able to enter. A stranger volunteered to help, a

stranger with limited English. Marilyn's German was even more limited.

"With gestures, grunts, and a copy of the family tree, I managed to convey some kind of message," Marilyn says. "He took me to a home, introduced me to a lady, and then left."

"The lady showed me into the living room and motioned for me to sit down. Shortly, a man joined me and I tried to tell him what I was looking for. He didn't speak English either, and I couldn't speak German, French, Italian, or any of the other languages he tried. I showed him the paper with the Ludwig family tree. He left the room and returned with a book and showed me my great-grandfather's name in it. I had found the right place."

"He told me it would be 30 minutes but I couldn't understand the rest. When the time had passed, we went to his auto and got in. We drove a few blocks and pulled up in front of a house where a lady greeted us and motioned for us to come in. On her dining table was her family register and family photo album. We had the same great-great-grandfather. I couldn't believe I had found a distant cousin! Tears came to my eyes."

In spite of the language barrier, Marilyn and her cousin visited through the day. Since her return, Marilyn has corresponded regularly.

She drove on to Köln and kept the car for five days of sightseeing, then joined another tour group for 18 days on a "Romantic Germany" holiday.

"There were lots of castles on the Rhine and a lot of medieval villages and walled towns—museums, restaurants and hotels," Marilyn says. "I enjoyed the food more in Holland, but Germany was pleasant. It was depressing to go behind the Iron Curtain. It's drab and dismal. Dresden, a city where my paternal grandfather was born, was disappointing. I'm glad my family emigrated."

"In West Berlin," Marilyn continues, "the young people are resentful of America and Americans, but the oldtimers still remember the airlift of 1948 and how Americans saved their city. They remember, and they're grateful."

Marilyn chose commercial tours rather



MARILYN BENNETT, Sandia Federal Credit Union loan officer, is an accomplished amateur photographer. She took almost 400 color pictures during her recent tour of the Netherlands and Germany—didn't lose a single frame.



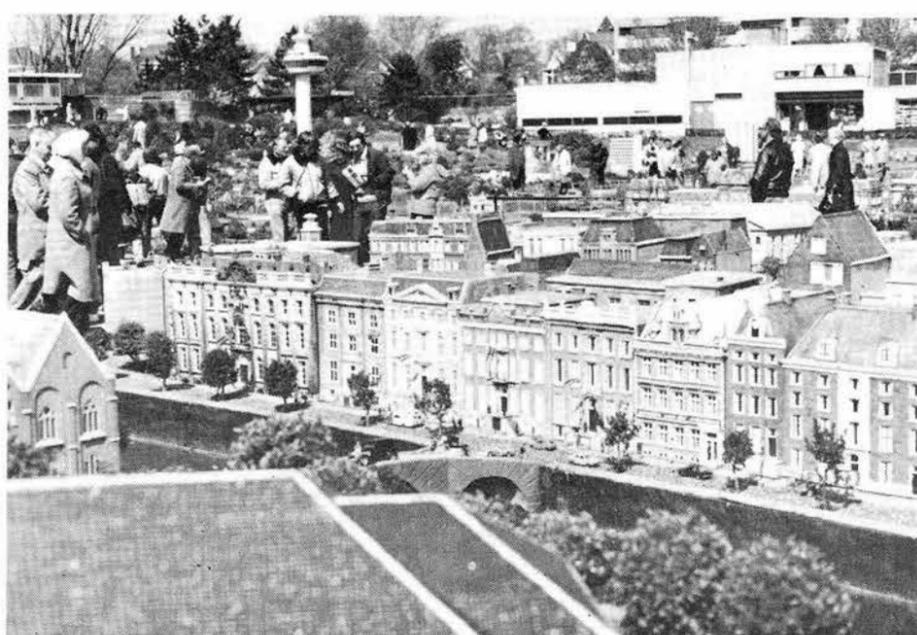
ROTHENBURG, a medieval walled city in West Germany.

than sightseeing alone because "they made all the decisions. I didn't have to worry about baggage handling, customs, reservations or paying the bill. All of that was part of the package, and everything went smoothly. The only money I spent was for incidentals, wine, and souvenirs."

*Logistics:* The tours were arranged several months in advance through a local travel agent. Airfare to Amsterdam and return from Hamburg was \$875, the tour of the Netherlands cost \$1098, Germany, \$2000.



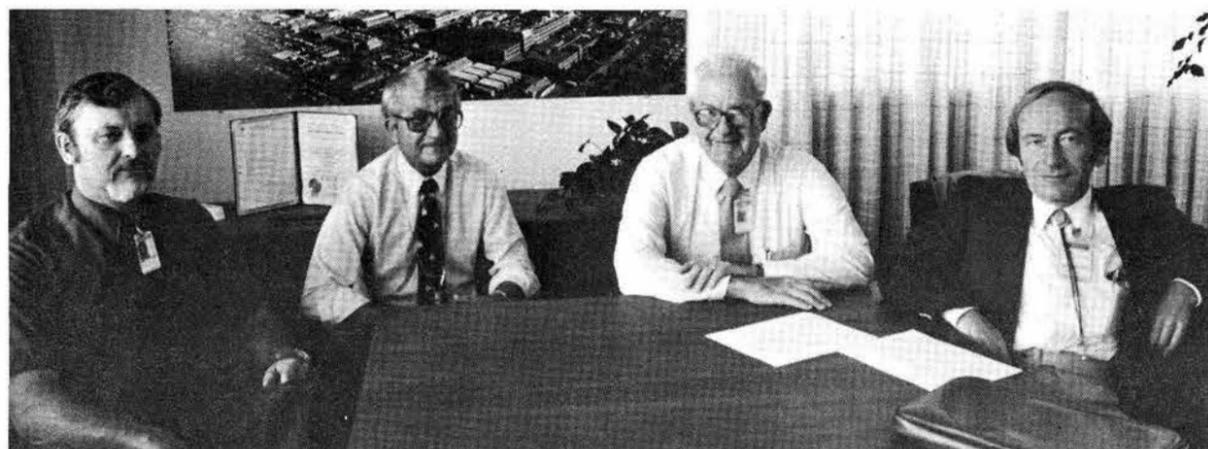
WINDMILLS in the Netherlands near Kinderijk.



HOLLAND IN miniature, a cultural exhibit in Den Haag.



SANDIA BOARD MEMBER Philip Hogin, executive vice-president of electronic components and common technology at Western Electric, spent two days visiting Sandia management and facilities last week. Here he is surrounded by President Dacey, Al Narath (10), and Ev Beckner (9700) in Area IV with a model of the Particle Beam Fusion Facility.



FORMER SANDIA Vice-President Sol Buchsbaum (right), now executive vice-president of customer systems at Bell Labs, paused with Executive Vice-Presidents Al Narath (10) and Tom Cook (20) and President George Dacey before touring several Labs facilities.

## Events Calendar

Aug. 20-22, 26-29, Sept. 2-5—Lillian Hellman's "Another Part of the Forest," Corrales Adobe Theatre, 8:30. Reservations at 898-3323 afternoons during run of show.

Aug. 20-22—Antique Show & Sale, Convention Center, opens at 12 noon.

Aug. 20-22\*, 27-29\*, Sept. 3-4—Civic Light Opera, "Dear World," 8:15 p.m., \*2:15 p.m. only, Popejoy.

Aug. 21—"Scorpions" in concert; Aug. 31—Doobie Brothers in concert, Tingley Coliseum, State Fairgrounds, 243-3208.

Aug. 21-22—Annual Indian Market, on the Plaza, Santa Fe.

Aug. 21-22—Feria Artesana, Tiguex Park, 9-6, 766-7878.

Aug. 23—National Radio Theater, KUNM 90.1 FM, 10 p.m.: "A Tale of Two Cities" (part two); Aug. 30—"The Bacchae."

Aug. 23—Magic Show, benefit performance for Jaycees, Kiva Auditorium, Convention Center, 7-9 p.m., tickets at door, 881-3598.

Aug. 24, 26, 28—Santa Fe Opera: "Die Fledermaus" (in English); Aug. 25, 27—"The Marriage of Figaro" (in English); Aug. 21—"The Confidence Man," 9 p.m., tickets at The Broadway.

Aug. 25—Classical guitar recital by international competition winner Yoshinori Homma, Waco Homma, and Richard Sprague, Keller Hall, 8 p.m. Tickets at door. Reception follows.

Aug. 28—Chamber Orchestra of Albuquerque concert, 8:15 p.m., Albuquerque Little Theatre, 247-0262.

## Fun & Games

**Running**—Give blood. Sweat blood. That's the lure of United Blood Services' Blood Donor 5-mile run on Sept. 11. Entry fee is a pint of blood (your own) at 1515 University NE or at the Tuesday morning bloodmobile at Sandia. Top three finishers in each of five age/sex categories get awards; T-shirts and refreshments go to all finishers.

\* \* \*

**Bowling**—The Sandia Labs Men's Handicap Bowling League needs men to bowl in the Thursday evening early league at Holiday Bowl. If you're interested, call Ted Montoya on 4-6620 or Lou Sanchez on 265-1686. League play begins Sept. 2.

\* \* \*

**Backpacking**—A backpacking class for novices and for intermediates who want to be a bit more trailwise is offered through Sandia's Employee Recreation Program. The class consists of two evening indoor classes plus a full weekend outing. Indoor sessions are Sept. 14 and 16 from 7 to 8:30 at the Coronado Club. Choose either Sept. 18-19 or Oct. 2-3 for the final exam. \$20 per person. More info and signups with

Tom Lenz, recreation manager, at 4-8486 or 266-7557.

\* \* \*

**Mushball**—The M.A.S.H. (Maybe Another Season Helps) co-recreational mushball team of Sandians and spouses is currently in first place in Division II of the city's league. Manager Phil Brooks and Coach George Wagner have inspired the team to a 7-2 mark. Members are Dave King, Debbie Risvold, Deanna Wagner, Jerry and Bonnie Roudabush, Pati and Dan Arvizu, Celine Cummins, George, and Phil.

\* \* \*

**Golf**—Leon Chapman (9416) with a low gross of 73 and Don Hosterman (9772) with a low net of 67 emerged winners out of a field of 70 golfers competing in the SEGA Fred J. Given Memorial tournament played recently on the UNM-South course. Flight winners were Gil Lovato (7474), Al Maes (3615) and Joe Gaynor (ret.). This popular tourney, initiated in the late '60s, honors the memory of Fred Given, Sandia vice-president active in Sandia golf associations.

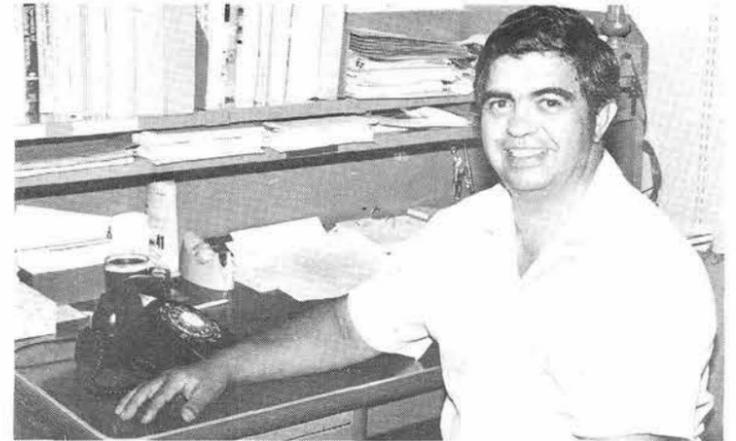
\* \* \*

**Volleyball**—Competition begins the first week of October. If you're a Sandian, a DOEan, or a spouse, form your own teams for either the A league (competitive types) or the B league (recreation sorts), \$8 per person. Send team rosters by Sept. 10 to Larry Azevedo (1152) on 4-2358.

**MILEPOSTS**  
**LAB NEWS**  
**AUGUST 1982**



Mary Campbell - 3523 25



Paul Martinez - 1531 25



John Laster - 7172 25



Juan Mata - 1845 30



Andy Wilken - 1652 25



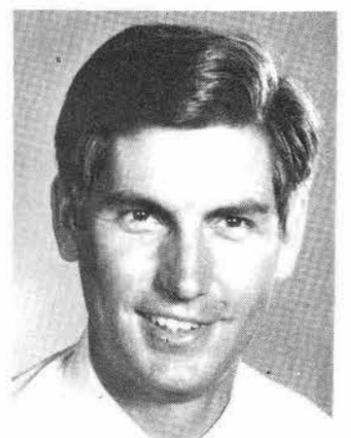
Barbara Potts - 3155 20



Isaac Griego - 0121 25



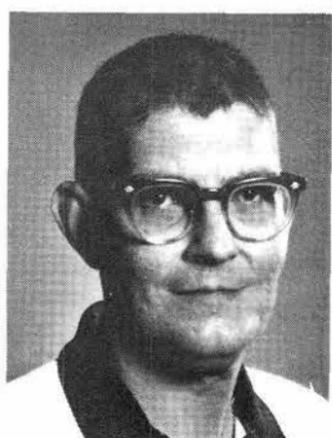
Pat Murphy - 2625 15



Wilson Barnard - 2116 15



Adelia Littleton - 0132 15



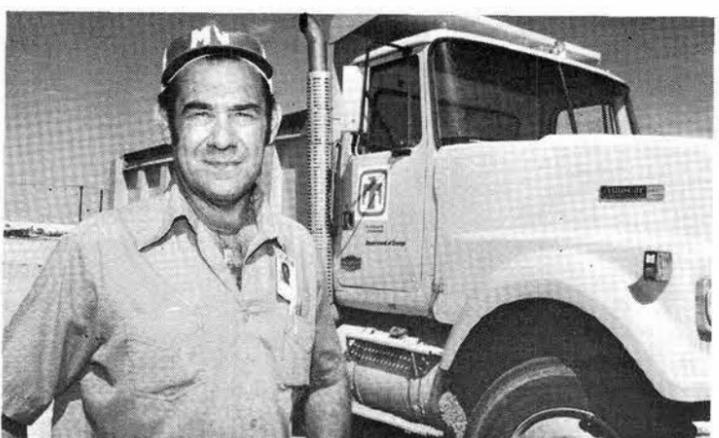
Jim Clabaugh - 7423 20



Herb Howe - 1652 30



Bob Christopher - 9335 30



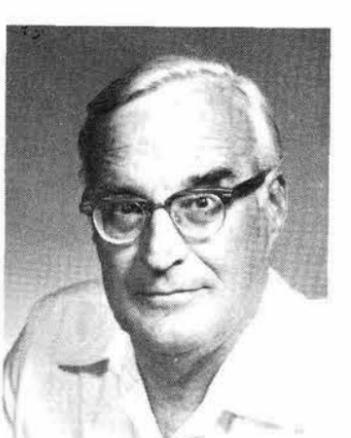
Wilfred Sanchez - 3618 30



Larry Kent - 7537 25



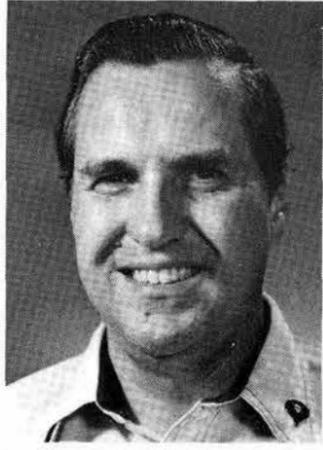
Jewel Wheelis - 9215 25



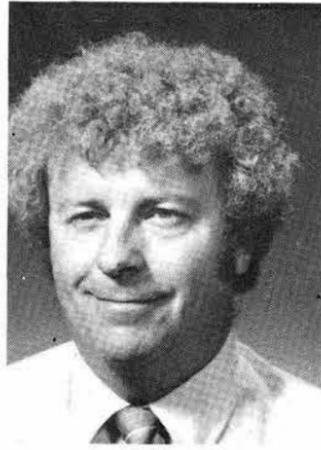
Jack Ames - 9231 30



Marcella Madsen - 9781 20



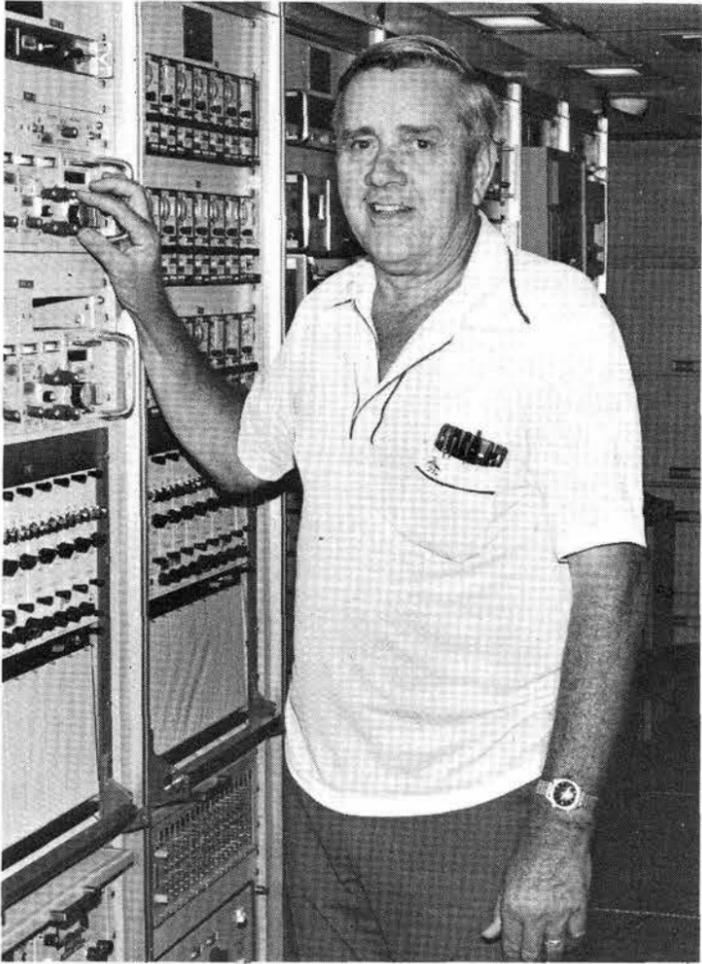
Ron Domres - 2635 20



Rick Beckmann - 9263 15



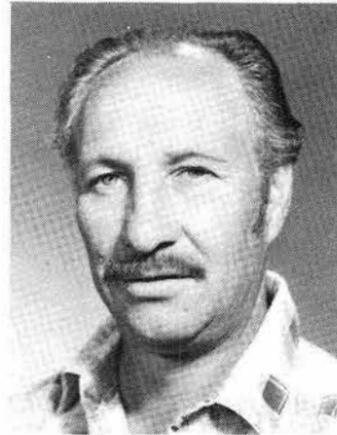
Don Hinman - 3713 30



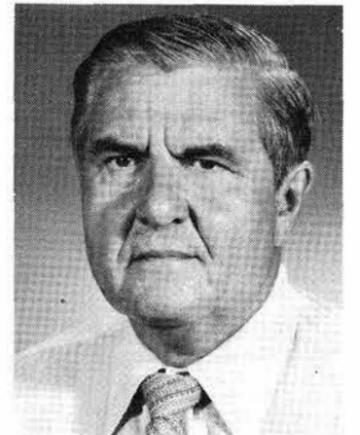
Vernon Brewster - 7137 35



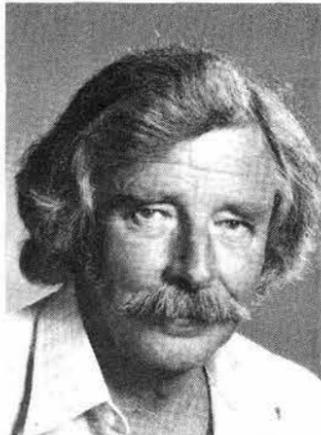
Don Johnson - 1632 25



Abel Anaya - 3154 15



Howard Gilke - 0321 25



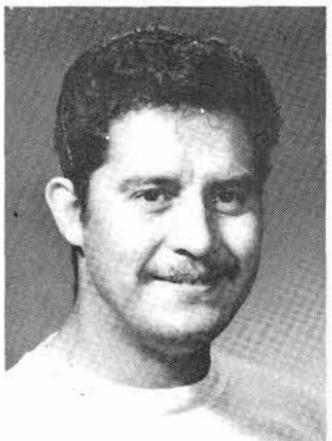
John Woodworth - 1821 25



Herb Parsons - 9310 25



Bill Clement - 2335 25



Ramon Villegas - 9752 10



Pete Stirbis - 1524 25



Ken Kimball - 1125 20



Louis Archuleta - 2432 15



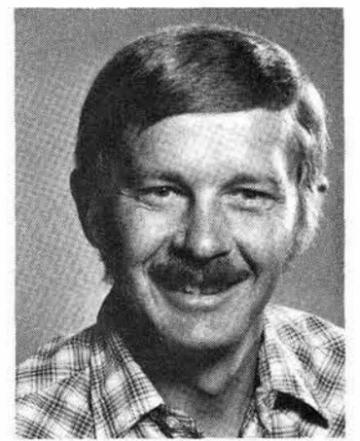
Garry Brown - 9331 15



Lacey Learson - 1415 10



Jim Trentham - 1583 15



Francis Sieradzki - 2364 15

# New Support for Cancer Patients

During the emotional time following a diagnosis of cancer, patients often need to talk openly about their feelings. The initial shock may make it difficult to talk with the family and friends. The American Cancer Society's (ACS) CanSurmount Program was established to provide support to cancer patients and their families.

CanSurmount is a volunteer visitor program staffed by current and former cancer patients. Many of these volunteers have undergone rigorous treatment regimens including radiation and chemotherapy. Volunteers' physicians certify that the volunteers are physically and emotionally able to be supportive of others.

Volunteers do not give medical or psychological advice. Rather, they listen to other cancer patients' concerns and empathize with the experience of living with cancer. This support provides encouragement, reassurance, and hope and strength-

ens a patient's ability to cope with life as it is now.

For more information concerning the CanSurmount program, contact the ACS in Albuquerque at 262-2333.



## MORE COLLECTIVE NOUNS FOR R&D LABS

- an exposure of radiation monitors
- a sampling of device testers
- a reluctance of directors
- a charge of high explosives detonators
- a clause of benefits administrators
- a lenshood of photographers
- a factor of human relations experts
- a ragout of cafeteria workers
- a blackbody of nuclear physicists
- a critical mass of nuclear power protesters
- a pen of technical writers
- a cell of animators
- a column of journalists
- a strain of mechanical engineers
- a circuit of semiconductor device designers
- a blast of field testers
- a specification of purchasing agents
- an assurance of quality control engineers
- a beam of laser experts

(Suggestions? Send them to 3162)



HIGHEST RANKING woman ever in the New Mexico Air National Guard is Carol McAllister (3522). She was recently named Commander of the 150th Combat Support Squadron with ultimate responsibility for support activities ranging from personnel and training to disaster preparedness and law enforcement. While she's been in the New Mexico unit for five years, she has 18 years of military service. Carol came to Sandia two years ago and helps administer the INTEC program.

## 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 (MO125).

### 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

- 7 MO. female Lhasa Apso, golden red, AKC reg., \$250. Alvarez, 821-6817.
- '65 POWERGLIDE transmission, Chevy Corvette, completely rebuilt, used 4 mos., w/torque-converter, \$75. Marquez, 344-8455.
- VIOLIN, 3/4 size, German-make. Miyoshi, 821-9118.
- TWO alum frame windows: 4'h x 5'w w/1/2" sliding track; 6'h x 4'w w/2x2" sliding panel at bottom; \$25 ea. Champion, 299-0163.
- MEXICAN FURNITURE, gold/black upholstery, couch, two chairs, end tables & footstools, \$450. Berry, 821-7690.
- MOVIE CAMERA: 8mm Arriflex w/3 lenses, editing equipment, projector, extras, \$125; Hermes thinline port. typewriter, \$25. Cockelreas, 256-7570.
- 36 SLIDE, Airequipt cartridges for Argus slide projector, \$1.50 ea.; Craftsman reel type push lawn mower, \$15. Moyer, 881-3879.
- SEWING MACHINE, Singer Featherweight port. Mikkelsen, 881-3921.
- AREA RUG, \$50 or best offer, 6'10" x 9'. Pritchard, 299-3543.
- SHOP MANUALS for '69 Ford truck, 4 volumes, \$12.50. Meikle, 299-4640.
- National Geographic collection including indexes, complete back to 1920s, \$350. Kottenstette, 299-1922.
- TWO hide-a-bed sofas, 72", blue-green, \$70; 84" Simmons off-white w/green & blue stripe, \$60. McDaniel, 294-3000.
- ROLLTOP DESK, 7-dwr.; sewing machine, cabinet/worktable, decorative/utility stitches, buttonholer; Casio C80 calculator chronograph. Shortencarier, 292-3575.
- DYNAMO FOOSBALL table. Dink, 293-0299.
- SHEEP, Barbado rams, 6 mos. old, will cross w/woolies, \$100 or trade. Nielson, 873-2615.
- LADY'S Seiko watch, battery-type, gold w/brown band, worn 4 times, \$135. Nordeen, 298-0240.
- ELEC. GUITAR, Mosrite Celebrity

- w/hard-shell case, \$100. Eaton, 299-7271.
- ELEC. GUITAR, Hondo II, Les Paul copy, Temp amplifier, waa-waa pedal & extras, \$150. Caffey, 296-3320.
- MOUTON LAMB coat, worn once, size 34, \$1100 new, sell for \$750. Ruvolo, 296-1316.
- MOWER, reel, power, Sears; lawn sweeper, best offers. Ingram, 298-0390.
- WINDOW SCREENS, assorted sizes; boy's, girl's, 3-spd. lady's bicycles, 1 ea.; complete Boy Scout uniform, long sleeves, neck size 13. Mora, 821-6759 after 6.
- OVEN, Farberware convection-turbo, \$95; 2 mud/snow tires on rims, E78-14, ww, \$50 for set. Davis, 255-1050.
- '80 RCA color TV, 25" screen, table model w/remote control. Dumas, 268-3403.
- CAMPER or van refrigerator, 2.5 cu. ft., runs on 12VDC or 110 VAC, Norcold (Sears), \$175. Alm, 299-9487.
- OAK DESK, refinished to light color, 32x60", \$375. Hinga, 294-1261 after 8/23.
- GE 13" B&W port. TV, \$40. Paul, 299-6387.
- DINETTE TABLE, glass top, 33" square, \$50; 2 14" wheels for 5-stud mtg., \$15 ea. Crumley, 299-5293.
- ALUM. patio cover, disassembled but w/all parts, 7 wrought iron posts, 10'x30', \$150. Hawley, 299-2516.
- GOLD inlay sterling silverware, 52-pc. service for 8, Lunt's Golden Columbine, used 3 times, \$1600. Jelinek, 294-7307.
- REFRIGERATOR, 2.0 cu. ft., used 2 semesters, \$95; Silvertone flute, \$150. Crass, 281-3889.
- 14 CU. FT. refrig., \$85; Sears deluxe vacuum cleaner, \$50; Sears 12" carriage port. elec. typewriter, \$50; alto ukelele, \$25. Pope, 255-6702.
- CENTURY 21 gold jacket, man's size 42 reg., \$25; RV tire, 8.00x16.5, approx. 10K miles, \$15. Allen, 296-6453.
- STORM DOOR, 32x80. Kindschi, 256-0531, 1040 Princeton NE.
- STEREO CASSETTE DECK, Nackamichi 700 w/remote control, \$525; Dynaco FM-5 tuner, needs work, \$60. Clement, 299-1501.
- SANSUI RACK STEREO, AU317 amp, tu417 tuner, SR222MKII turntable, Canon-TLS speakers. Senglaub, 844-1431.
- NIKON FM 50mm f/1.4, \$235; MD-11 motor, \$120. Passman, 821-4999.
- GARAGE SALE: 3 families; yard lamp, guitar, flute, TV, more. Sat. 10-5, Sun. 1-5, 4613 Burton SE. Young, 256-9158.
- KELTY FRAMEPACK, Tioga pack w/x-lg. frame, used once, \$70. Bixler, 293-7205.
- GARAGE SALE, Aug. 21, 8-5: elec. chain saw, Coleman stove, phone amplifier, toaster oven, Tupperware, pans, plus misc. Gaither, 3621 Mary Ellen NE.
- BED, queen size corner set type, new, \$125; truck chrome bed rails, \$50; set factory Ford truck manuals. Arana, 299-1214.
- LOVESEAT. Serna, 292-2564.

- TWO UNM football season tickets, 40-yr. line, w/parking west side of stadium, \$105. Hobbs, 268-6461.
- BUTCHER-BLOCK COUCH, Philippine mahogany, \$600. Bell, 293-6432.
- FOUR 9.50x16.5 8-ply highway tread, tubeless tires, avg. 3/16" tread, no breaks, boots or plugs, \$100. Fifer, 299-3501.
- '70 VW bug transaxle, \$160; rear seat back, blue plaid, \$25; book, *Fix Your Ford*, '66-'76, \$7.50. Trennel, 898-1224.
- PISTOLS: .357 Ruger Black Hawk, 6" barrel w/holster, belt & 200 rds. ammo, \$250; .22 auto Ruger w/hostler, \$120; .22 auto. Storing w/holster, \$100. Schimmel, 296-2295.
- TWIN SIZE BUNK mattress; twin size box spring. O'Bryant, 268-9049.
- SOFA & loveseat; antique upright piano; console stereo; EVSP12B speaker in reflex enclosure, 36"x36"; coffee table. Norris, 877-6415.
- RIFLE, Rem. 308 mod. 740 semi-auto., case & cleaning kit, 1 bx. ammo, \$200; workbench, wood, 10'Lx38"H x32"W, lift dwrs. in front, \$20. Fosmo, 268-8563.
- GREEN CHILE, roasted in 5 mins. while you wait, 30-lb. sack \$6. Sanchez, 242-2256.
- AKC Reg. Schnauzer puppies, \$175 ea., mother/father on premises. Martin, 266-4465, 299-3004.
- TRAILER winterize hand-pump, \$5; at stud, AKC white male Pekingese, show quality. Bliss, 296-3752.
- VARIABLE magnification 35mm slide copier, calibrated light system, case, \$55; Dremel Moto tool kit, \$35; soldering iron, \$4. Klett, 884-8354.
- '76 STARCRAFT tent trailer, sleeps 6, icebox, range, furnace, hookups, surge brakes, \$1850. Hueter, 299-7263.
- HIMALAYAN CAT, female, spayed & declawed, lt. blue eyes, free to good home. Atkins, 298-5762.
- CHILD'S Susie Homemaker oven, \$7.50; child's mixer, \$2.50; Barbie doll sportscar, \$2.50; complete Brownie uniform, size 14, \$10. Waite, 867-5953.
- CULLIGAN MARK 5C water softener, \$60; exterior door, 32"x80", \$10. Pate, 293-5393.
- WEDDING DRESS for fall or winter, ivory, size 9, floor-length veil, matching headpiece, \$200 or best offer. Hawkinson, 281-5239.

### TRANSPORTATION

- '76 HONDA Accord, semi-AT, AC, AM-FM-8TK, Michelin tires, new paint (blue), best offer. Chandler, 296-3323.
- '75 CHEVY Nova, 2-dr. V8, AT, radials, \$2000. Trujillo, 299-4209.
- '74 VW Thing, new top, many extras, \$2800, negotiable. Davies, 883-6441.
- '77 DATSUN F10, \$1800. Hamilton, 821-2509.
- '80 HONDA Prelude, AC, AM-FM-Cass., power moon roof, silver exterior, \$6300. McDowell, 292-1099.
- '60 WILLYS utility wagon. Knight, 836-7149.

- '75 HONDA CVCC, hatchback, recent engine rebuild, 4-spd., \$1445. Shumway, 865-7160.
- '80 YAMAHA XS 650 Special II, 3200 miles, \$1650. Walters, 293-5381.
- YAMAHA XT500 Enduro, low mileage, adult ridden, \$995. McConnell, 268-3109.
- '78 KZ-1000 Kawasaki, windjammer, AM-FM stereo cassette, black, low miles. Lucero, 299-7933.
- 14' CHRYSLER boat, convert. top, Johnson 25HP motor, closed bow, \$2250. Walker, 821-5938.
- '78 KAWASAKI KL 250, comb. street/off-road, 65 mpg, \$775; '78 Honda XR 75, \$375. Brigham, 296-8174.
- 21' REINELL boat, Mercruiser 888, drive tilt, trim levelers, galley, 2 tops, cover, tandem trailer. Falacy, 293-2517 after 8/22.
- '66 BARACUDA 273-V8, 4-spd., 75K miles, gold, no dents, never raced, always maintained. Richards, 266-0110 weekdays.
- '79 YAMAHA XS1100 special, black & chrome, king & queen seat, Continental tires, case guards & more, \$2600 or best offer. Carr, 296-6882.
- BIKE, 10-spd., Sears Free Spirit, boys' 24", orange, \$60; carpet, rust shag w/pad, 40 yds., \$80. Kinney, 298-5281.
- BMX racing bike, \$200; wanted: camper shell for '76 Ford Courier, 6' bed. Chavez, 836-4069.
- '78 CHEV. Nova Custom V8, 4-spd., no AC, \$3100. Russell, 293-2132.
- '78 DODGE 1/2-ton pickup, 4-spd., 6-cyl., SWB, insulated camper shell, low mileage, \$3100. Smith, 384-5182 after 6.
- '79 JEEP CJ-5, low mileage. Witkowski, 897-1257 after 6.
- BICYCLE, girls' 20", banana seat, \$45. Diegle, 294-5565.
- YAMAHA YZ 400, monoshock, new rear knobby, \$750; '76 Yamaha 250 Enduro, street legal. Pacheco, 831-6326.

- '77 OLDS Cutlass Supreme, 4-dr., buckskin, PS, PB, split seats, tilt, cruise, AM-FM-8TK, \$3595. Trennel, 898-1224.
- '76 CHEVY, 4-wd crewcab pickup, 3/4-ton (8200 GVW), 350 V8, AT, AC, PS, PB, camper shell, 65K miles, \$4500. Suber, 294-4038.
- '78 SUZUKI GS 400X, 7K miles. Krain, 892-8138.
- '60 CHEVY pickup, 6-cyl., rebuilt engine. Friedman, 344-5717 after 5.
- '65 PORSCHE coupe, \$7900. Valdez, 299-6682.
- '81 VW camper, beige, AC, AM-FM-Cass., \$14,000. Alvarez, 821-6817.
- '73 HONDA CB450, 13K miles, windshield, \$550 or best offer. Knoll, 299-1181.
- VW DUNE BUGGY, fiberglass body, street legal, \$1100; Vespa Moped w/extras, \$450. Soo Hoo, 821-1077.
- '72 MGB CONVERT., HT, 15K miles on rebuilt engine, new clutch, Koni shocks, AM-FM-Cass. Simmons, 299-3823.
- AQUA CYCLE jet ski w/35 HP Mercury outboard. Argo, 877-5415.
- '74 LAVERDA 1000cc, Vetter fairing, radio, cooler, \$2200 or best offer. Brezowski, 892-8568 after 5.

- '71 DATSUN 510 sedan, 4-spd., AM radio, reg. gas, \$700. Hueter, 299-7263.
- '67 OLDS Vista Cruiser stn. wgn., AT, PS, PB. Jones, 266-4186.
- SCHWINN BMX bike, tubular forks, quickchange front sprocket, tuff wheels, pads, \$100. Campbell, 294-6000.
- '73 AUDI FOX, 4-dr., 4-spd., \$1350. Tischhauser, 293-9768.

### REAL ESTATE

- 5 1/2 ACRES in Jemez Mts.; electricity, pure spring water, natural gas; National Forest surrounding; Ponderosa pine & meadow, \$48,500, terms. Hughes, 299-6674.
- MOBILE HOME, 1978 Nashua, 14x70, 2-bdr., 2 bath, lg. LR & Kitchen, refrig., gas range, Jones, 281-1186.
- MOBILE HOME, 10x60, 2-bdr., \$5500; 10x30 Lloyd Add-A-Room, \$1500. Crawford, 292-8232.
- 5 LOTS in San Miguel Acres, off S14. Mason, 281-3052.
- 10 ACRES south of Moriarty, power & natural gas available, \$1000/acre, terms. Smith, 384-5182 after 6.
- 2-BDR., converted garage, lg. yard, wood floors, near UNM & Base, \$44K, 8 1/2% mortgage. Hubbard, 842-9431.
- 33 ACRES about 10 miles north of Mora in mountains, may split into four parcels. Trennel, 898-1224.
- 2-BDR. townhouse, Sandia Heights, low down, 74K assumption or refinance at \$8K below appraisal, 841 Llave Ln. near Tramway/Live Oak. Key, 296-4168.
- 3-BDR., 1 1/2 baths, new pitched roof, \$6K down, 8 1/2% assumable, flexible terms, \$47,500, 241 Espejo NE. Duvall, 881-4406.

### WANTED

- BARREL, wood, any size, condition or kind. Diegle, 294-5565 after 5:30.
- MUD-SNOW tires, two, B78/13, 6:50-13 or comparable, good quality. Hawkinson, 281-5239.
- INDIVIDUALS to join in a group purchase of DEC VT-100 terminals (we hope at a good discount). Barnard, 256-7772.
- ENGINE, complete 4-cylinder, 2.0 litre or larger, in good or repairable condition. Krain, 892-8138.
- STUDENTS for an Arabic language class this fall to be offered by a native speaker from Egypt. Murray, 255-3421.
- SHORT, narrow bed for '73 or newer Chevy or GMC pickup; will buy or trade short wide bed. Aragon, 294-0225.

### LOST & FOUND

- LOST—Eyeglasses, metal frame type, in black case, lost about 4:30 p.m., Aug. 3 in or near Bldg. 880 or 892. Fisher, 844-3689, 881-8072.

## Casino Action Tomorrow at 7

**TONIGHT** at Happy Hour Jim Meek and Country Showmen hold the bandstand while a super rib eye steak tops the buffet spread. The buffet is served from 5:30 until 9; the band plays from 8 until 12. Happy Hours start right after work on Fridays and run until midnight with special prices in effect all evening. Members show cards for admission, guests pay \$1 each.

**TOMORROW** at 7, ye olde Coronado Club resembles Las Vegas on the Rio Grande with blackjack, craps, wheel-of-fortune and poker games operating in the ballroom. You exchange \$2 admission for a bundle of play money and try to beat the house. A basket of door prizes—the big one is a free weekend in Las Vegas compliments of Sam's Town and Western Airlines—will be given away during the evening. There's a TV and toaster and other good things in the basket. Fifty volunteer dealers will be on hand to keep the games moving. Elton Travis and the Westernaires will play for dancing, and French dip sandwiches and green chili stew will be available.

**NEXT FRIDAY**, Aug. 27, Marci and the Talkabouts will be on the bandstand while a western buffet is served. Marci leads one of the swingiest groups around these days playing some of the old songs and singing words you can understand.

**ON THURSDAY, AUG. 26**, the Steel schnapps people are providing a bar promotion and giving away free door prizes every half hour from 4:30 until 8. A drink of Steel schnapps costs 50 cents this night.

**THE THIRD ANNUAL** Coronado Club "Fun" golf tournament, which resembles the old "Helzapoppin" stage show, is scheduled Tuesday, Aug. 31, at Tijeras Arroyo. Entry fee is \$5 paid at the Club office



AT SANDIA CREST after finishing the run up La Luz trail last Sunday are Sandians Bonnie Roudabush (7223), George Wagner (9231), Pete Richards (1151), Randy King (2314), Bob Fox (2543), Larry Nelson (2331), and Jerry Roudabush (3611). Sitting are Herb Floyd (2314), Russ Haushalter (1556), Roque Feliciano (1551), and Andy Brito (1474).

before Aug. 27. A party honors the winners that evening at the Club.

**SEVEN** new members of the Club's board of directors will be elected at the annual meeting Monday, Sept. 13. Candidates are Don Hosterman (9742), Jack Mortley (7421), Ernie Montoya (3612), Phyllis Sanchez (3510), Shirley McKenzie (2432), Tom Mehlhorn (1231) and Don Graham (3162). Following the meeting, cash door prizes will be given away—\$100, \$50, and four \$25 prizes. A free open bar (well drinks and draft beer) plus a spread of munchies and goodies will be available for one hour following the business meeting.

**TRAVEL DIRECTOR** Frank Biggs (4231) has done it again. He's negotiated a new lower price for both the charter bus and air trips to Las Vegas. Fly Sept. 12-15

for \$138 or go by bus Sept. 12-15 for \$130. Both packages include a tour of Hoover Dam and lodging at the Maxim Hotel.

Other travel packages include:

New England—Quebec City, Sept. 25-Oct. 3, \$410 plus air fare (currently \$210).

Mazatlan, Nov. 1-8 or Nov. 8-15, \$359.

Pacific Mexican Coast Cruise, Oct. 23-30, \$789.

Dallas Cowboys package, lodging, air fare, game tickets, and Thanksgiving dinner in the Hyatt-Regency tower, \$225.

See Frank in the lobby tonight between 5 and 7 to talk travel.

**THE WOLFPACK** meets in the Club's El Dorado room Tuesday, Aug. 24, at 6:30 p.m. Joe Morrison, UNM football coach, will discuss the Lobo's upcoming season. Ken Deller (7246) will talk about Wolfpack travel plans. Refreshments will be served.

**THE CORONADO GRANDSQUARES** will conduct a refresher square dance class for those with some previous experience starting Sept. 13 at 7 p.m. The Club dances from 8:30 until 10 every Monday in the Club ballroom. Call Ed Ehrman (2154), 4-2816, or Bob Butler (7233), 4-4880, for more information.

**YOUNGSTERS** interested in competitive bowling are needed by the Coronado Club junior bowling league. The group meets Saturday mornings starting Sept. 4 at 9 a.m. at San Mateo Lanes. Kids age 7 through high school are eligible. For details, call Cis Kelly (3552), 4-6989.

**ADULT BOWLERS**, couples and singles, are needed by the Coronado Club Wednesday night mixed bowling league. The group bowls Wednesdays at 6:30 at San Mateo Lanes. For more information, call Dick Simmons (9221), 4-3524.



"That's a lot of bilgewater if you ask me, mate. No proof at all that sea levels have been affected by the climate. By the way, did you notify the Albuquerque Port Authority we're docking in the morning?"