



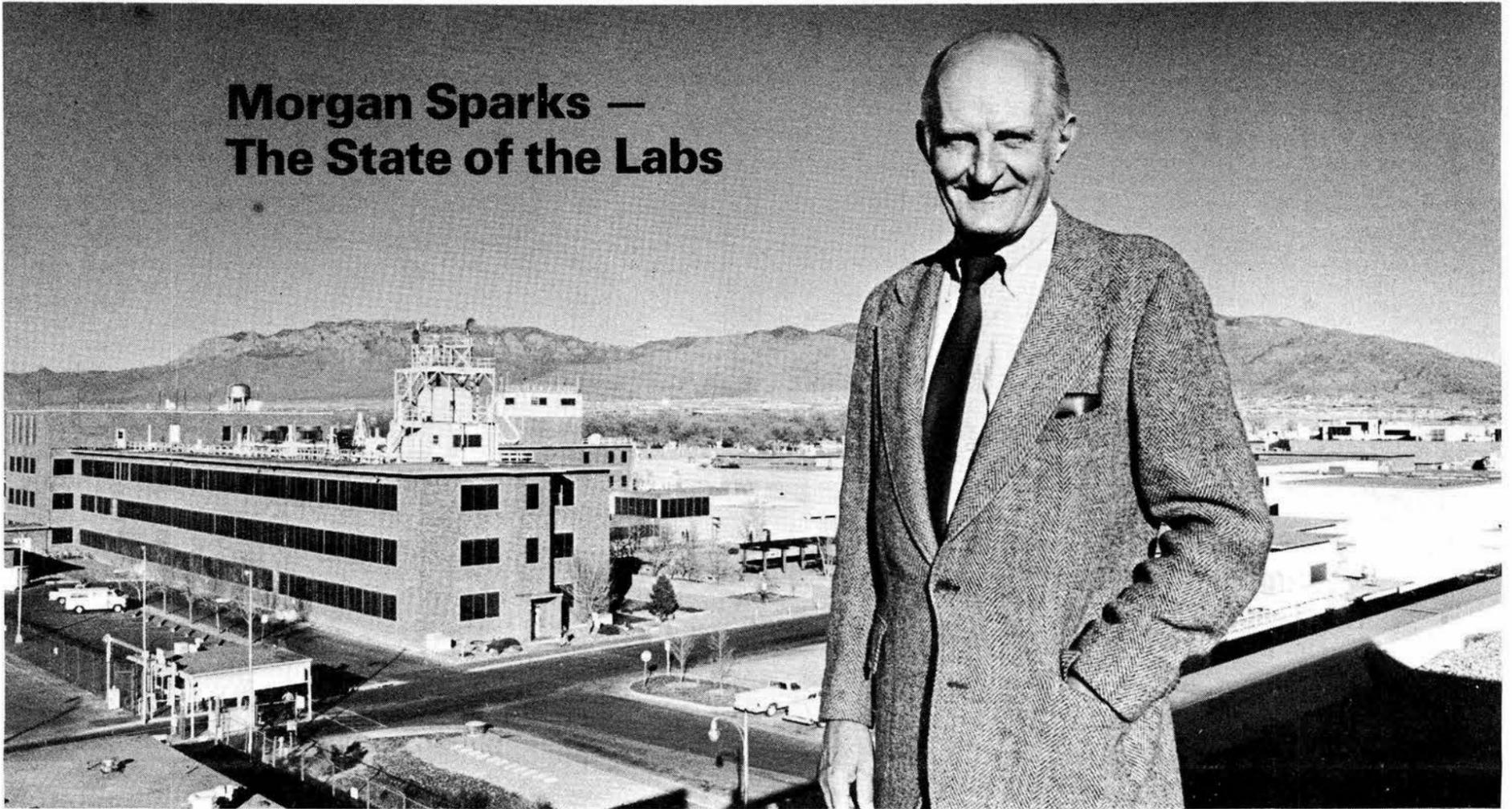
# LAB NEWS

VOL. 32, NO. 1

JANUARY 11, 1980

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

## Morgan Sparks — The State of the Labs



In an interview this week with LAB NEWS, President Morgan Sparks was able to characterize the Labs' present state as "...busy, productive and stable. We have a few uncertainties in a few of our programs, but this is not unusual and we're covered by contingency plans. Overall, we are in good shape."

Discussing the personnel picture at Sandia, Mr. Sparks anticipates "modest growth" for FY '80, from 7650 employees at the end of '79 to about 7700, and expects that this pattern of small percentage growth will probably continue for several years. He pointed out that this level of employment now makes Sandia the largest of the national laboratories. No significant change is planned in the balance among the various categories of employees.

Here are other topics covered by President Sparks.

*On weapons and non-weapons work at Sandia:*

"We plan on a five-year basis and, for 1980-1984, we expect the division in terms of people between weapons and non-weapons work will stay at about two-thirds weapons-related and one-third energy-related. Actually, the most useful measure of relative program sizes is the number of our people involved rather than the budget because our energy work involves more subcontracting than our weapons work. I'm including in weapons work not only our work for the Office of Military Application in DOE, which I expect to

remain slightly more than half of our effort, but also DoD reimbursables, Verification and Control Technology (for arms control treaties), Defense Waste Management, and Inertial Confinement Fusion."

*There's a new man at DOE [Duncan] and, for that matter, a somewhat different DOE. Do you see any changes in store for Sandia as a consequence?*

"It's a little too early to see what changes the new Secretary may initiate. My guess is that Sandia will not be very much affected. The defense work of DOE has not been as controversial as the energy programs, and even in energy the focus of attention has been on supply and pricing rather than R&D. Secretary Duncan made a quick visit to Sandia in November and showed considerable interest in our work. He has a technical background which makes briefing him on R&D projects an easy task."

*A few months back, a Phase 3 was authorized for the W85/86 Pershing. And it appears that Sandia will have a role in the warhead[s] for the MX program. Do you see a continuing, steady infusion of new weapons programs in the next few years?*

"Yes. Our level of effort on new weapons for the stockpile may fluctuate in the next few years, as it has historically, but over and above this I believe we will continue to modernize and upgrade our nuclear weapons stockpile, chiefly in areas relating to weapon safety, security, and survivability."

*How come we have so many Ph.D's—441 in '70, 870 in '79?*

"Our technology has been changing since the early 60s. More complex designs and more sophisticated analysis are the order of the day. This trend will continue. A Master's degree is now a condition of employment for members of our technical staff, and I would expect that in another 10 years our technical staff will be divided about equally between Masters and Ph.Ds."

*What about the Labs' energy projects?*

"These projects run the gamut from the commercialization of existing technologies to the development of new technologies for the next century. The vertical axis wind turbine is a good example of transferring an existing technology to industry. We took a French invention of the 1920s and developed it sufficiently to convince Alcoa that it could profitably market the concept. For solar central power generation, we are working at Livermore on new heliostat and boiler designs to lower their costs. We are also developing improved drilling techniques for fossil fuels and for geothermal energy. We are instrumenting and modeling improved processes for converting coal and oil shale into gaseous and liquid fuels in-place underground. We are analyzing the safety of today's and tomorrow's nuclear reactors. We are developing and applying new techniques to analyze automobile and other combustion processes which govern the energy conversion efficiency and environmental ac-

[Continued on Page Seven]

# Afterthoughts

On growing older--Last year at this time we commented upon turning 54, and many readers called or wrote to express how they shared our generally positive view of age and aging. Not to belabor the subject, but we've since read an article by playwright Garson Kanin (actually an excerpt from his book It Takes A Long Time To Become Young), whose beginning passage describes with fine perception what happens, if we're lucky, as we go from young to old:

"At sixty-five, I am in far better shape than I was as twenty-five. I remember that troublesome twenty-five-year-old, not as myself, but as a distant relative I would just as soon avoid.

"At that age I was a mass of bad habits. I smoked foolishly, drank to excess, slept little and popped Benzedrine tablets to keep myself awake. Headaches and bellyaches were daily companions... I worked carelessly and sporadically without organization or design. I was opinionated, angry, combative, competitive, envious. In short, a mess. And although now, forty years later, I have eradicated few faults, I have made considerable progress and I trust that the next forty years will see even more.

"Looking back on all this, I suppose that what has taken place principally is a shift in emphasis from the instinctive physical drives to the mental ones. When I was young, my body controlled my mind in a runaway fashion. It has taken forty years of experience--sometimes painful, often dismaying--to put my mind in charge of the rest of me."

\* \* \*

Ride on Ellen--Councilwoman Ellen Fletcher in Palo Alto recently won a long battle: to get 4¢ a mile in expense money for city employees who ride their bicycle on city business. For Fletcher it was more than an academic matter. She rides her bike some 30 miles into San Francisco on city business. Non-polluting, non-consuming, non-congesting, pro-fitness and pro-fun, the bicycle may just emerge as the peoples' choice of vehicle in the coming decade, at least for short trips.

\* \* \*

High cost of going--The Hertz people have released their '79 survey results on what it costs to run your "average-equipped intermediate-sized sedan driven 10,000 miles a year and owned three years." It's 38 cents per mile. Let's see--some time ago we learned that the average Sandian lives five miles from work. Since most drive to the Labs alone, that means that Mr./Ms. Average Sandian is expending an average \$3.80/day, \$76 a month, over \$900 a year. Sort of makes you think a bit... \*js

## B of D OKs Pension Increase

A special increase in pensions for eligible retired employees or their surviving annuitants has been approved by Sandia's Board of Directors. The increase follows the benefit structure of the Bell System and was effective Dec. 1, 1979. To be eligible, a retiree or annuitant must have elected to participate in the modified plan in July 1975, and have been receiving a pension on Nov. 30, 1979.

The amount of the special increase will be 1/35 of 16% of the retiree's or annuitant's pension (approximately .45%) for each full month of retirement between Jan. 1, 1977, and Nov. 30, 1979. The minimum increase will be 0.4571% (1 month), and the maximum will be 16% (35 months).

This special increase is being filed with the Internal Revenue Service for approval. It is hoped the IRS will act in time for the increase to be included in the May 1, 1980, pension check. However, actual payment of this increase will not be made until IRS approval has been obtained. When approval has been received, a retroactive payment of the increase amount for the period between Dec. 1, 1979, and the payment date will be made.

This increase affects approximately 2000 retirees and annuitants of Sandia. Here is how the increase will work:

For an employee who retired June 1, 1977, with a pension of \$400 per month, the new monthly annuity is computed as follows:

1. 30 (months of retirement during the period 1/1/77 through 11/30/79) x 0.4571% = 13.713%
2. \$400 (monthly pension) x 13.713% = \$54.84
3. \$400.00 + \$54.84 = \$454.84 (monthly pension effective Dec. 1, 1979)

Where a surviving annuitant's pension is in effect or the survivor option has been elected, the same percentage increase that would apply to the retiree's pension will also apply to the annuitant's pension.

A letter explaining this adjustment has been sent to all retirees and surviving annuitants whose pensions will be adjusted.

In approving this increase, the Board of Directors stated that this special increase in pensions was approved in the light of current economic conditions and that this action cannot be considered as an indicator of future pension changes. The Board further stated that any such decisions regarding pensions will be independent of any past or present actions and will remain at its discretion.

### Speakers & Authors

R. A. Trudo, D. J. Puetz and J. P. Sena (all 2634-1) and D. W. Saladin (Syntonic Tech. Inc.), "Analog-digital Testing Combined in Tech Control Center, November 1979 issue, DATA COMMUNICATIONS.

D. C. Reda (5513), "Correlation of Nositip Boundary-Layer Transition Data Measured in Ballistics-Range Experiments," American Institute of Aeronautics and Astronautics 18th Aerospace Sciences Meeting, Jan. 14-16, Pasadena.

## Medical Offers Program on Stress

Clinical psychologist Arlene Price of Sandia Medical reports that Medical is offering to employees a two-part program on the management of personal stress.

First part consists of two noontime sessions in Bldg. 815 with a 45-minute film, *Anxiety Management*, set for Tuesday, Jan. 22; one week later, Jan. 29, Dr. Al Fedoravicius, staff psychologist at the VA hospital, will be on hand to suggest ways for each of us to learn to handle stress in our daily lives.

Following these two sessions, Arlene will begin a class on the management of stress. The eight sessions will run on Tuesdays and Thursdays from 12:30 to 1:30, starting Feb. 5. If you are interested in this class or have other questions on the subject, Arlene can be reached on 4-8038.

## LAB NEWS

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## Italians, Americans Get Together On Solar

Three Sandians—Ed Burgess (4719), Bob Alvis (4725) and Taz Bramlette (8452)—were on the seven-member U.S. team that worked out details in Italy last month on a Bilateral Cooperative Solar Energy Agreement between the two countries.

"About a year ago," Ed says, "people from the Italian Ministry of Industry and from the Solar Energy Research Institute (SERI) at Golden, Colo., visited Sandia. Later, our State Department and the Italians agreed on seven projects to be undertaken jointly. Four projects involve the exchange of people, hardware for testing, and information in the solar energy field. A fifth project is a utility application study of solar central receiver technology. The other two are experiments to provide power for remote farming areas in Sicily. The Italians had done some preliminary site screening, and our job was to recommend final site selections for the two experimental plants and to work out the details on all the projects."

"The Italians have problems," Bob Alvis says. "Many farming areas have no electricity, phones or modern conveniences, and people are leaving the farms to live in nearby villages where these amenities are available. The older people still go daily to the farms to work, although this isn't really satisfactory. What worries the government is that children brought up in towns will not want to return to the farms. A larger problem is that Italians don't want to be dependent upon other countries which want to sell their excess power to the Italians. They're determined to create their own power, and solar energy is one of the options."

### Events Calendar

- Jan. 16—Hal Holbrook in "Mark Twain," 8:15 p.m., Popejoy.
- Jan. 16-20—Holiday on Ice, Tingley Coliseum, Ticketmaster, 266-9459.
- Jan. 18 (weekends through Feb. 9)—"Lion in Winter," Tiffany Playhouse, 3211 Central Ave. NE, 8 p.m.
- Jan. 18-19—N.M. Symphony Orchestra, Teodoro Morca and Company, Flamen-co in Concert, 8:15 p.m., Popejoy, 842-8565.
- Jan. 19—Cerrillos singer Lisa Gilkyson in country-folk concert, 8 p.m., Kimo, 766-7816.
- Jan. 20—Music Vesper Series: Strizich Duo, lute and guitar, First United Methodist Church, 4th & Lead SW, 4 p.m.
- Jan. 20—Experiment in Jewish Learning: "The Jew as Alien," lecture by David Sidosky, First Unitarian Church, 3701 Carlisle NE, 8 p.m.
- Jan. 25-26—"Dances from the High Desert," Lee Connor and Lorn Mac-Dougal, 8 p.m., Kimo.
- Jan. 26-27, Feb. 1-3—"The Marriage-Go-Round," Classics Theater Company, Popejoy, 8:15 p.m.
- Jan. 25-28—Theater Dept., U of A: "Memoir," the last days of Sarah Bernhardt, Stage I, Fine Arts Learning Center, 8 p.m., U of A.

One experiment calls for a 40 kilowatt electric system, half photovoltaic and half solar thermal. Both halves will use concentrator arrays and provide electrical power to a cluster of approximately 15 farm houses; the system will also provide power to pump water to irrigate 160 acres of orange groves. This is a first in solar energy—combining the two solar technologies for the same application. Sandia is providing, in cooperation with the Italians, the technical know-how on this experiment and, once completed, will continue to evaluate and monitor the operation.

The second experimental project is a smaller, five kilowatt photovoltaic system to provide power to a remote farming area of 25 to 30 acres. This experiment is the responsibility of the NASA-Lewis Research Center in Cleveland.

Sandia will provide technical support in an effort to assess the cost effectiveness of a large solar central receiver plant in the range of 10 to 100 MW<sub>e</sub> capacity located somewhere in Italy. The Italians will supply the description of their utility grids

### Geotechnics

## New Work for Sandia's Centrifuge

Sandia's underground centrifuge facility in Area III was used recently in a unique test program to support the new science of geotechnics—the study of earth and earth structures under high acceleration.

A 1000-lb. clay model of an earth formation was mounted on the 28-ft. arm of the centrifuge and accelerated to 108 rpm. At this speed, the earth sample was being subjected to 100 g's. A small one-gram explosive charge was detonated at this point. According to the scaling laws, at 100 times gravity the one-gram explosive charge creates a crater which, in terms of shape and the ratio of width vs. depth, is representative of the crater that would result from the detonation of one ton of explosives.

The sample was prepared with a pattern of beads precisely placed so that high speed motion pictures could photograph the kinetics of the cratering process.

The camera was placed at the center of the centrifuge arm (so that it would not undergo extreme acceleration) and photographed the explosion via a mirror mounted above the experiment. Photometrics for the tests were the responsibility of Leroy Paulson (1556).

Harold Rarrick (1535) was the test project manager for the experiments which were conducted for Waterways Experiment Station, U.S. Army Corps of Engineers.

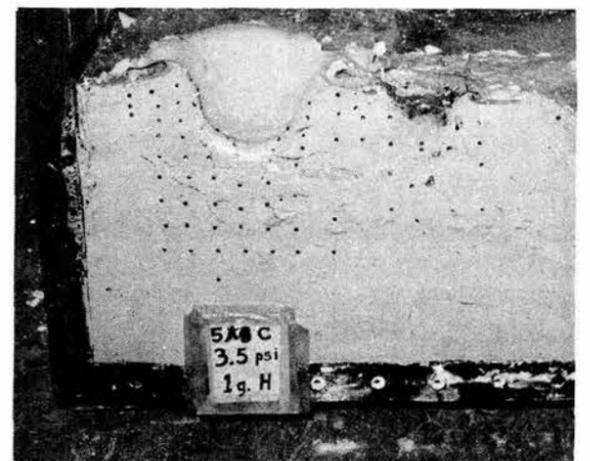
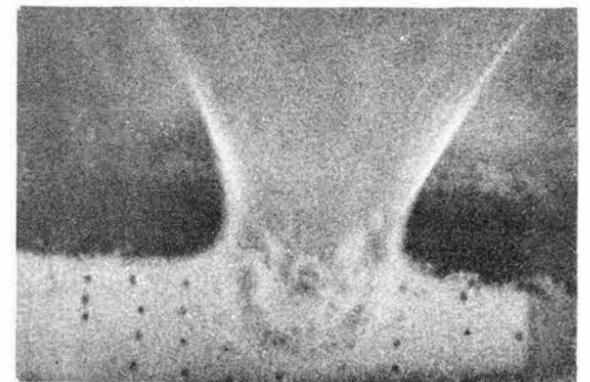
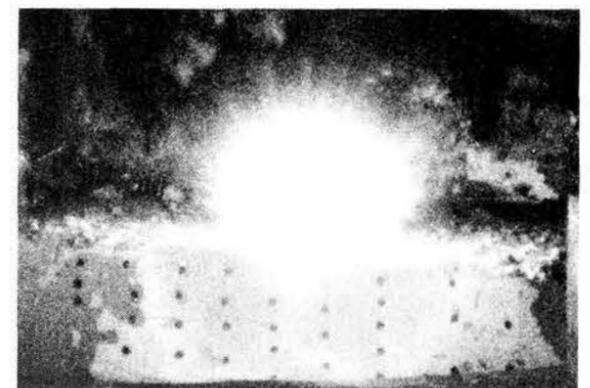
"Sandia's centrifuge is the largest in the free world," Harold says, "and is ideally suited for this kind of study. Joe Davis (1545) is currently designing a new swing bucket to hold earth models weighing up to 3500 lbs. and capable of withstanding 170 g's. We'll support subsidence studies and other aspects of coal gasification for Dave Northrop's Geotechnology Research Division 4732."

Bob Ault and Don Fulton (1531) were the test engineers.

and Sandia will supply the technical and economic evaluation capability to assess solar central receiver plants operating within those grids.

Taz Bramlette, who replaces Al Baker (8450) as the U.S. DOE representative to the International Energy Agency Small Solar Power Systems Project, will be stationed in Europe and will oversee development of these projects. The Italian Electric Company (government-owned) has on-site technical responsibility.

Ed continues, "By February we should have a conceptual design, and the projects will go out for bid to American and Italian firms. This is a 50-50 proposition in terms of money and hardware, so whichever contractors are chosen will team up with their Italian counterparts. Installation should begin in October 1981. Two years from now, the people should be back on their farms, enjoying electricity and all that it means. We visited one farmer who did have a TV set—it was powered by two automobile batteries that he charges with his farm tractor."



**GEOTECHNICS**—A one-gram explosive charge is detonated in an earth model accelerated to 100 g's on Sandia's centrifuge facility. At 100 g's, one gram of explosive is scalable to one ton. The resulting small crater is an accurate model of a larger event. Dark spots in the model are beads with which the kinetics of the cratering process can be recorded on high-speed motion picture film.



WELCOME—Virginia Padilla of Community Relations Division 3163 receives visitors at the new Visitor Center. Last year the Labs logged 4800 unofficial visitors, most of whom were chiefly interested in the Labs energy projects.

## Labs' Visitor Center Opens

With the advent of energy programs in the early '70s, Sandia began to experience a new phenomenon: visitors. People of all technical persuasions (and some with none) showed up asking to see and learn about the Labs' energy programs. Since we expend federal funds on these various energy projects, all of them unclassified as well, it is appropriate that the Labs be able to offer these visitors—who numbered 4800 in 1979—the information that they came to obtain.

The Visitor Center has been set up by Community Relations Division 3163 to fill that need. The familiar geodesic dome east

of the Personnel Bldg. has been completely refurbished to provide a reception area, conference room, office space, and a small theater.

All unofficial visitors, except suppliers and candidates for employment, will be directed to the Visitor Center initially, where they will be greeted and interviewed to determine their interests and desires. The receptionist will then schedule appropriate briefings and tours or make other special arrangements.

The Visitor Center will be staffed by Community Relations representatives who will handle briefings and tours for non-technical visitors, and by representatives of

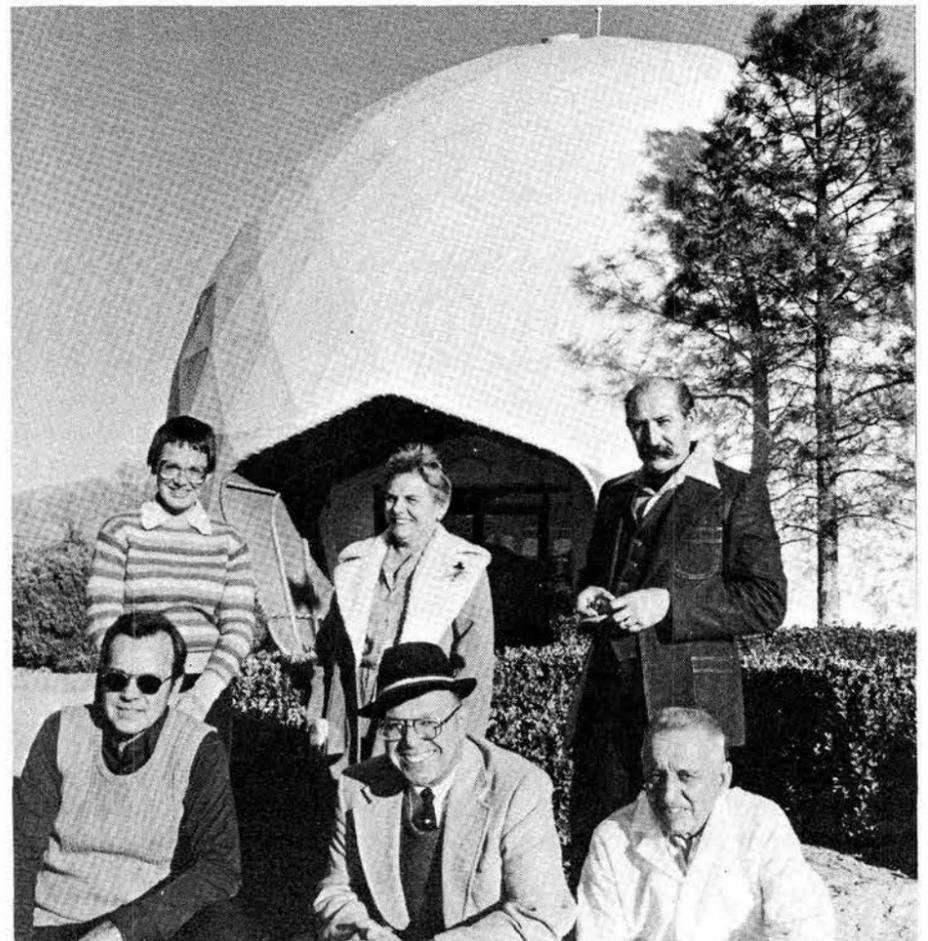
Solar Technical Liaison Division, who will handle visitors more technically oriented.

A new film about Sandia, a 3-screen, 17-minute presentation, will be shown to visitors in the small auditorium adjoining the geodesic dome, and literature will be available on energy programs and other unclassified operations.

The new film and slide presentation will be shown each noon hour from Jan. 14-25, beginning at 12:10 p.m., for interested employees. Seating will be on a first-come basis, and the auditorium capacity is about 60. Brown baggers are welcome, but please be neat—and quiet!



MULTI-MEDIA (motion picture plus slides) presentation on Sandia Labs, recently completed, will be shown to visitors in auditorium adjoining the geodesic dome. Film lasts 17 minutes. While drop-in visitors can be accommodated, persons contemplating a visit are asked to phone ahead, 264-3931, to schedule their briefing and tour.



THE JOB, hosting visitors, goes with the territory. These people from Community Relations Division 3163 and Solar Technical Liaison Division 4714 now have their offices in the Visitor Center and will spend a portion of their time with Labs' visitors. Back row, Karen Shane, Edith Lewis and Joe Laval; in front, Bob Stromberg, Willie Garcia and Andy Landis.

## Take Note

Plant Engineering reports that telephone prefixes on Kirtland Air Force Base will be changed next week on Jan. 19, with the Base prefix going from 264 to 844 and the FTS prefix going from 475 to 844 as well. The change is an interim step to activation of the 1A-ESS system, a new computerized telephone system that becomes operational on KAFB on March 28. The 1A-ESS is expected to provide Base users with improved service and other desirable telephone features.

\* \* \*

Question: what significant astronomical discovery took place just 50 years ago? The answer is the discovery of the planet Pluto, and this finding was the work of New Mexican Clyde Tombaugh, now professor emeritus in NMSU's astronomy department. To honor Professor Tombaugh, NMSU is sponsoring a Pluto Meeting at Las Cruces on Feb. 17-19 at which papers covering current Pluto research and historical aspects of the discovery will be presented. There's a banquet and a commemorative program and, if you wish to attend, call Jennie Montoya at NMSU on 646-1602.

\* \* \*

If you can speak a foreign language, the KAFB Security Police are currently updating their list of interpreters—people who are willing to volunteer their services in emergency situations where an interpreter is needed. Volunteers proficient in any language or dialect are urged to participate. The SP Information Office on 4-4727 is the contact.

\* \* \*

The Artichoke Gallery at 709 Central NW is featuring drawings, sculptures and constructions by retiree Claire Haut through Feb. 8. Claire, who has been a fulltime artist since she retired in 1974, has had works accepted for regional art shows in El Paso, Houston and the Oklahoma Salon of Art. She describes the works in her current show at the Artichoke as modern, both in concept and execution.

\* \* \*

Donald Kerr, Director of Los Alamos Scientific Laboratory, will be featured speaker at the Jan. 18 joint meeting of the New Mexico chapters of the American Society for Mechanical Engineers, the American Nuclear Society, the American Chemical Society and the American Society for Quality Control. The dinner meeting will be held at the El Gancho Tennis Club in Santa Fe. A charter bus will leave Albuquerque at 5:30 p.m. with the social hour at 6:30, dinner at 7:30 and the speaker at 8:15 p.m. Albuquerque members must make bus and dinner reservations by noon, Tuesday, Jan. 15. Call your phone committee member or Dan Swenson (264-4295) or Charlie Adams (264-7694).

\* \* \*

The Martin-Marietta Co. of Denver has been chosen by DOE to provide approximately 1800 heliostats for use at the solar electric generating plant to be built at

Barstow, Calif. Sandia Laboratories in Livermore is providing technical assistance on the project. According to the DOE press release, each heliostat will have a mirrored surface of 450 square feet. At peak output, the Barstow plant will provide steam to produce over 10,000 kilowatts of electricity, enough to serve about 2500 homes. The plant, which will occupy 80 acres, is scheduled to be completed in December 1981.

\* \* \*

The North Valley and Central Branch YMCA's begin two new fitness programs in January. "Fresh Start" is an eight-week beginning exercise program. Classes start Jan. 15, meeting on Tuesday and Thursday from 5:30 to 6:30 p.m.; registration is Jan. 2-14. "Slim Living, the Y's Way to Weight Control" is part of the National YMCA's Cardiovascular Health Program. Preregistration for this 10-week program is requested; classes begin the week of Jan. 14. For more information, call the Central Y at 243-4571 or North Valley Y, 344-3337.

\* \* \*

The Sandia Food Committee recently approved an increase of ten cents per sandwich for the vending machines. The price increase becomes effective Jan. 2. Servomation Corporation holds the contract to provide and service the machines.

## Credit Union Reporter

### *Bonus Dividend on Regular Share Accounts*

The Board of Directors of the Credit Union is pleased to announce a bonus dividend on regular share accounts for the last quarter of 1979. A 1% bonus dividend will be added to the 6% dividend for an effective annual rate of 7% for this quarter. Dividends for the last quarter of 1979 were posted to all share accounts on Jan. 1, and this amount will be shown on statements to be mailed in early January. The total amount of dividends as well as interest paid on loans during 1979 will also appear on these statements; members will need these figures for completion of their tax returns.

### *Annual Meeting*

The 32nd annual meeting of the Credit Union will be held Thursday, Jan. 24, at 5:15 p.m., in the Coronado Club. Following the regular business meeting, there will be a drawing for cash prizes. First prize is \$500, second \$300, and third \$200. All regular members as of Dec. 31, 1979, who still have an open account on the date of the annual meeting, are eligible for the prize drawing. You do not have to be present to win.



Most of us probably won't make "Who's Who," but there's talk of a new directory which offers hope. Called "Who's Nobody in America," inclusion will depend on answers to questions like: "Does your spouse sign your Valentine's card 'with warmest regards'?" Special note (so we're told) will go to those whose income tax forms are returned unopened by the IRS.

## Changes Made In U.S. Savings Bond Program

A number of changes in the U.S. Savings Bond program went into effect last week which affect Sandians enrolled in the program.

The most significant changes are these:

— The return on Savings Bonds is now seven percent if held 11 years.

— The old Series E and H bonds are being phased out in favor of new Series EE and HH bonds (now called U.S. Energy Savings Bonds), although payroll deductions for the old bonds will continue for several months—but not later than June 30.

— The new Series EE bonds are sold in denominations of \$50, \$75, \$100, \$200, \$500, \$1000, \$5000 and \$10,000. You buy them at one half their face value, i.e., pay \$25 for a \$50 bond, and they mature in 11 years, doubling their value.

— The new Series EE bonds cannot be cashed in until they have been held six months after purchase. (The old Series E bonds may be redeemed after two months.)

"Perhaps the most noticeable change is that the old familiar \$25 bond which sells for \$18.75 is being phased out," says Dick Schwoebel (5110), chairman of Sandia's Savings Bond committee. "However, payroll deductions for them—and all other denominations—will continue for several months. The employee doesn't have to make any immediate changes.

"The new interest rate for bonds certainly makes them a better investment," says Dick, "particularly when the effects of taxes are considered. Savings Bonds are exempt from state and local taxes, and the tax experts tell me that if the bonds are held until retirement and the income tax on the return is delayed until then, the actual return on Savings Bonds can be as great as 12 percent.

"Also, if Savings Bonds are bought in the names of your children and used for college education, no income tax may have to be paid at all. These are significant points and the interest earned is, in reality, essentially tax free."

Dick also notes a couple of not-so-obvious advantages of the bond program. "It's a form of savings that most of us tend to leave untouched over the years, thus building up a reserve for that proverbial rainy day," he says.

"And it's a very good way to support Uncle Sam, who, as current events indicate, needs the help of every citizen. At Sandia, the U.S. Government is the source of most of our funds, so in a sense, we are helping ourselves when we buy bonds."

Currently, about 90 percent of Sandians buy bonds through payroll deduction—\$150,000 worth of bonds monthly is the total. During the upcoming Sandia bond drive (scheduled to start April 21), the new features of U.S. Energy Savings Bonds will be discussed in detail. In the meantime, all payroll deductions for bonds will continue unchanged.

## Congratulations

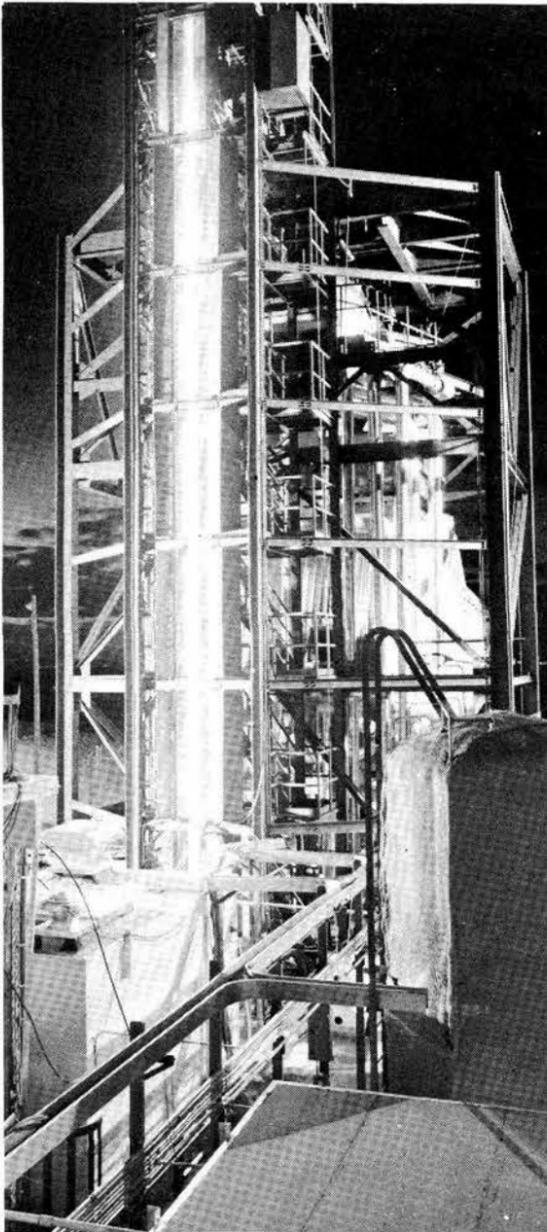
Mr. and Mrs. James Wilder (5845), a son, Derek, Dec. 12.

# LIVERMORE NEWS

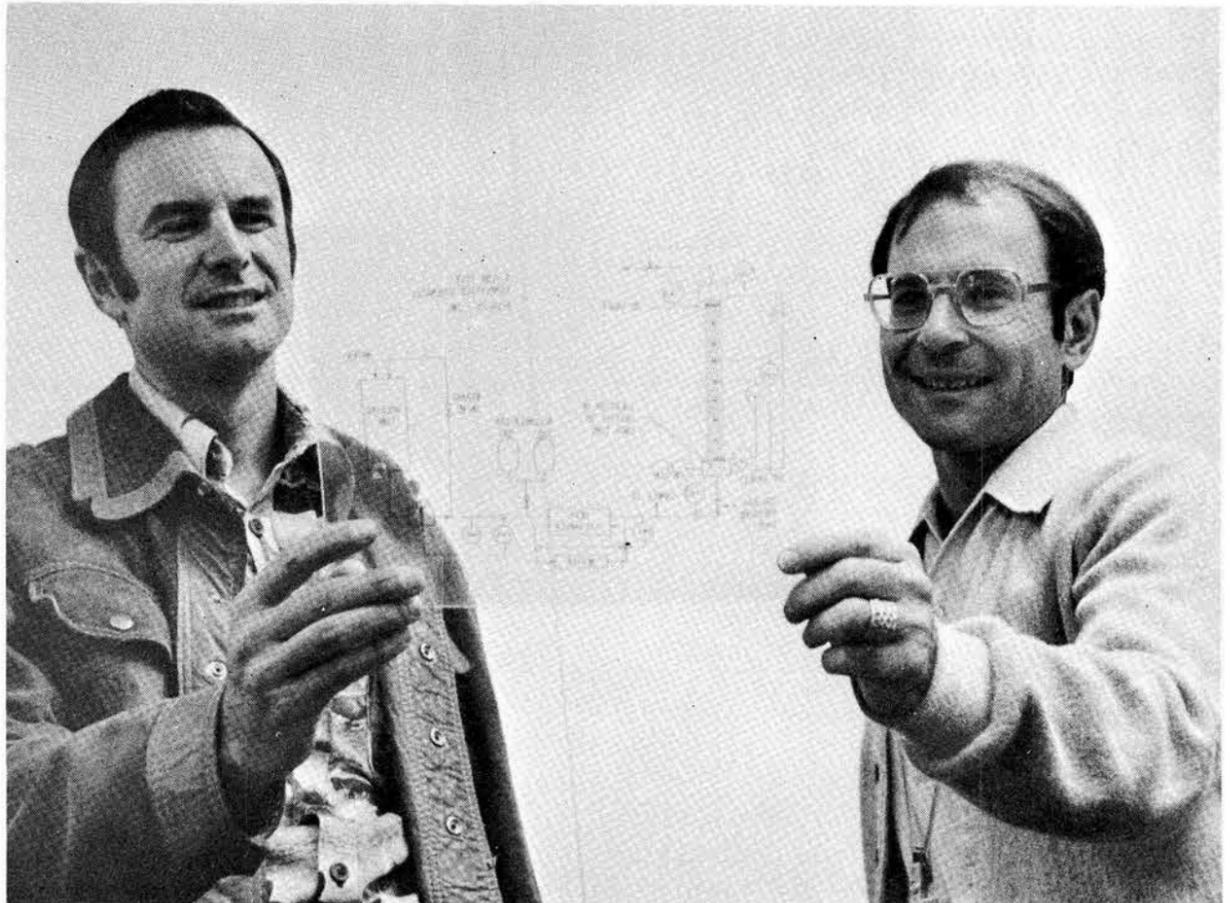
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SIMULATING SOLAR ENERGY, 450 6000-watt lamps produce the heat necessary for the five-tube test, a test which will provide data on the performance of the receiver panel in the Barstow solar facility.



JOHN LIEBENBERG (left) and Marty Abrams examine a schematic drawing of the test that has occupied a major portion of their attention for the past two years. John has coordinated facility design and instrumentation, while Marty has set test conditions and analyzed test data.

## Two Year Lab-Wide Effort

### Five-Tube Panel Heat Lamp Tests Near Completion

How do you simulate the heat of 300 suns?

This was the challenge posed two years ago to the technical staff of Rick Wayne's Solar Department 8450. Their problem: evaluate how the receiver panel planned for the 10-megawatt solar receiver pilot plant at Barstow, Calif., will respond to the heat from the plant's 1900 solar mirrors.

The environment to be simulated is a complex one. The receiver for the Barstow plant is roughly a cylinder, 14 meters high and 7 meters in diameter, made up of 1680 Incoloy tubes 1.27 centimeters in diameter. Inside the tubes, where water is converted to steam to drive the plant's turbines, the temperature ranges from 288°C at the inlet to 510°C at the outlet. When the concentrated sunlight shines on the outside of the tubes, surface temperatures may reach 620°C.

To be meaningful, the test must produce some unique dynamic effects that can exist during Barstow operations:

—At a certain elevation within each tube, known as the critical heat flux location, the nature of the boiling process changes abruptly, causing a rise in tube temperature of as much as 65°C over a very short span. The result is an increase of thermal stress upon the tube.

—If unstable flow conditions exist, the critical heat flux location moves up and down in the tube, extending the area of thermal stress.

—The solar heating isn't symmetrical. While one side of the tube is very hot, the other side may be as much as 150° cooler, causing an additional thermal stress.

All of these phenomena, acting together, may lead to a degree of thermal fatigue that would produce a shortened life span for the tube.

The experiment designed to investigate these conditions is called the five-tube panel heat lamp test. The test was conceived by Ed Cull of Large Power Systems Division 8451, and the test facility was designed by the staff of Paul Adams' Centrifuge, Climatic, and Radiant Heat Division 1531.

The receiver itself is simulated by a panel of five Incoloy tubes, and tests upon it are performed at SLA's Radiant Heat Facility using 450 heat-producing lamps, each with a 6000-watt rating. Thermocouples in each tube measure temperature, and differential pressure gages monitor hydraulic behavior.

An average of 5 to 10 tests a week are performed, each producing about 230 channels of data. The resulting data reduction effort is a major one. "The tests

are progressing well," reports John Liebenberg (8453). "We hope to finish this month."

The analytical program in Department 8450 has been underway for several years. Planning for the five-tube test began in 1978. John Liebenberg has coordinated design of the facility and instrumentation of the test apparatus as well as directing the actual tests, and Gerry Henderson (also 8453) coordinated construction between Albuquerque and Livermore.

"The project has really been a team effort," John adds. "So many people have contributed. At any one time up to 20 people have been involved, both in Albuquerque and in Livermore, in the design, construction, operation, data reduction or analytic support portions of the project."

### *Sympathy*

To Sherlon Fortenberry (8333) on the death of her father in Oakland, Nov. 22.

To Norm Colcleasure (8275) on the death of his father in Longmont, Colo., Nov. 12.

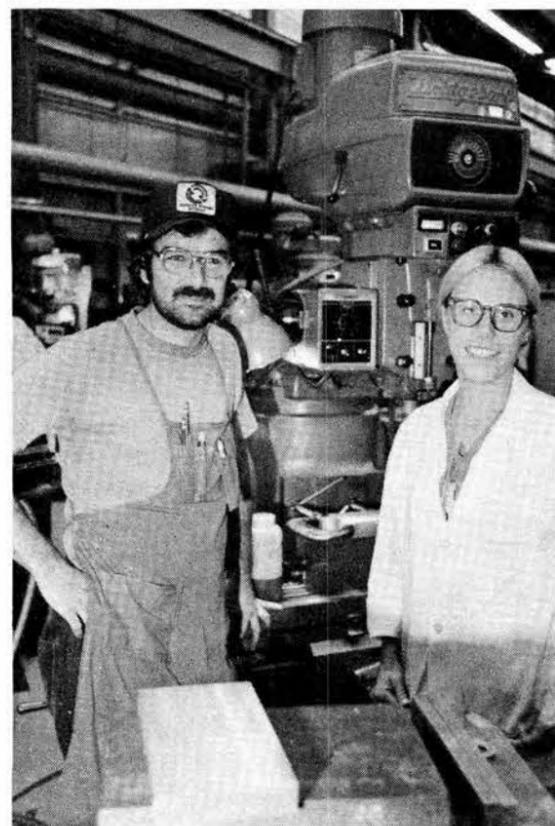
To Allen Danielson (8271) on the death of his mother in Castro Valley, Dec. 19.



JIM PERGROSSI is supervisor of Special Machining and Support Shop Section 8423-2, effective Dec. 16.

Since joining Sandia/Livermore in 1966, Jim has worked primarily in designing, developing and testing component hardware, first in a weapons project group for six years, then in the NEDS (Nonviolent Explosive Destruct System) program for four years, the NEST '77 (Nuclear Emergency Search Team) program for a year, and most recently in a special projects group.

Jim holds a BS degree in mechanical engineering technology from Brigham Young University. Off the job, he enjoys skiing, racquetball, flying, and housing construction. He built the house where he, his wife Diane, and their three children live on Paseo del Cajon in Pleasanton.



NEW GRADUATES from SLL's machinist apprenticeship program are Pat McMaster and Kit Marino (both 8423). Requirements under the program include four years of on-the-job training plus related academic courses. Kit is the first woman to complete the SLL program.

# The State of the Labs

ceptability of all fossil fuels. And, looking ahead, our inertial confinement fusion project could conceivably lead to a new source of energy for the next century."

*Sandia has had a number of legal actions in recent years. What is the legal situation now?*

"We've had two large suits—both now awaiting decisions from the appellate court. The first, the age discrimination litigation brought by the Dept. of Labor and certain employees laid off in 1973, has been appealed by Sandia, and the second, the class action suits filed by four Sandia employees and two retirees (plaintiffs) in connection with the 1975 changes in our pension plan, have been appealed by the plaintiffs.

"We, like all large companies, have continuing legal actions brought by individual employees and applicants for employment based on the civil rights legislation of the 60s. This area has become more complex in recent years with the addition of handicapped persons and Vietnam veterans to the protected groups. Actually, the number of these cases at Sandia has decreased in recent years as interpretation of the laws has clarified somewhat and our affirmative action programs have become effective."

*On SPR, where we are, where we're going:*

"Our role in the strategic petroleum reserve program is that of technical advisor. The reservoirs are large engineering projects involving unusual underground structures. The crux of this program may be more political than technical. OPEC strongly objects to our developing a petroleum reserve; they consider it a threat to their cartel operation."

*And WIPP?*

"It's not possible at this time to make a simple statement on WIPP. Congress passed DOE-authorizing legislation which included construction funds for WIPP as a defense project. President Carter signed the bill. However, the President later stated that he does not want to proceed with construction of any repository at the WIPP site until at least two other sites are available for comparison with this site, and this cannot occur until at least 1981. We're in the middle of this controversy between the Congress and the President and will have to ride it out until a single position is achieved. It makes for difficult planning and working."

*What new buildings and facilities are coming up?*

"Currently, we have four major construction projects nearing completion. Construction of the \$10.3 million Combustion Research Facility at SLL is scheduled to be completed by this July, and equipment should be installed by November. The \$14.2 million Particle Beam Fusion Facility has just been completed, and its equipment should be installed by July. The \$8 million upgrade of the Tonopah Test Range with its new control building, shop building, and range equipment is scheduled for completion by this

September. Construction of the new \$6 million Safeguards building is complete, and it will be occupied by some 350 employees of the 1700 organization by the end of April.

"This year we also start two new major construction projects which have already been funded. The \$12 million Systems R&D building has been designed and will be located just east of the new Safeguards building. Construction starts in April of this year with occupancy estimated for the summer of 1982. The design is underway of a \$2.8 million addition to the computer facility at SLL and its construction should begin this fall.

"Design is also underway and we have requested construction funding for two projects in 1981—a major expansion of the Particle Beam Fusion Facility, and a new Reactor Support Facility to be located in Area IV. We are also planning, a little further into the future, for a new laboratory building at Livermore and an energy technology complex in Albuquerque."

*Would you care to characterize the '80s for Sandia, with particular reference to future weapons and energy programs?*

"The nation is entering the '80s with much apprehension. Beyond the state of the economy, the two biggest problems we face are the adequacy of our national defense and our energy supply. We at Sandia have a marvelous opportunity to contribute importantly to both of these challenges. What more could we ask for?"

## Tax Cost of Insurance Studied

Some time this month, about 4700 Sandians will receive a statement of "Taxable Income from Group Insurance Furnished by Employer" from the Payroll Division. This statement describes the taxable income resulting from employer-sponsored group life insurance, as required by the Internal Revenue Service.

The Benefits organization (3544) has been concerned about the resulting employees' out-of-pocket costs. Other ways of obtaining comparable insurance other than as an employer-sponsored group insurance plan have been investigated with the objective of reducing the overall cost to employees. For example, a life insurance program not sponsored by the employer would not result in any taxable income to the employee. Unfortunately, however, premium structures for all the insurance possibilities explored would more than offset any tax cost to the employee of Sandia's program and would result in substantially greater employee cost for similar coverage.

Sandia's life insurance rate structure provides a very competitive group insurance program. In addition, the history of premium waivers makes these rates even more attractive. For these reasons, it has been concluded that changes in the supplemental life insurance program are not warranted at this time.

# feed *li*back

*Q. I called the Training Division for information about the Educational Aids Program. The man in charge was out, so I asked his assistant for information about the program. Apparently, this person is not familiar with educational systems [college] or with the program itself, since I had to explain what a CLEP test does, and what hours mean in terms of college credit.*

*Since Education and Training administers the Educational Aids Program, why isn't there more than one person in the area with knowledge about the program as well as university programs [information] in general?*

A. I'm sorry you did not get a satisfactory answer to your question about the Educational Aids Program. The program administrator was out of the office when you called, and the person who spoke with you is a new employee in the Education and Training Department. The new employee has a good service attitude and tried to answer your questions, but it would have been better if we had held your question until a more experienced person was available.

Education and Training is part of Sandia's overhead category, and we try to run lean. We prefer to get by with a smaller staff, even if that means that we cannot answer all requests for service immediately.

I hope that you do not give up on us. We try hard to provide good service, and I hope your next experience with our staff is more satisfactory.

J. R. Garcia—3500

*Q. Observing traffic at 8 a.m. and 4:30 p.m., it seems that a "flextime" plan is in order. To be able to choose 8 working hours from the span 7:30-5:00 would alleviate traffic congestion [saving some of the gas wasted in stop-and-go traffic!], at the same time establishing when everyone would be at work.*

A. Your interest in relieving the rush-hour traffic congestion on KAFB-East is commendable. Your Feedback question suggested that a "flexible hour" work schedule be considered for that purpose.

A "flexible hour" work schedule as you propose would help alleviate rush-hour traffic. However, it would decrease car pools and bus riders and, thus, increase vehicle usage. It would lengthen the workday and extend the need for lights, power, heating, air-conditioning, etc., and a "core" day of 6½ hours would have to include the lunch period. At Sandia many activities are interrelated and require considerable parallelism and reciprocity among large segments of the staff during each eight-hour workday. Inasmuch as many of Sandia's operations do not lend themselves to such a flextime schedule, consideration must be given to employee reaction if such a change was limited to special groups or organizations. Coordination with the military and DOE at

Albuquerque and with LLL at Livermore would be required since present work schedules have been established in a manner intended to alleviate major traffic congestion problems.

Sandia will continue to examine the results of other companies who are experimenting with "flexible hour" work schedules and evaluate their practicality for the Laboratories.

C. R. Barncord—3200

*Q. There are problems with the food and drink vending machines located in Bldg. 836:*

1. Machines not restocked until after my normal lunch hour [11:30-12:00].

2. Machines consistently 'eat' money fed to them without returning desired food.

3. Machines consistently jammed—my favorite candy bar displayed is sometimes not obtainable for 3-4 days.

4. Selection of sandwiches is limited—a little more variety would sure help the appeal of lunchtime.

5. We used to have 'mini-dinners' available—why can't the selection be as good as before.

6. Coin change often 'out of order.'

A. Servamation employees stock all food machines each morning starting at 8 a.m., then retrace their route and stock all vending machines again later in the day. All vending machines are checked for correct operation each time they are restocked. Your suggestion on varying the sandwich selection has been passed on to Servamation, although they inform us that mini-dinners are not available at this time. The coin changer is being corrected to provide the right change.

Division 3543 monitors the various vending locations and reports any shortcomings to Servamation; however, all shortages, lack of choices and malfunctions may be reported immediately to Servamation (344-1626) with prompt corrective action being taken. Servamation appreciates the opportunity to improve its service. Thank you for bringing these several items to our attention.

J. R. Garcia—3500

*Q. Some time back, the Secretarial Committee asked all secretaries to fill out a questionnaire. To date, there has not been any feedback about the results. Does the Committee plan to address all questions?*

A. The Chairwoman of the Secretarial Committee has informed me that they are in the process of analyzing the questionnaire and will prepare feedback to all secretaries within the next few weeks. All questions will be analyzed and a summary of the data will be sent to all secretaries who completed the questionnaire.

J. R. Garcia—3500

*Q. Why hasn't the Labs arranged stickers for car poolers? I leave my passengers in front of 802 and park in the Gate 10 parking lot.*

Having been a member of a car pool since 1963, I resent being told I'm not a car pool. I do arrive alone in the parking lot since my passengers take a dim view of walking clear across the area.

I'm sure there are many similar situations at Sandia. If it is too involved to issue stickers to everyone, couldn't one be issued to the cars in the above situation?

A. A system such as you suggest is similar to the previously attempted and discarded system of issuing a specifically reserved parking place for each car pool. Such a system places a heavy administrative burden on the Security organization with no assurances that a valid car pool today is still valid next week or next month. Abuses of the reserved parking place method were abundant and there is no apparent reason to believe a sticker system would be more successful.

It is important to remember that the purpose of car pooling is to conserve energy and not merely to obtain a preferred parking location.

We believe the present system, even with the limitation you point out, is a satisfactory one giving consideration to factors such as parking facility use, employee convenience, rule enforcement, and company administrative burden.

D. S. Tarbox—3400



DOE AWARD—Director of Purchasing 3700 Jack Strassel holds a Certificate of Achievement presented to Sandia Labs "In recognition of exceptional performance and meritorious support of the Small Business Program in Fiscal 1978." Colonel Armstrong (right), head of DOE's Small & Disadvantaged Business Utilization organization, made the presentation at the C-Club last week. Also taking part was Hugh Leenhouts of DOE/ALO's Logistics branch.

## Unusual Vacations

# Greece on A Bike

[Have you taken a vacation that's a little out of the ordinary? Give us a call about it—4-1053.]

One day last February, Bob Woods and Cliff Mendel were lunching at the cafeteria when Bob chanced to mention his intention of making a bicycle tour of Greece. Before lunch had ended, Cliff, a physicist in 4244, and Bob, an engineer in 4533, had agreed: both would go on the bike tour of Greece. "Never saw anybody make a big decision so quickly," says Woods.

Eight months later, in mid-September, the two were getting off a TWA 707 in Athens, ready to unbox their bicycles and begin an 18-day view of this country as seen from the saddle of a 10-speed bicycle. Their judgment today of this mode of sightseeing: "the only way to go, in Greece, anyway. You have all the pleasures of hiking, but you can cover a lot more ground."

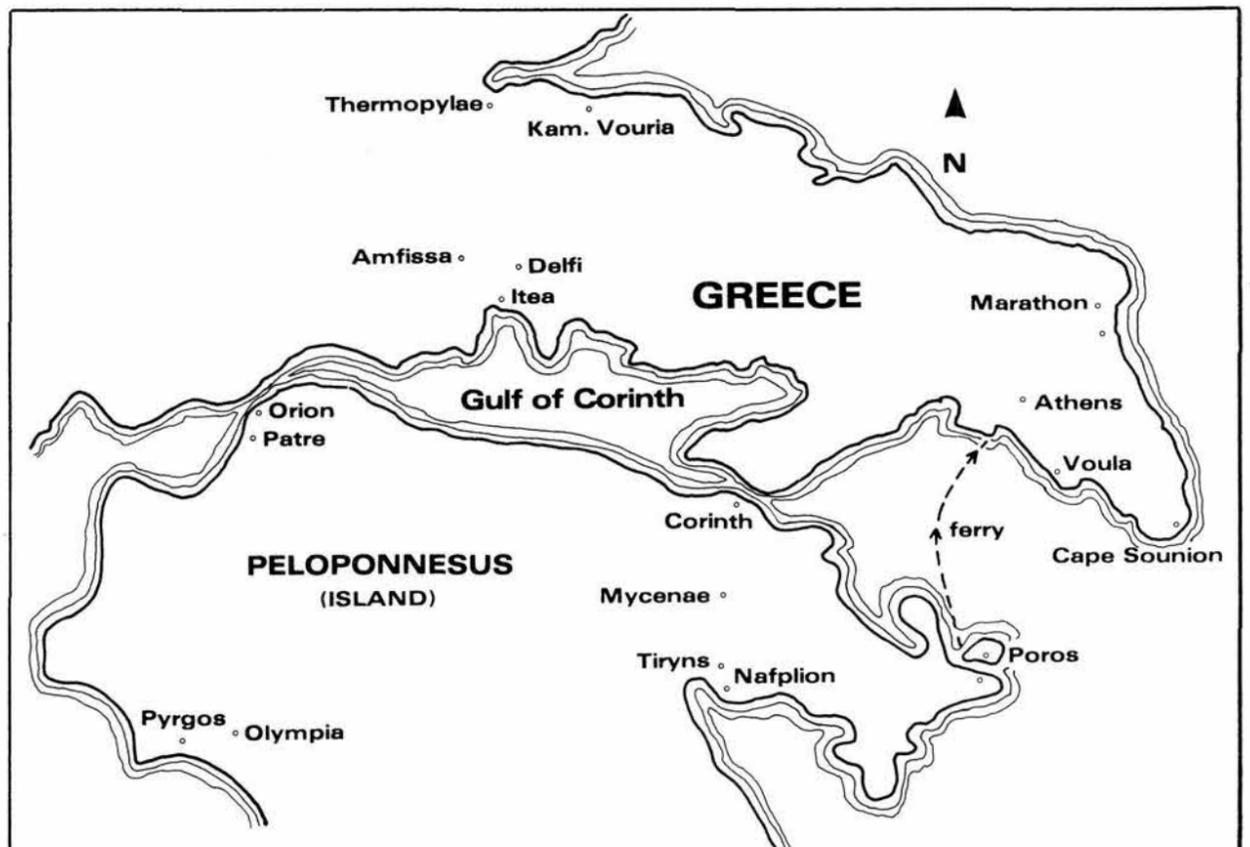
For perspective on the Woods/Mendel tour we checked the desk encyclopedia on Greece. It's not a large place, 51,000 square miles (New Mexico has 121,000). "Continental Greece is cut sharply into two sections at the Isthmus of Corinth. South portion is the Peloponnesus.... The country is hilly to mountainous, cut by short rivers, some with very fertile valleys.... The soil is badly eroded due to centuries of goat and sheep raising...."

Says Bob, "Greece is startlingly like New Mexico—dry, mountainous, blue skies. I've got photos of landscapes in Greece that could have been taken in Tijeras Canyon or outside Taos."

How does one prepare for a bike tour of Greece? "I researched this trip pretty thoroughly," says Bob. "My wife, Judy, and I had gone to Greece before on a conventional tour, mainly because of my interest in archeology. What surprised me was the friendliness of the people and the ease with which we could get around."

The trip preparations, which included a shake-down during the 100-mile Tour of the Rio Grande Valley ride by bicycle earlier in the year, paid off. Using UNM's collection of German maps of Greece dating from WWII ("the only good topo maps available"), Woods/Mendel were able to plan a day-by-day itinerary to which they adhered, with only a couple of exceptions, for the period of the tour. The plan called for a not-too-strenuous daily ride of 60 miles (average), camping out two nights in a row and staying in a hotel every third night. "Campsites were excellent," says Bob, "better than ours, really. We could have done without the hotels entirely." Meals were eaten in restaurants, although the pair carried some iron rations for emergency use.

The route (see map) took them through the historical and archeological centers of this ancient land. A bus and a train were taken on separate occasions when the country ahead appeared to be more



THE ANCIENT LAND—At age 4,000, Greece is a magnet for archeology buffs Bob Woods (4533) and Cliff Mendel (4244). Starting in Athens, the two made an 18-day bike tour of archeological sites of interest, traveling generally counter-clockwise to the places given on this map. Though small (straight-line distance between Athens and Thermopylae being about 85 miles), Greece is mountainous and travel by bike can be arduous. The two Americans found the Greeks very friendly.

mountainous than they were prepared to tackle or when they needed to cover a lot of ground. Their maps were sometimes misleading, and the bicyclists occasionally found that an easy 20 kilometers on a map turned out to be a lung-searing ascent of steep mountainsides. Their travel kits weighed 25 pounds, not much, but weight has a way of multiplying on the uphill stretches.

Bob was as much taken with the people as he was by the sights. "Very friendly; you never passed anyone who didn't wave. On the road the buses and trucks would give you a wide berth, and going up the hills the drivers would sometimes yell out the distance remaining to the crest. They like Americans, Germans even more, which is a little odd considering their experience during the war. You can drink the water anywhere, and there's little or no petty thievery—bike security was no problem.

"The Greeks are a hospitable people. We were enjoying the benefits of a 4000-year-tradition of hospitality to wanderers."

\* \* \*

*Logistics*—Traveling in Greece on a bike is a very practical mode of travel. Air travel is the big item, \$819 round trip in September 1979. The bicycles go free, or for a nominal charge. Woods/Mendel stayed at hotels every third night at an average cost of \$47 for two, which included dinner and breakfast. Camp sites ran from about \$4 to \$8 for two, and most offered showers, stores and restaurants. Restaurant costs varied widely but, on the average, breakfast cost \$2.25, lunch \$3.12 and dinner \$3.32. A beer? Bob says, "\$1.25, big and good." In all, his costs were \$1274. He adds, "If you plan on Greece, late September/early October is the time to do it. The climate is famous for predictably good weather during these months and the wave of tourists has begun to subside."



MENDEL & WOODS at the monument to the Spartan general Leonidas of Thermopylae. At this point, the general and 300 men stopped the entire Persian army, thereby changing the course of European history. Their epitaph reads: "Go tell the Spartans we lie here according to their laws." Woods explains this was their way of saying "We did it—but we don't have to pretend we enjoyed it."



LUNCH in Greece usually featured coarse bread, a large Greek salad and "lots of good beer." Bob Woods says this was taken at the resort town of Nafplion, "certainly one of the most picturesque places in the world." The two cyclists alternated camping out and staying in hotels.

# MILEPOSTS

## LAB NEWS

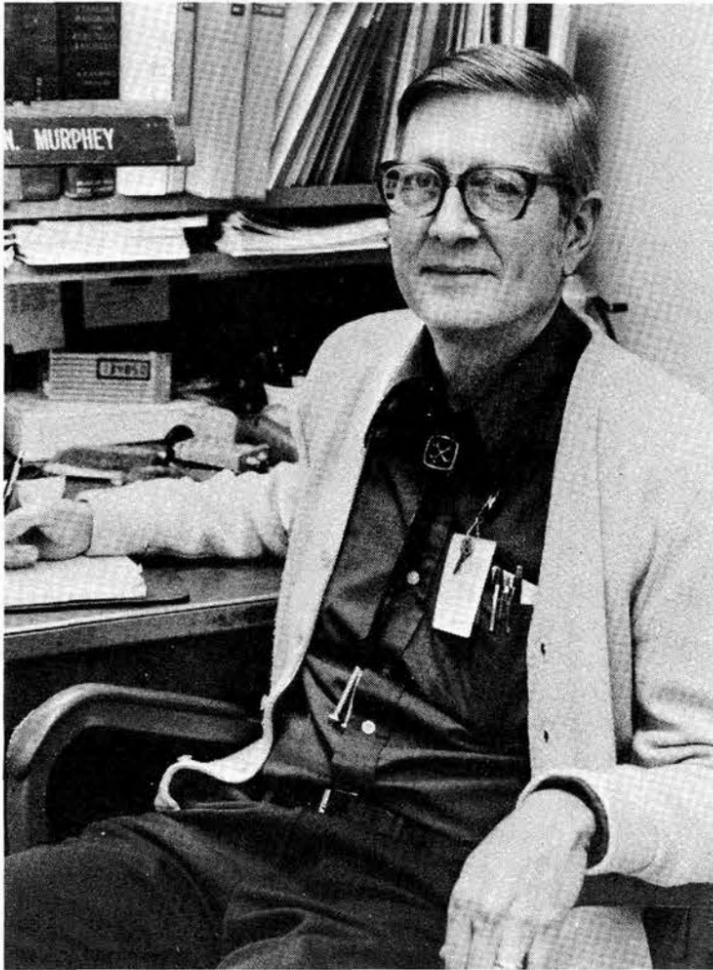
JANUARY 1980



Nancy Hunt - 8330 15



George Andrews - 3741 30



Albert Murphey - 1587 25



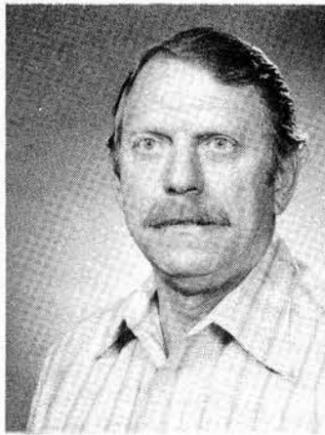
Farrell Pedreauville - 5622 15



M. L. Heisler - 1543 25



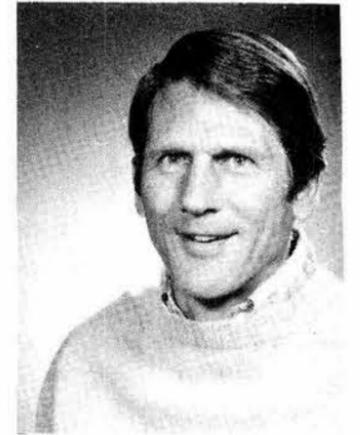
Elaine Hurley - 2141 10



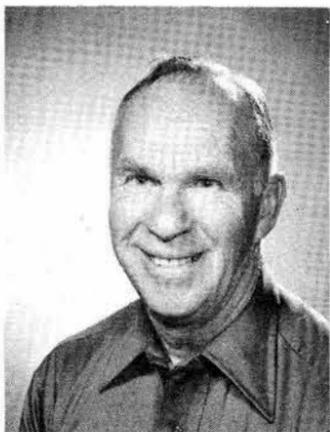
Jim Hinson - 3432 30



Kitty Weston - 1715 25



John Kelly - 4423 15



Charles Champe - 3644 25



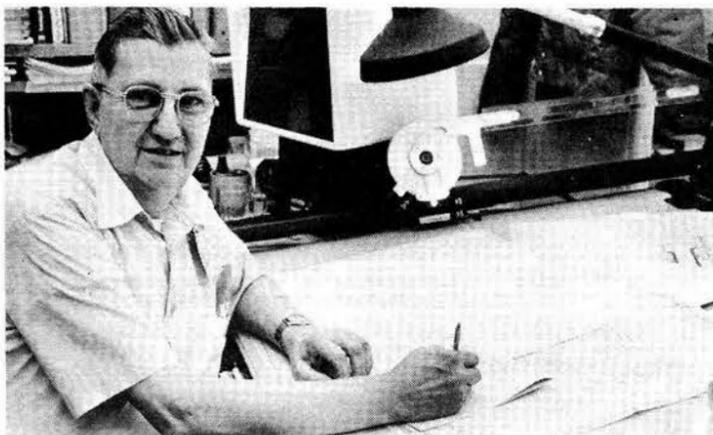
Charles Mills - 3644 20



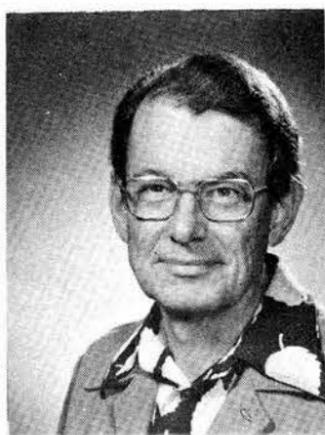
George Edgerly - 1472 20



Earlene Brinegar - 3532 25



Alexander Beck - 2452 25



John Coleman - 2433 25



Fred Magee - 3654 25



Dwight Allensworth - 5131 20

## From Physicist to Counselor



Gerda Kreff, a physicist in Ion Implantation Physics Division 5112, has joined the Equal Opportunity and Affirmative Action Department 3510 on a loan basis for one year. Gerda will be Women's Program Coordinator for Sandia in Albuquerque and, in this

capacity, will study the work situation of women at Sandia with a view to the drafting of proposals to management for the enhancement of that work situation.

An important element of her new job will be to contact and counsel women who are not now employed by Sandia and who possess the necessary academic credentials to be considered for one of the Labs' professional classifications (MTS, MLS, MAS).

Gerda also plans extensive relations with high school staff people and students in Albuquerque to inform them of the Labs' employment requirements and, for the students, to stimulate their interests in technical careers. With more than a decade of professional experience in technical work, Gerda is able to address this subject with knowledge, whether in counseling a high school student or a woman—or man—at Sandia who may be interested in a technical career.

Asked why a research physicist would forsake the laboratory to enter a non-technical field, Gerda was candid: "I've seen some great changes through AA programs, but I'm disturbed by some negative attitudes arising out of these same programs. So, if I'm disturbed by these attitudes, then—I've concluded—it's time for me to try to do something about it."

## 1980 Holidays

Sandians will observe the following 1980 holidays:

Memorial Day . . . Monday, May 26  
Independence Day . . . Friday, July 4  
Labor Day . . . . . Monday, Sept. 1  
Thanksgiving . . . Thursday, Nov. 27  
Christmas and New Year  
Shutdown . . . Thursday, Dec. 25  
through Thursday, Jan. 1

Energy Conservation Day will be announced prior to Oct. 1.

## Retiree Deaths

Andrew Lunsford (67)	Sept. 29, 1979
Ellis Turner (69)	Oct. 5, 1979
Oleta Morris (64)	Oct. 9, 1979
Lorenzo Holcomb (62)	Oct. 19, 1979
John Lannon (64)	Oct. 23, 1979
Lorraine Torres (74)	Oct. 26, 1979
Sumner Lane (78)	Nov. 5, 1979
Earle Anderson (66)	Nov. 6, 1979
John Atencio (55)	Nov. 13, 1979
Gene McClendon (62)	Nov. 17, 1979
Thomas Henderson (72)	Nov. 18, 1979
Marion Holmes (76)	Dec. 1, 1979
Allen Williams (60)	Dec. 8, 1979
Orton Chappell (59)	Dec. 11, 1979
William H. Blair (71)	Dec. 20, 1979
Ernest Bowman (76)	Dec. 20, 1979

## Fun & Games

**Archery**—Dean Pershall (1244) reports that the Sandia Archers will hold a "let's get acquainted" shoot on Sunday, Jan. 13, at their range at the south end of Wyoming just east of the Trestle site. The shoot starts at 1:30 p.m. Entry fee is 15

## Singer Will Give Noontime Concert

A few years back, Sandians will remember, a noontime concert of the New Mexico Symphony Chamber Players was held in the patio area near the Tech Library. The performance was enthusiastically received, and it was resolved at the time to offer more such concerts.

It took a while, but now LAB NEWS is pleased to announce a noontime concert by Carlos Serrano, baritone, to be held in Bldg. 815 on Friday, Jan. 25.

Mr. Serrano is a Levi Strauss Foundation Affiliate Artist and is presented by the New Mexico Symphony Orchestra. An "affiliate artist" is a young performer, usually a musician, who is underwritten by a business concern for a period of time while being associated with a local arts group (such as the New Mexico Symphony). Since 1966, when Affiliate Artists came into being, the organization has placed over 233 artists in different residencies.

Format of Mr. Serrano's noontime performance is, so says the release from NMSO, "...an informal blend of performance and conversation designed to break down the barrier that so often exists between an artist and his audience." In other words, you can talk to the man and vice versa.

Brown baggers are welcomed. The activity starts at 12 noon.

cents to cover the cost of scorecards and targets. The shoot is open to anyone interested in archery. Sandia Archers will also have a club meeting Tuesday, Jan. 15, at 7:30 p.m. at the Breakaway Club. For more info, call Dean on 4-7528.

## 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 (814/6).

### 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

CERAMIC Kachina hanging lamps, by Yankee Doodle Dandee, chandelier \$130, oval lamp, \$40, square lamp, \$30. Clark, 281-5934.  
COCKER-Spaniel-cross puppies, 6 wks. old, \$5. Miller, 242-1894.  
GE 8-track system w/2 speakers, \$100 or best offer. Kennedy, 298-0704.  
VIVITAR Model 215 flash unit, auto/manual operation, \$15. Vogel, 256-0975.  
AKC reg. Yorkshire male puppy, born Nov. 7. Hansen, 898-3173.  
CARPETING: 50 sq. yds. green, \$75; 25 sq. yds. green, \$50; 18 sq. yds. brown, \$15. Vandt, 255-0685.  
1972 FORD truck service manual, 4 vols., w/elec. schematics, \$15. Andrzejewski, 255-9404.  
POOL TABLE, 50"x92", cues w/wall rack, balls & all, \$100. Neidel, 299-4369.  
TURKEYS, \$20; ducks, \$6; will trade for laying hens or hay. Lackey,

898-6638.  
MOBILE HOME AXLE w/brakes, wheels, tires, \$150 or trade for firewood. Kovacic, 281-1754.  
NEW WOOD HEATER, therm. control, cost \$350, sell for \$250; built-in dishwasher, \$25; queen size headboard, \$45. Worden, 298-1915 after 5.  
COPY OF BOOK *Cruel Shoes* by Steve Martin, \$5. Rex, 344-6552.  
1977 LAYTON 18' travel trailer, many extras, cost over \$5000, asking \$4000; Schwinn 20" boy's bike, \$50. Campbell, 294-6000.  
LAZY BOY rocker-recliner w/arm & head covers, velvet, golden rust, \$185. Paul, 299-6387.  
MAGNAVOX AM/FM stereo phono console, \$100. Silverman, 298-1308.  
JEWELRY: 14 Karat gold: rings, earrings, chains, pendants; some antiques, some w/diamonds & other gems, will arrange payments. Gann, 299-0933.  
40 CHANNEL mobile CB & antenna. Miller, 255-1324.  
GREEN SOFA & gold chair, heavy vinyl covering, \$135; elec. dryer, \$75. Walton, 898-4518.  
ETHAN ALLEN antique pine cannonball headboard, king size, \$100. Ruvolo, 296-1316.  
DRUMS: Rogers Black matching 6-piece set w/2 Zildjian cymbals, custom snare, hard cases included, \$850. Hopper, 292-3059 after 5.  
DRAPES, 3 panels, each covers 9'; 8' high, best offer; traverse rod, 18', \$7.50. Moyer, 881-3879.  
8' DARK GREEN Early American couch, \$65; Conn trumpet, \$125. Goodwin, 294-6702.  
FURNACE, 100,000 BTU input, forced air, propane gas, humidifier, \$100. Bush, 281-3773.  
OVATION Glen Campbell acoustic 6-string guitar & case, \$400; German violin, \$550. Downs, 294-5283 or 293-9320.

TWIN size mattress, box spring, steel bed frame, all for \$30. Keck, 294-2887.  
LARGE SOFA, \$25. Porter, 298-0012.  
ICE BOX for built-in van or camper conversion, \$10. Schneider, 299-6243.  
VIOLA, German Bitterer w/case, no bow. Gregory, 268-2022.  
GIVE AWAY leaking washing machine, Penney's, avocado green; cocker-poodle cross dog, w/house. Kerschen, 821-2848.  
QUEEN-SIZED mattress & box springs, Sears-o-pedic, top-of-line w/frame, 2 mattress covers and dual-control electric blanket, \$160. Cockerleas, 256-7570.

### TRANSPORTATION

550 cc HONDA FOUR, 28,000 miles, Windjammer SS fairing, locking glove box, lighter, Vandecruise, sissy bar, luggage rack. Davis, 881-0364.  
75 BUICK Skylark, 2-dr., AT, AC, PS, 231 V6, \$1500. Clement, 299-1501.  
'69 VOLKSWAGEN squareback, new paint, recent rebuilt engine, AT, \$600 or best offer. Chavez, 831-9591.  
'69 CAMERO 327 V8 rebuilt engine, mag wheels, needs some body work, \$825. Bradley, 298-2263.  
74 DODGE Colt stn. wgn., 4-spd., AC, new SB radials, one owner. Wilson, 281-1452.  
75 VEGA hatchback, 4-cyl., 4-spd., low mileage, \$1450. Woodall, 299-6729.  
72 DATSUN 510 stn. wgn., AC, AM-FM, radials, AT under warranty, valve job & other maintenance, new battery-hoses. Atkins, 298-5762.  
74 FIAT 124, 4-dr., AT, all discs, 26,000 miles, \$2000. Underhill, 294-5774 after 5:30.  
73 CORVETTE T-coupe, 350 ci engine, white, AC, PB, AT. Fox, 821-7754.  
'67 FORD ¾-ton pickup, PS, AT,

new brakes, etc., w/insulated shell, \$1400. Rack, 296-2922.  
'69 CHEVY VAN, \$1500; '67 Plymouth sedan, \$350. Burks, 821-0132.  
'73 OLDS 98, low mileage, AC, PS, PB, PW & seats, AM/FM stereo, Cruise Control, reg. gas, \$1275. Rea, 299-7758.  
'56 PONTIAC, mechanically good w/lots of spare parts, \$1200. Smith, 296-3626.  
'75 GMC HD ¾-ton, air, power, auto, new tires, 454, 55,500 miles, \$3100. White, 293-2219.  
'77 JEEP-WAGONEER, silver, air, PB, PS, AM&FM stereo, cruise, rack, radials, mag wheels, 28,000 miles. Salazar, 864-4809.  
'77 CHRYSLER Cordoba, fully equipped, sun roof, \$4200 or best offer. Davis, 265-3005.  
75 PONTIAC Gran LeMans sedan, AC, AT, PS, PB, new SB radials, below book at \$1800. Clark, 294-2666.  
73 CHEVY ½ ton, 4-wd, 350V8, AT, PB, PS, AC, Positraction, lock-out hubs, camper shell, 78,000 miles, \$2950. Oberkamp, 292-4366.  
'69 BUICK LeSabre 4-dr. sedan, air, 350 cu. in., 98,000 miles, \$600. Biffle, 293-7043.  
'66 MGB, drive as is or restore, \$1650. Campbell, 299-9195.  
'76 FORD F-250, 4-wd, LWB, PS, PB, make offer. Walla, 292-0451 after 5:30.

### REAL ESTATE

1955 WESTCRAFT TRAILER, 8'x30', not self-contained, \$1400. Sharp, 867-2667.  
SHORES TOWNHOME, 3-bdr., 2½ baths, assumable loan. Hopper, 292-3059 after 5.  
CUSTOM mobile home in 4-Hills Park, 2-bdr., 1½ baths, lg. LR, added hobby/laundry rm., covered patio & carport, \$18,950. Roelle, 299-8478 or 298-4594.

### FOR RENT

CONDOMINIUM near Winrock, 1-bdr., den, wet bar, fp, clubhouse, indoor/outdoor pools, utilities paid, \$375. Clark, 294-2666 or 881-6870.  
3-BDR., 1½ bath, all appliances, many extras, owner's home, avail. Feb. 1, \$395/mo., 1st, last, DD. Bergeron, 292-1739.

### WANTED

CAR POOL to Sandia from vicinity of Zuzax or Sedillo/Barton exit, I-40. Clark, 281-5934.  
METALWORKING LATHE. Colp, 255-0228.  
EXERCYCLE, good condition, w/odometer, speedometer & tension control. Bullington, 299-1433.  
BABYSITTER for 16-month-old girl, 1½ days/week in your home. Will provide own transportation. Mehlhorn, 294-5685.  
SWING SET. Sanchez, 831-1785 after 5.  
GMC or Chevy 6-cyl. engine, 235 cu. in., 1953-1962 preferred. Harstad, 298-6551.  
CLOTHES DRYER; trundle bed. Orear, 256-1941.  
PICKUP, ½-¾ ton, 4-spd., w or wo/shell, clean, reasonable. Schuch, 884-4876.  
ELECTRIC RANGE, drop in counter style, 4-burner, good condition. Moss, 298-2643.

### LOST AND FOUND

LOST—Key ring w/approx. 7-8 keys, man's tan tri-fold wallet.  
FOUND—Key case w/car keys.  
NOTE: LOST AND FOUND is now located in Benefits Administration & Employee Services Division 3543, Bldg. 814, Rm. 1, 264-5677.  
LOST—30-yr. award: ladies white gold Hamilton digital watch at C. Club, Dec. 31; name engraved on back. Reward. McConnell, 264-6918 or 299-5369.

## See Super Bowl At C-Club

TONIGHT at Happy Hour, pepper steak and Chinese vegetables top the buffet menu while Young Blood plays for dancing. In the lounge, the Big River Band plays bluegrass style. For next Friday's Happy Hour, Jan. 18, Gary Waters returns to the lounge, steamboat beef is the buffet feature and a group called Together plays for dancing. To reserve buffet tickets, call the Club office, 265-6791, by mid-week.

THE SUPER BOWL is the occasion for the special opening of the Club at 12 noon, Sunday, Jan. 20. A super large TV screen will be set up for super viewing. Super bar prices (cheap) will also be in effect. Organize your fans (one guest per member) and cheer among friends (or rivals). Admission is \$2 but covers abundant green chili stew and posole.

THE BIG ONE this month is scheduled Saturday, Jan. 26. The Freddy Chavez Foundation plays for dancing while very large T-bone steaks top the menu. Tickets go for \$8.50 for members, \$10.50 for guests, and must be picked up by Jan. 19.

TEENAGERS should enjoy a dance tomorrow evening from 8 to 11 with "Dunn's Dancing Machine" plugged into the bandstand outlet. Member parents must pick up tickets for their youngsters.

SONS AND DAUGHTERS of members who are no longer dependents are eligible for C-Club membership of their own under a new ruling by the Board of Directors. Check with the Club office for membership applications.



## Retiring



Steve Drago (3411)



Alfredo Fernandez (3421)



Martha Burress (1762)



James Ayers (3721)



Mary Hauer (4452)



Rick Richards (5100)

**SPEAKING OF MEMBERSHIP**, the Board is offering a night of freebies to people eligible for Club membership on Thursday, Feb. 14. Snacks, an open bar, and information booths with the scoop on all C-Club interest groups will be featured. Get the word on sports, recreation, dance lessons, the Sanado Women, Ski Club, Singles and all the rest. All Sandia and DOE employees are eligible for Coronado Club membership. There's no initiation fee, dues are \$5 per month. It's the best private club buy in the city.

**SKI CLUB** meets Tuesday, Jan. 15, at 7 p.m. Speaker will be Sam Beard (5633), author of the recently published *Ski Touring in Northern New Mexico*. Sam will discuss cross-country skiing.

**ART GROUP** of the Sanado Women hangs a show tomorrow at Lovelace Bataan Hospital. The word is that it's an excellent exhibit.

**DANCE LESSONS**—The Club is offering introductory lessons in square dancing and round dancing. Classes in square dancing are free for the first couple of lessons—show up Monday evening at 7—to demonstrate what great fun it is. Round dancing—you know, fox trot, waltz, polka, not square—meets Thursday at 7. Cost is \$15 for the 15-week course.

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**PUERTO VALLARTA** on the Mexican Pacific coast south of Mazatlan is a brand new trip announced this week by Travel

Director Frank Biggs (4231). Depart April 6 via Continental Airlines and return April 13, staying seven nights at a luxurious beach hotel. Cost is \$303. Sign up right away at the Club office. Frank will be in the lobby tonight from 6 to 7 with the scoop on this package plus tours to Europe, Hawaii and other trips to Mexico.

### Wednesday Happy Hours Announced

The Club's Board of Directors announces a new event at the Club—Wednesday Happy Hours. Starting Jan. 16, from 4:30 until 6:30, the going price for all standard highballs, draft beer and popcorn is 25 cents.

### Sympathy

To Jimmy Thompson (3618) on the death of his father-in-law in Albuquerque, Dec. 7.

To Francis Thompson (1243) on the death of his father-in-law, Dec. 17.

To Adalbert Smiel (1243) on the death of his mother, Dec. 19.

To Art Hasenkamp (1551) on the death of his wife, Dec. 31.

To Ed Bernal (2335) on the death of his father in Socorro, Jan. 2.

To Ilene Mathes (3253) on the death of her mother in Missouri, Nov. 12, and the death of her father in Virginia, Dec. 15.