



FIRST FLIGHT TEST OF Sandia Livermore's W84 structural test unit aboard a Tomahawk ground launch cruise missile took place recently at Dugway

Proving Grounds. This test also marked the first use of the operational Transporter Erector Launcher. Story on page 3.

LAB NEWS

VOL. 32, NO. 15

JULY 25, 1980

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

Heavy Oil Recovery

Deep Steam Field Test Proves Successful

"An unqualified success," is the way Ron Fox, supervisor of Enhanced Oil Recovery Division 4738, sums up results of the recent field test of Sandia's Deep Steam generator. The six-inch diameter, 20-inch long prototype steam generator was tested from January through May at a heavy petroleum reservoir near Bakersfield, Calif. The reservoir is owned by Chevron USA.

Although the unit was operated on the surface for the test, all combustion gases were injected into the reservoir along with the steam.

"This was a very important part of the test," Ron says, "because we did not know what reactions would take place. Would the gases cause chemical changes in the oil? Would the operation plug up the reservoir? Would the gases adversely affect other reservoir materials?"

"The test was conducted in an area that has a history of heavy oil recovery using conventional steam generators on the surface. These are very expensive to operate—burning about one barrel of oil

for every three recovered—and requiring expensive 'scrubbers' to treat the combustion products to meet California's air standards."

Test results show that contamination of the recovered oil was negligible, actual production was generally the same as that from use of conventional steam methods and slightly greater under some conditions, and—importantly—air pollution from combustion gases was virtually eliminated.

"The potential of our steam generating unit is also significant," Ron says. "You lose a lot of heat, pumping steam from the surface. When our unit operates down hole, we can expect greatly increased production at reduced costs. We had a lot of plumbing (for instrumentation and analysis) between the steam generator and the injection well. We measured and analyzed everything going in and coming out of the reservoir."

The field experiment was painstakingly designed to isolate a number of factors that made possible a new mathematical model

of the flow in a heavy oil reservoir.

"We adapted a model from electrical filter theory," Ron says, "where you take a known input and measure the shape and form of the response as a function of time. After a period of data gathering, we used the model to make predictions. Then we tried it in the field and the prediction matched the test result. This model of reservoir permeability and flow patterns is a valuable tool for future heavy oil recovery operations."

In another phase of the test, the results of using the steam plus the combustion gases in combinations with other methods were measured. Foam and other fluids were injected into the test area along with the water for steam generation.

"The methods were compatible," Ron says. "The foam produced increased pressure in the reservoir. That's good. The potential of this technology is that as much

[Continued on Page Four]



GIL CANO (4426), one of 80 Hispano artists invited to exhibit at the Albuquerque Museum's "Feria Artesana" next month, is holding his most recent work — two bas-reliefs done in ebony and rosewood. In addition to these pieces, he will show larger sculptures and several mosaics.

Gil Cano To Exhibit Woodcarvings

"Someday, I'll do some woodcarvings for you," Gil Cano (4426) told his wife Dolores.

"At the time," Gil explains, "we had just gotten out of school and moved to Albuquerque. We were acquainted with the famous Taos woodcarver, Patrocinio Berala, but we couldn't afford to buy a piece of his work."

A few years later, Gil remembered his promise. "I had been thinking about carving and I had all these images in my mind. So I spent \$25 on a set of carving tools."

Initially, Gil completed several pieces — sculptures, bas-reliefs and mosaics — and he and Dolores were pleased with them. Most of the pieces reflect a religious theme but they blend well with the decor in the Cano home. Gil doesn't sell his work, but has done pieces for family and friends.

"I began carving in 1967," he says, "but for the past several years, I've done about one piece each year. When I have time, I work on a piece in the evening. Depending on its size, I put in anywhere from five to 48 hours on a carving. It's relaxing and I can become completely absorbed in the carving or sometimes I'll zero in on some aspect of my work at Sandia — I've solved a few problems that way."

Over the years, Gil has purchased additional tools and says he still has lots of ideas for future work. Friends and relatives have brought him pieces of wood picked up

on their travels. "I like to hike," he says, "and I'm always on the lookout for an interesting chunk of wood." Gil has worked with walnut, cedar, rosewood and ebony. His two most recent carvings presented him with some tricky problems. Both are long, vertical bas-reliefs of a Madonna — one has a modern look to it; the other is almost Spanish Colonial in style. The latter is carved from ebony, a very heavy and hard, dark wood. The other is carved in rosewood which is also a very hard wood. "The grain in both of these woods is interesting," Gil says. "Ebony grain is always in one direction, while rosewood grain changes direction and those sudden changes can create some interesting effects." By highlighting these two very different wood grains, Gil produced two unique carvings.

Gil has been invited to exhibit his work with other Hispano artists in the "Feria Artesana" at the Albuquerque Museum on Aug. 23 and 24.

Speakers

Gary Reif (on LOA from 2522), invited paper, "In Process Quality Control of Friction Welding Using Acoustic Emission Techniques," 21st Meeting of the Acoustic Emission Working Group, July 2, Cornell University.

Sympathy

To Karl Schuler (5522) on the death of his father in New York, July 10.

To Bobby Young (3423) on the death of her grandfather in Clarksville, Texas.

Death



John Miziker of Test Assembly Section 4321-1 died suddenly July 10. He was 63.

He had worked at the Labs for almost 21 years.

Survivors include his widow, a son and two daughters.



Researchers at the University of London have found that two thirds of those who smoke don't use seat belts when they drive. Both behaviors are apparently linked by the same philosophical position — that individuals have the right both to risk their lives and their health.

Events Calendar

July 25-27*—Albuquerque Civic Light Opera, "H.M.S. Pinafore," 8:15 p.m., *2:15 p.m. matinee, Popejoy.

July 25, Aug. 6—Santa Fe Opera, "La Traviata"; July 26, 30, Aug. 7—Schoenberg's "Erwartung," "Von Heute auf Morgen," and "Die Jakobsleitner"; Aug. 1, 4—"Eugene Onegin"; Aug. 2, 5, 8—"Elektra." Tickets: Santa Fe, 982-3855, or The Broadway in Albuquerque.

July 25-Aug. 10—"The Good Doctor," Adobe Theatre, 8:30 p.m., 898-3323.

July 26—Chamber Orchestra of Albuquerque, 8:15 p.m., Keller Hall, UNM.

July 26—Annual Santiago/Santa Ana Feast Days: dances at Laguna Pueblo; corn dance at Santa Ana and Taos Pueblos.

July 26-27—Annual Spanish Market, 10-5, beneath portal of Palace of the Governors, Santa Fe.

July 26-27—Santa Clara Pueblo: annual Puye Cliffs Ceremonial. Dances by Nambe, San Ildefonso & Santa Clara Pueblo Indians in ancestral cliff dwelling ruins above Rio Grande Gorge; arts & crafts booths; \$5 photo fee, 11-4, about 13 miles west of Santa Clara Pueblo.

July 27—Embroidery demonstration, Maxwell Museum, 2-4 p.m., UNM.

July 28—Lecture Under the Stars: Alan Oken, "As Above, So Below: The Physics and Metaphysics of Astrology"; Aug. 4—"An Evening With Harlan Ellison," writer; 8 p.m., Central Mall, UNM.

Aug. 2-3—Annual Old Lincoln Days. Evening reenactment of Lincoln County War and last escape of Billy the Kid, parade, Pony Express Mail Run, arts & crafts fair, ghost town tours, fiddlers' contest.

Energy Conservation

Tracking Down Live Steam Losses

Steam is the principal heating substance at Sandia Labs and the cost, both in energy and in money, of providing it to our extensive array of buildings is considerable. Plant Engineering has thus focused on the central steam plant and its distribution network to insure that a minimum of the hot stuff is lost.

Early on, Otto Erdman (3652) began to look at a device in the steam distribution network called a "steam trap." The system has nearly 1500 steam traps and, if a trap is defective, it permits live steam to go places it's not supposed to go. Under Otto's direction, an engineering consultant checked out each of the traps and found that 25% (367) were defective.

The steam loss from these defective traps was estimated to represent about 9% of the steam generated, amounting annually to a cost of \$178,000. Since the cost of repairs on the defective traps amounted to \$91,900, the monetary payback was achieved in six months, and a significant energy loss has been eliminated.

LAB NEWS

Published every other Friday

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

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LIVERMORE, CALIFORNIA
TONOPAH, NEVADA
Editorial offices in Albuquerque, N.M.
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A Successful Flight Test With W84 Warhead Aboard

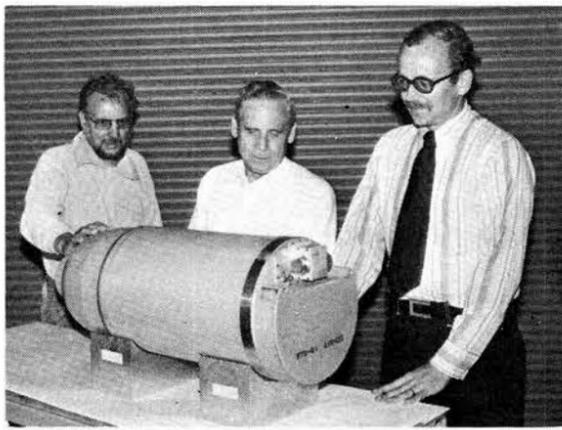
The Ground Launched Cruise Missile (GLCM), slated for deployment in Europe as part of an upgraded NATO nuclear capability, passed a major milestone in mid-May with the first flight test of a Tomahawk GLCM carrying a W84 warhead supplied by Sandia and LLNL.

Dick Meyers (8412), SNLL Test Project Engineer, said the test, completed at Dugway Proving Grounds southwest of Salt Lake City, was not only the first of a GLCM with a W84 structural test unit aboard, but also the first launched from an operational Transporter Erector Launcher.

In a flight that lasted an hour and 42 minutes, the GLCM demonstrated its terrain-following and navigational capabilities, flying nearly 800 nautical miles at a nominal speed of 550 mph. It was powered by a booster for about 10 seconds after launch, and by a small turbojet engine during the remainder of the flight, which ended in a parachute recovery.

The Sandia Livermore objectives for this flight test, according to Dick, were to record the launch, and both the normal and worst-case inputs to the warhead. Telemetry signals from the flight unit were received at the Sandia instrumentation trailer at the launch site and were also recorded by Navy chase planes and retransmitted to Hill AFB Mission Control Center. One aircraft was equipped to override the missile control system if there was a problem with it during the flight test.

At present, Sandia is making a complete evaluation of the recorded test data, which will then be used to establish W84 warhead environmental test conditions. Sandia involvement with this project began when they worked with the Air Force on



THE RECOVERED W84 WARHEAD TEST UNIT is examined (from left) by Dan Pegan (8162), Dick Myers (8412) and Mike Rogers (8162).

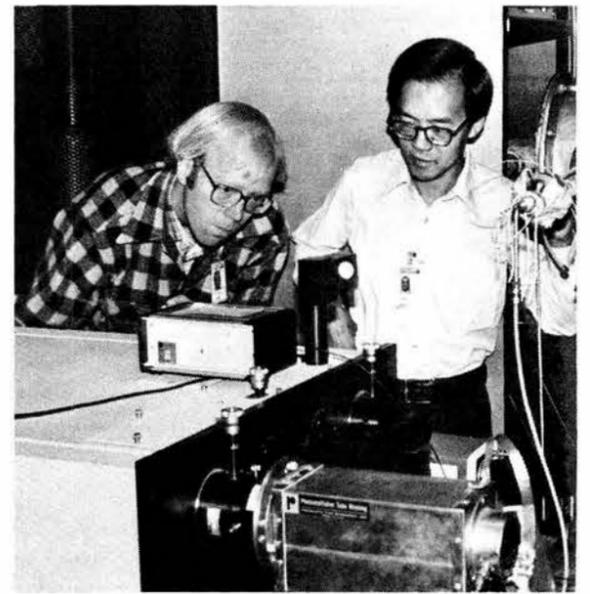
general requirements during Phase 2. Phase 3 work on the W84 began in September 1978.

The next flight test, planned for July 1981, will include functional warhead system components, according to warhead project engineer Mike Rogers.

Sandians involved in the mid-May GLCM flight test, in addition to Dick Meyers, included telemetry engineers Clarence Loveless and Gil Esquibel (both 8463), and SNLA instrumentation staffers Gordo Miller, Vern Brewster and Bill Hoffman (all 1137) who were stationed at the launch site in the DOE telemetry and instrumentation trailer. Warhead project engineers from Arnie Rivenes' 8162 Division were Mike Rogers at Mission Control, Hill AFB, and Dan Pegan and Jim Duggar aboard the U.S. Army recovery team helicopters at Michael Army Air Field.

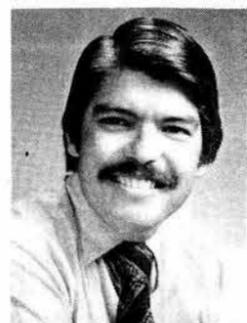
Principal DoD participants involved in

the May test were General Dynamics Convair Division, the prime contractor for the GLCM system; McDonnell Douglas, supplier for the guidance system; Pacific Missile Test Center and the U.S. Army and U.S. Air Force.



ADVANCED COMBUSTION DIAGNOSTIC techniques and material corrosion and erosion studies are being run in this Atmospheric Combustor Exhaust Simulator (ACES) at Sandia Livermore. Bill Flower (8351), left, was one of the first researchers to make use of ACES, which went into operation in March. He's using it to test a gated spontaneous Raman scattering system for in-situ gas temperature measurements in a hot, particle-laden flow. Jim Wang (8353), right, designed the facility. He plans to test optical Mie scattering techniques for particle size distribution measurements sometime this fall. Future experiments involve the measurement of gas properties such as velocity, major and minor species concentrations and velocity and mass-loading density of particles.

Supervisory Appointment



DAVE HAVLIK to supervisor of Engineering Division I, 8441, effective July 16.

Since joining Sandia/Livermore in November 1966, Dave has worked primarily in weapons project groups doing component development design and planning and data evaluation for test programs. For two years he was lead mechanical designer on one project. The past year he has been technical representative to the DOE's Office of Military Applications in Washington, D.C. Before joining Sandia, he worked three years for BTL in telephone transmissions systems.

Dave earned his BS from Arizona State University and MS from New York University, both in ME. His leisure activities include soccer, racquetball, camping and fishing. He, his wife Judy, and their three children live on Naples Court in Livermore.

LIVERMORE NEWS

VOL. 32, NO. 15

LIVERMORE LABORATORIES

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Take Note

Winners for marksmanship in the 9th annual DOE/SAN Pistol Tournament held recently at Oakland's Chabot Gun Club included five security inspectors (Wells Fargo Guard Services) assigned at SNLL. Trophies went to Carl Feighner and Stephen Richardson who placed first and second in the sharpshooter classification; Robert Sater, second in the master classification; and Janis King and Leslie Sundberg, second and third in the marksman classification.

Ken Bennett, supervisor of SNLL's Visitor Control and Guard Force Section 8261-1, and a National Rifle Association certified instructor, served as this year's rangemaster during the tournament.

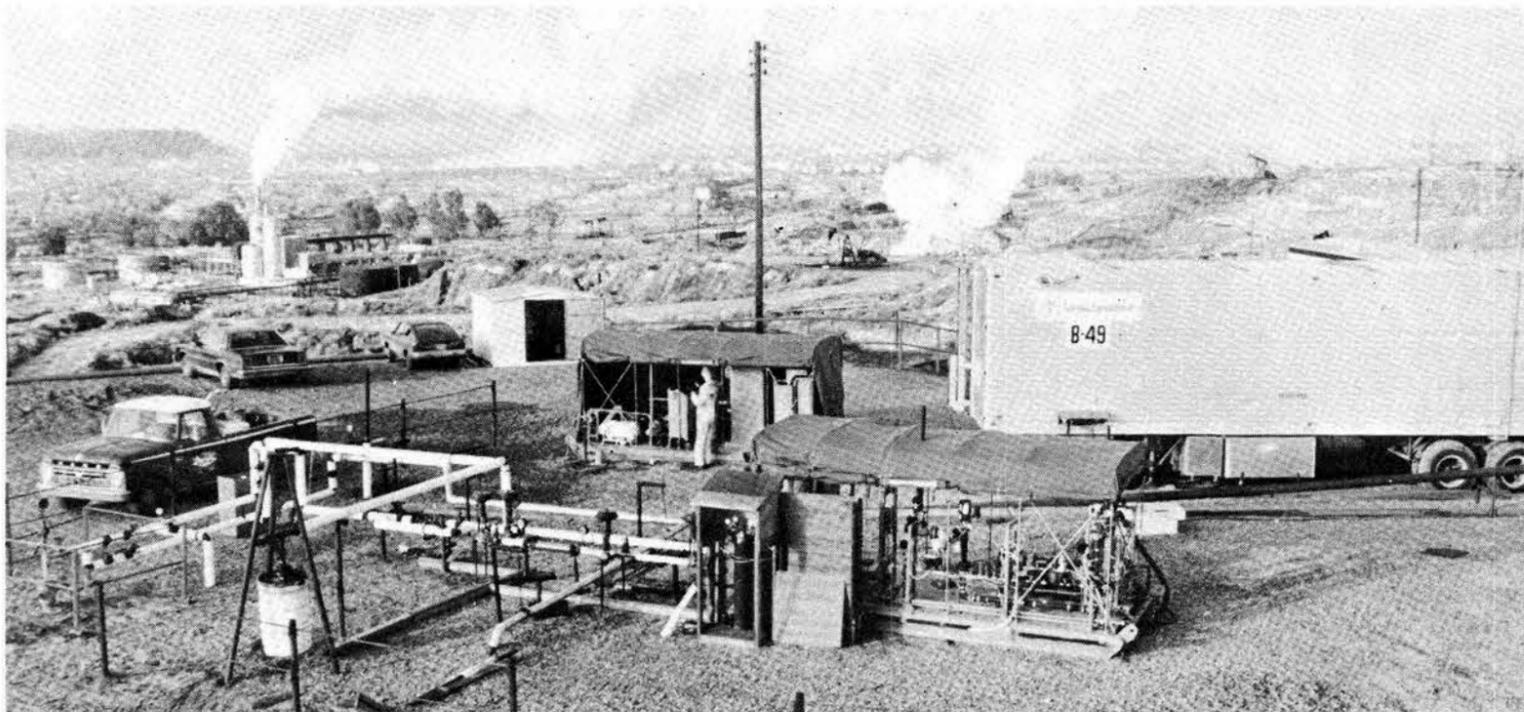
The DOE/SAN-sponsored meet is open each year to persons authorized by DOE to carry a firearm.

Back in April, LAB NEWS reported that Mike Dyer (8352) had gained two awards for a paper on engine combustion research. The Society of Automotive Engineers has recently notified Mike that the paper will now receive a third award, the Arch Cowell Merit Award. Title of the paper is "Characterization of One- and Two-Dimensional Homogeneous Combustion Phenomena in a Constant Volume Bomb (Combustor)."

Congratulations

Mr. and Mrs. Jim Bartel (8452), a daughter, Jennifer Ruth, May 30.

Mr. and Mrs. Bob Pilkey (8413), a son, Daniel Lawrence, June 5.



DEEP STEAM test site near Bakersfield, Calif. — In foreground is the skid containing the steam generating unit and associated pressure and flow gages. Skid in background contains test controls and instrumentation. At left is the plumbing leading to the injection well and, at right, a Sandia instrumentation trailer. Plumes in the background are vapor from scrubbers on conventional surface steam generators.

Continued from Page One

Deep Steam Field Test

as 50 percent more oil may be recovered. Another result indicated, although not yet proven, is that CO₂ used in conjunction with a down hole steam operation at greater depths and pressures will provide even more of an increase.

"We recovered 25,000 barrels of oil during our test," says Bob Clay (4738), Sandia's site manager at Bakersfield, "and the reservoir returned to its original state within a week. There's a lot of interest in our steam generating unit as it now stands. We had 250 representatives of oil companies from the US, Europe, South America and Asia visit the site. Even operating Sandia's unit on the surface could cut costs in many operations."

"That's one of the goals of DOE's Division for Oil and Gas Technology," Ron continues, "but there are other, perhaps more important, goals. Ultimately, DOE wants to recover a significant portion of the more than 100 billion barrels of known resource of heavy oil in existing reservoirs in the US. There are more than a trillion barrels of heavy oil in relatively shallow fields in Canada and more than three trillion in deeper reservoirs in Venezuela. DOE is currently discussing joint R&D efforts with these countries."

Next step in Sandia's Deep Steam project is to run a series of installation and retrieval trials in a well near Hobbs in late August.

The prototype unit will then be installed in another well in California at a depth of about 2500 ft. to perform a long-term performance and reliability test. The CO₂ injection method will also be tested in conjunction with the deep steam generation. These tests start in January 1981.

"It's difficult to remain a detached scientist on this project," Ron says. "So far, results have more than met expectations. We seem to be generating a lot of enthusiasm over here . . . as well as a lot of deep steam."

Organizations making major contributions to the test included Divisions 1125, 1135, 2165, 2166, 4533, 4744, and 5512.

Base Facilities

Auto Shop For Shade Tree Mechanics

With new cars costing more than one cares to think about, many people are going the route of nursing along their present autos. Even for the fumble-fingered, replacing spark plugs or changing the oil is a cinch.

But suppose more ambitious work is needed, like a brake job, for instance? Then consider the Base Auto Shop, another facility that is now open to Sandians. Located on Texas south of "H" St., the Shop is a large structure with 17 stalls, including four with hydraulic lifts.

Depending on your skill, you can do engine tune-ups, body work, welding, spray painting and, for that matter, a complete engine exchange. Tools, including metric ones, may be checked out from the tool crib. A nominal charge (see illustration) covers most activities.

The Shop isn't a training school, but manager Chuck Burrell is on hand to offer advice. You'll need your Sandia ID, a base sticker on your car or motorcycle, plus some proof of ownership. Hours are 12 to 5

MORALE, WELFARE & RECREATION DIVISION AUTO HOBBY SHOP Fees & charges	
Daily Stall Fee	.60¢ per any portion of an hr.
Out Side Stalls	\$1.50 per day, 7 day maximum.
Battery Charger	\$1.00 per battery.
Engine Analyzer Check	\$4.00 per any portion of an hour.
Lubrication Rack	.60¢ per ½ hour. \$1.20 per hour.
Paint Booth	\$1.50 per hour. \$12.00 per day max.
Tire Changer	.50¢ per wheel.
Tire Balancer	Spin . . . \$1.00 per wheel. Bubble25¢ per wheel.
Turn Brake Drums	\$2.00 per drum.
Turn Brake Disc Rotors	\$5.00 per rotor.
Valve Refacing & Seat Grinding	\$2.00 per cylinder.
Welding (Gas & Arc)	\$1.50 per hour.

on Sundays, closed Mondays, 9 to 9 Tuesdays through Fridays, and 9 to 5 on Saturdays. Telephone is 4-2410.



AUTO HOBBY SHOP, on Texas south of "H," may be used by Sandians, has facilities for minor and major engine work, spray painting, oil and grease jobs, and other maintenance and repair activities. Metric tools are also available.

Beginning A New Series in LAB NEWS

Q. Last year I received a survey sheet concerning my potential usage of the south gate to Kirtland. The person conducting the poll suggested that if the usage could be increased by paving the dirt road, then some effort would be made to have it paved. What's the present status?

A. A request for the paving of the Ira Sprecher Road (a one-mile dirt road connecting Los Picaros Road with a KAFB South Valley Gate) was forwarded from the Employee Transportation Committee (ETC) to Mayor Rusk on 11/14/79. The ETC stressed energy conservation in their third attempt to get this stretch of road paved. The ETC has not received a formal reply to their letter, but the following facts have been learned.

The land on which the Ira Sprecher Road passes is within the city limits of Albuquerque, is not a dedicated road, is on property owned by the University of New Mexico (UNM), and is used mainly by non-city residents. Under an agreement with UNM which expires in 1987, the City is to maintain (but not improve) the road. The road reverts to UNM in 1987 if the agreement is not renewed. If improvements are to be made, the City and/or UNM will have to come up with the estimated \$114,000 paving costs. Of course, the now private property would have to be dedicated as a public road before expenditure of funds. The City currently has over 105 miles of unpaved city streets which would probably be given priority over the Ira Sprecher Road. So it appears this paving project has some obstacles to overcome; none of which is insurmountable, but will require time and patience.

J. R. Garcia—3500

Q. Why is it that the vending machine in Bldg. 832 has canned soft drinks [12 oz.] for 35 cents while machines in other buildings dispense cups containing considerably less than 12 oz. for 40 cents?

A. On March 6, following a review by Sandia's Food Committee, approval was granted to Servomation to increase prices on some vending items. However, the price of 35 cents for the canned drinks was not increased, but the Committee was alerted that a future increase was expected. The 25 cents price on the cup machines was maintained but the size of the drinks was reduced from 12 oz. to 10 oz. The drink machines were adjusted and the new 10 oz. cups installed. At present, the price of the drinks is as follows: canned drinks 35 cents, cup drinks 25 cents. (There are no 40 cent soft drink machines.) Sandia employees were notified of this action in the March 6 issue of the *Weekly Bulletin*. Canned drink machines are only used when necessary as they cannot handle a large volume of sales.

J. R. Garcia—3500

My Favorite Old Photo is the title of a new series in LAB NEWS. As the name indicates, we're after that picture you've always been fond of, not because it's a photographic masterpiece but, rather, because of the human story behind the photo.

Dig through that shoebox filled with ancient family photos. Do you have one of Grandpa and his covered wagon? of Uncle Joe and his handlebar mustaches? of yourself at a time and place that evokes strong memories? Send it or bring it to the LAB NEWS and tell us about it. There's no guarantee we'll run the photo, but we'll be happy to listen to your story.

To start the series, the LAB NEWS staff dug through its collective shoeboxes to come up with some prototypes, of which this is the first.

Q. Why is it I can have packages air-expressed from the east coast in one or two days and then have it take four days to get from 894 to 802?

This is no isolated case; it is typical. I am aware that I can speed the process for emergency cases by requesting telephone notification of arrival and walking over and picking it up. That's not the answer I'm interested in. The answer I want is why can we not be efficient enough to receive something one day and deliver it the next?

A. Thank you for calling our attention to the situation which occurred in connection with the receipt of your package. You are correct in assuming that Federal Express shipments should receive priority treatment after they are received by the SLA Receiving organization, especially since Federal Express advertises overnight delivery.

Our normal daily receival schedule includes over 200 shipments per day which may range from a 3"-square package to a shipment which may involve several tons. Although most shipments received are processed within three days, Federal Express does receive priority treatment and these are normally processed the same day they are received. Some of these shipments may be received where we have not, as yet, received a purchase order; in this case when it is not identified, we do not know where to deliver the material. A situation may also occur whereby the material must be processed through the Property Management organization for affixing a property number. This involves a period of time.

It is unfortunate and we are sorry that you have been inconvenienced as a result of this receival. In an emergency situation, we do not feel that you should be required to walk over and pick up your material. In the future, if you have problems of this nature, please call the supervisor of Section 3417-2 (4-4232). You can be assured that prompt action will be taken to rectify the situation.

D. S. Tarbox—3400



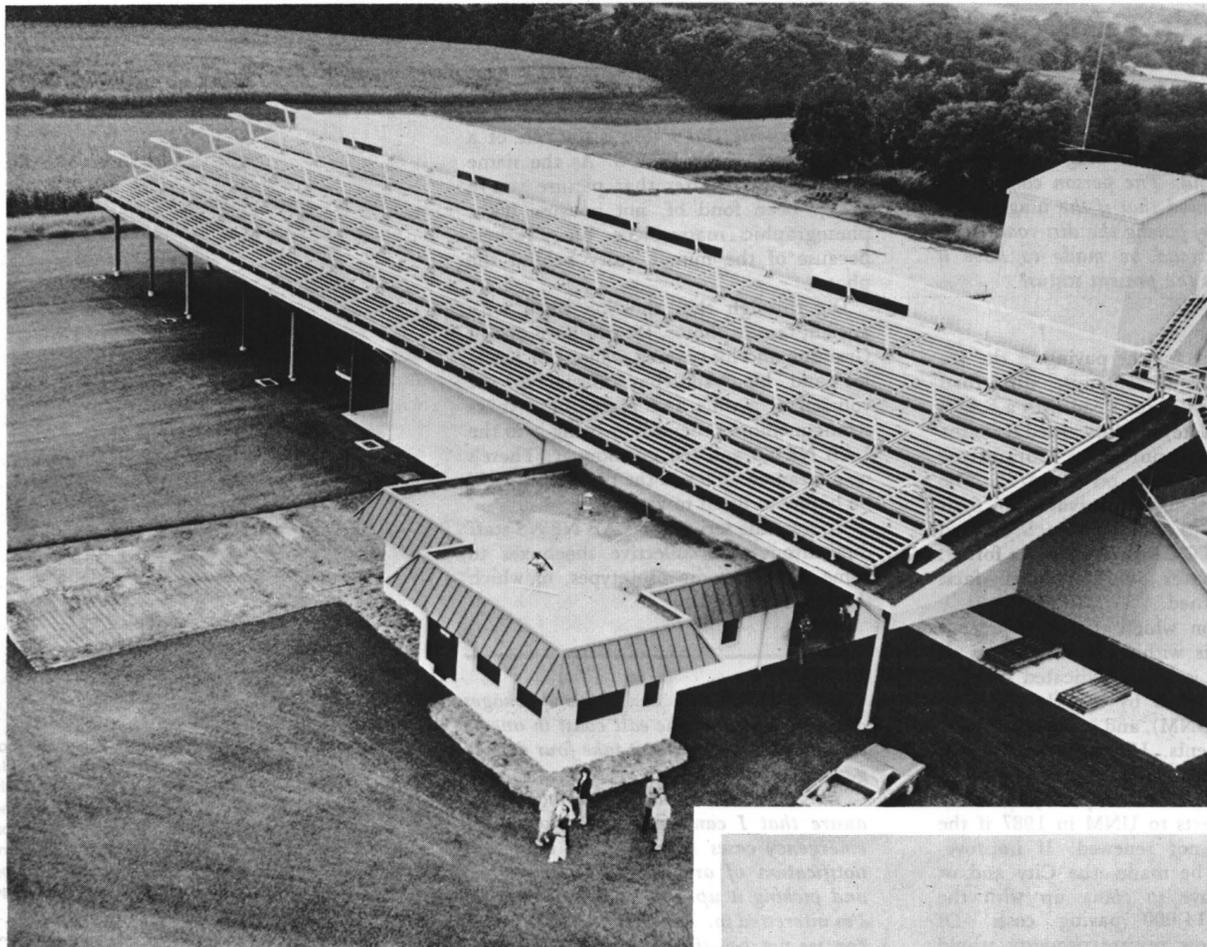
Taken at the close of World War I, this picture of my father reveals both the man and the times. In November 1918, the United States fondly believed it had come to the rescue and won the war. We were young and cocky, ready to take on the world. We possessed a quality of innocent bravado, which I see in this picture of a young soldier, his hat rakishly tipped, his arms folded assertively. (John Shunny, LAB NEWS)



A Menninger psychiatrist says creativity has gotten out of hand. "The word creative is used today mostly to enhance sales potential," he says. "A book on 'creative stitchery' prescribes in small, numbered steps the maneuvers one must go through to make a decorated pillow, and 'creative cookery' is only a fancy way of marketing recipes. In modern usage, anyone who can follow a manual is creative."



AT 100°PLUS, THE THINKING MAN'S OUTFIT—Last year on a vacation trip to Australia, Ed Neidel (2166) noted that the Australian man of business more often than not wore an outfit like this during the summer. So Ed picked up several pairs of the long socks while there (he says they're cotton and porous), and when the big hots came to Albuquerque he was ready. "Lots of comments," says Ed, "from both men and women. They like the idea."



Another Role For Solar: Industrial Process Heat

Solar power is beginning to touch our lives in many ways. Homes are being equipped with solar greenhouses, with active and passive systems to heat water and air, and with storage systems to hold heat for use during the night.

The corner drugstore carries watches that charge their batteries from sunlight, and you can buy a music box at novelty stores that is actually run by the sun, playing its songs again and again as long as sunlight falls on its solar cells.

On a larger scale, experimental solar-powered irrigation systems are now in operation, and facilities for producing commercial quantities of electricity are just around the technological corner.

All these, of course, are relatively

well-known activities and Sandia has been involved in several of them. But we are also playing a role in other solar projects, some of which may touch our lives in ways we might never suspect. One of these projects—Solar Industrial Process Heat Experiments—is our subject here.

Jim Leonard, who heads Systems and Applications Development Division 4725, explains the project this way: "DOE wants to find where and how industry can use solar heat. And they want industry to accumulate experience on operating solar energy systems. So they're funding a wide variety of projects in industries that use hot water or mid-

temperature, medium-pressure steam as part of the production process—or industries where heat is required for drying to dehydration."

Examples?

"Well, solar heat is being used to press clothes in Pasadena, to cure concrete blocks in Harrisburg and to dry onions in Gilroy and raisins in Fresno—and that's just a sampling."

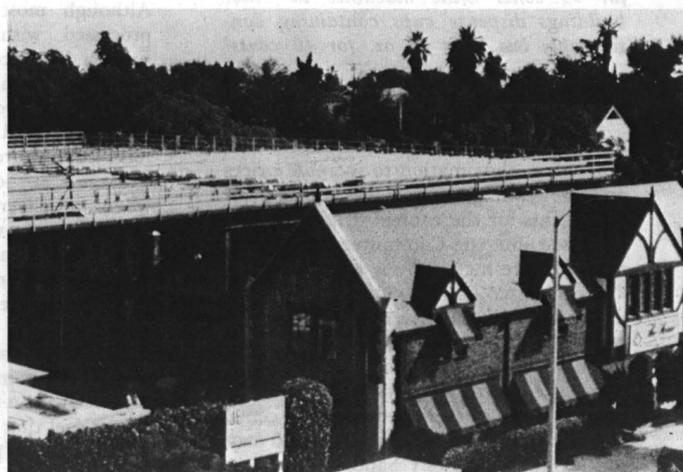
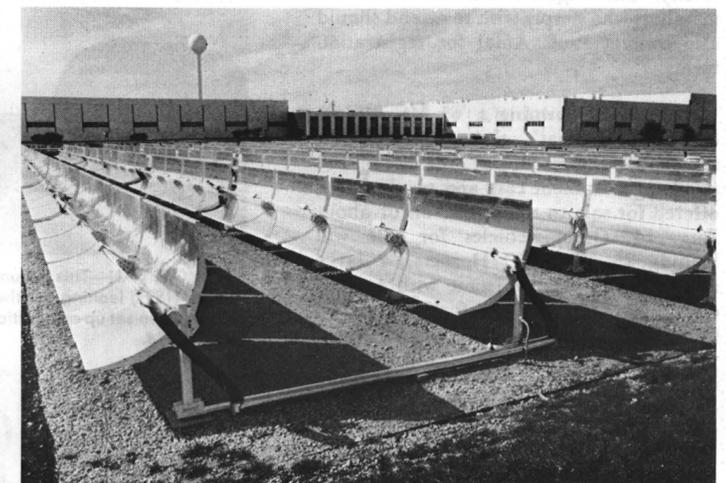
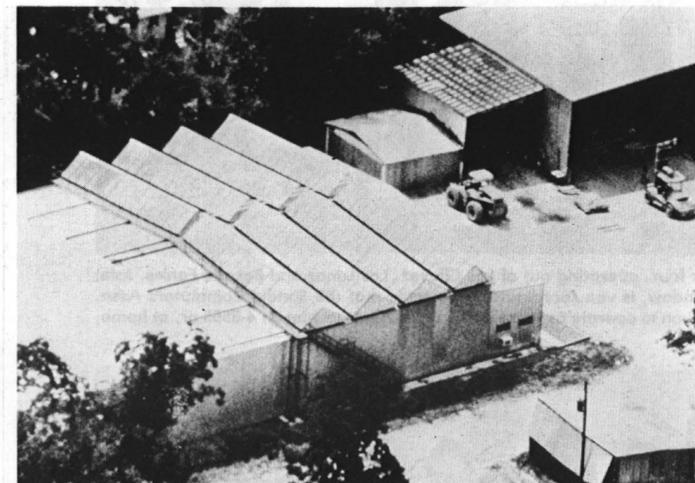
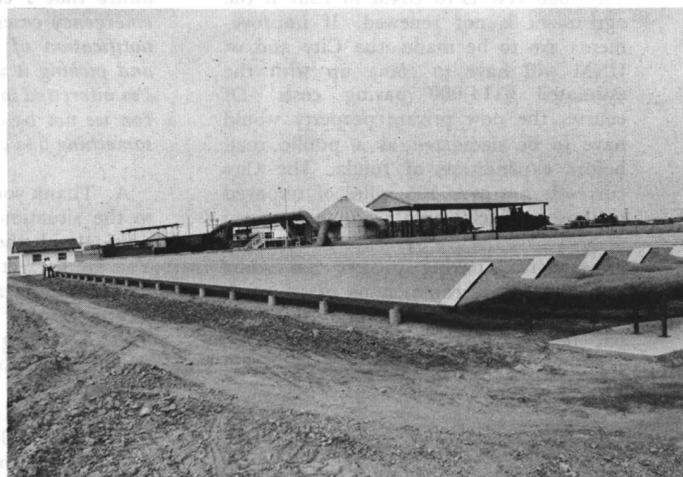
Sandia has a dual role in these and other projects. "Ken Bergeron (4723) and Duane Randall (4725) are the Sandians most involved," Jim told us. "As technical advisors, they help contractors avoid pitfalls during design and construction. As contract monitors, they

keep DOE posted on whether the projects are on schedule and within budget."

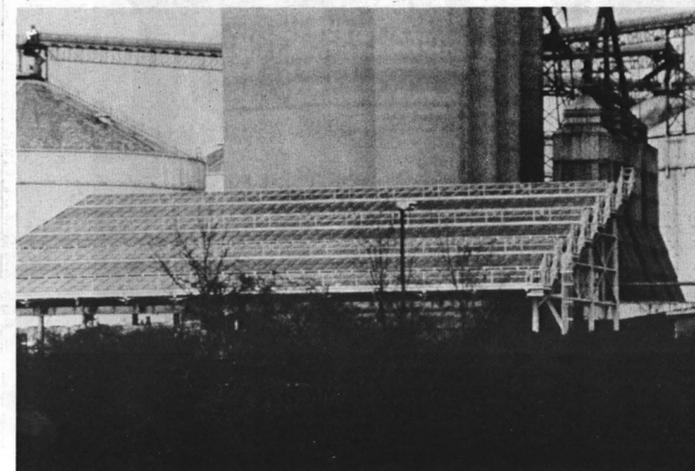
Sandia is one of several prime contractors providing technical advice and contract monitoring, specifically for DOE's Market Development Branch of the Solar Thermal Energy Systems Division.

"Based on our experience so far, we think there's a great potential for these solar industrial process heat systems," Jim says. "They have been plugged directly into the production process from the very beginning and plant staff has kept them operating. In most cases, they're solar's most enthusiastic advocates."

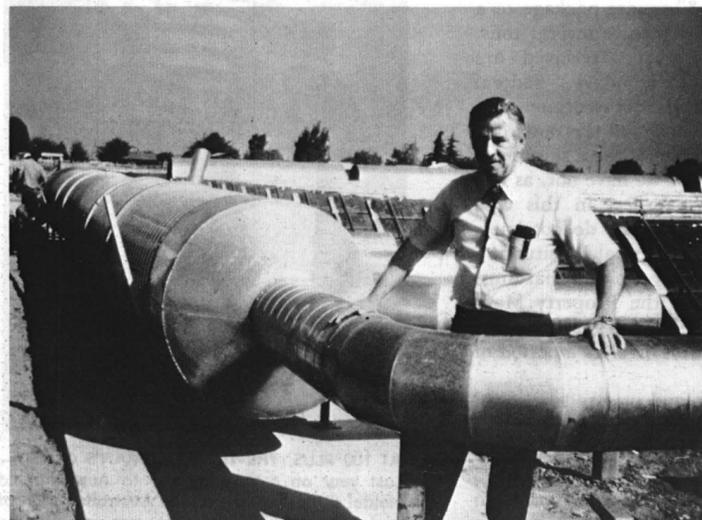
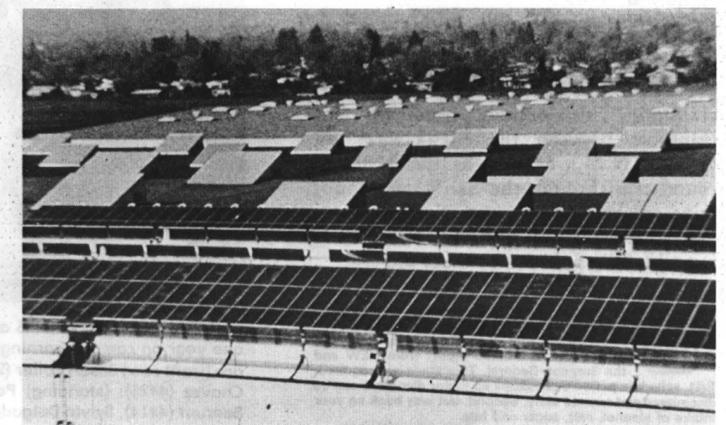
HOT WATER, STEAM AND DRY HEAT, all solar generated, are part of the production cycle of the industries shown on these two pages. At York Building Products in Harrisburg, Pa. (above), concentrating collectors on the roof provide heat for water which circulates through underground tanks to cure concrete blocks. Lower right, parabolic collectors built over Home Laundry of Pasadena, Calif., generate 100 psi steam for pressing machines and hot water for washing. Picture at right shows raisin drying plant in Fresno. Air heated in collectors passes through and heats a bed of rocks in circular metal building, later is circulated through drying tunnels. Duane Randall (4725), below, stands by an air return line at the raisin plant.



FLAT PLATE COLLECTORS on roof of lumber drying kiln in Mississippi (above) heat water which, in turn, heats air used to dry lumber inside the kiln. Photo below shows solar air heating collectors at Gold Kist Soy plant in Decatur, Ala. Hot air is blown up through towers to dry soy beans.



AT **JOHNSON AND JOHNSON** plant in Sherman, Tex. (above), solar collectors heat water to produce 100 psi steam. Steam passes around vats of liquid bleach used to bleach gauze. Campbell Soup Plant (below) uses rooftop collectors to produce 200°F water for washing cans.



Take Note

Starting Monday, the voice at the other end of the line may belong to a Bell TELSAM (Telephone Service Attitude Measurement) researcher at the Chilton Research Service in Pennsylvania. As step one in a response to a Presidential request for businesses to help save transport energy by expanding employee ride-sharing programs, the Chilton researchers will survey the commuting habits of some 1300 employees working at all major WE locations, including Sandia. If you're called, you'll be asked six questions. Total time required for the survey: two or three minutes.

* * *

July seems a bit early to be announcing the fall meeting of the New Mexico Academy of Science (to be held Oct. 3-4 at Northern New Mexico Community College in Espanola). But it's not too early for undergraduates, graduate students and professionals in science and engineering who might wish to present papers in physical, biological and social sciences, or in math, energy/resources or the environment. Those who do (and they need not be members of NMAS) should immediately contact Prof. Robert Amai, Department of Science and Math, N.M. Highlands University, Las Vegas, N.M. 87701. Non-members who simply wish to attend should also contact Prof. Amai for registration forms.

* * *

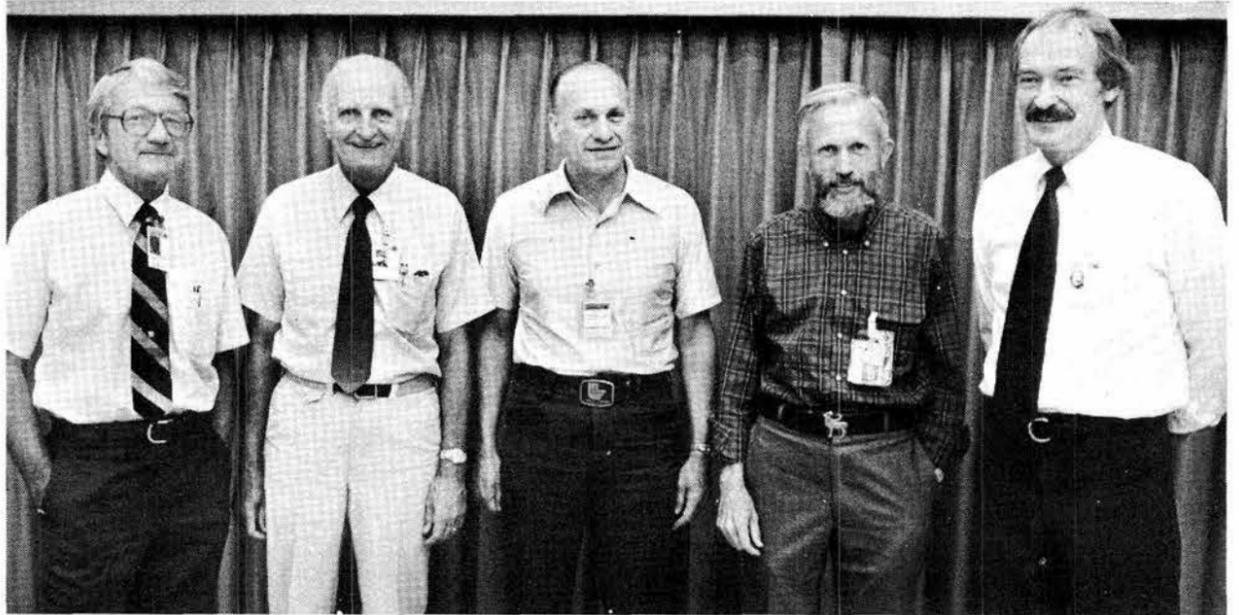
Interested in owning a '65 MG Midget convertible? That's the most unusual vehicle being offered, but only one of 160 surplus government cars and trucks being offered for sale to the public on or about Aug. 14. Other vehicles for sale will include 25 '77 AMC Hornets, a large assortment of pickups (some with 4-wheel drive), 35 carryalls, two forklifts, a D-8 Caterpillar and a road grader. Some vehicles require major repair, but most are in good operating condition. Aug. 14 is the expected date of the sale. The exact date will be set later and a catalog will be issued about two weeks in advance. To get on the mailing list for the catalog, call GSA at 766-2517.

* * *

If you have a hankering to see the aspen trees in full Fall color from the windows of a moving train, now's the time to make reservations for the Sept. 26 Cumbres & Toltec scenic railroad tour. Sponsored by the Breakaway Recreation Club, the package tour is \$34 for adults, \$20.50 for children. This includes roundtrip bus transport between the Breakaway and Chama, N.M., as well as the 128-mile round trip through the San Juan Mountains on the Cumbres and Toltec narrow gauge. Reservations at 844-5420. Tickets must be fully paid for by Aug. 25.



By 1990, the death rate in various age groups could be reduced 20 to 35 percent, according to a recent combined report from HEW and the Surgeon General. Two steps are required: first, schedule periodic checkups so major disorders can be discovered and treated early. Second, cut way back on your intake of alcohol, salt, sugar and fats.



LLNL VISITORS—The management staff of LLNL were recent Sandia visitors for briefings and tours of Labs' facilities. Pictured here during a recess are (l-r): VP Tom Cook (8000), President Sparks, LLNL Director Roger Batzel, LLNL Executive Associate Director Richard Wagner, and Bill Spencer (8100). Visit is one of series by management people from weapons labs to each other's facilities for updating.



ONE MORE VAN—This is number four, operating out of Los Chavez, Los Lunas and Bosque Farms. John O'Hare (1521) leaning out the window, is van coordinator and states that the Sandia Commuters Assn. would like to set up an additional van to operate as far south as Belen. Contact him on 4-8555 or, at home, on 864-3474.

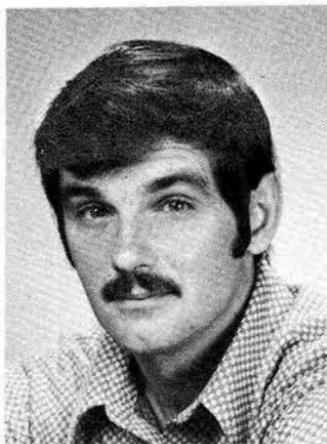


OUTSTANDING NEW HIRES are selected each year under Sandia's Affirmative Action program to spend one year on campus earning their master's degrees at the nation's top universities. This year's OYOCs are (front row) Susan Roller (2516), Juan Espinosa (1765), Mario Martinez (5512), James Gee (4216), Susan Chavez (4425); (standing) Perry D'Antonio (4332), Beth Richards (4713), John Russell (1535), Pauline Bennett (4414), Sylvia Delgado (4741), Eunice Edwards (5621), Becky Russo (5522), Marsha Spalding (4363), Bev Rainwater (5622), Danette Chimenti (1758), and Joseph Flores (2533).

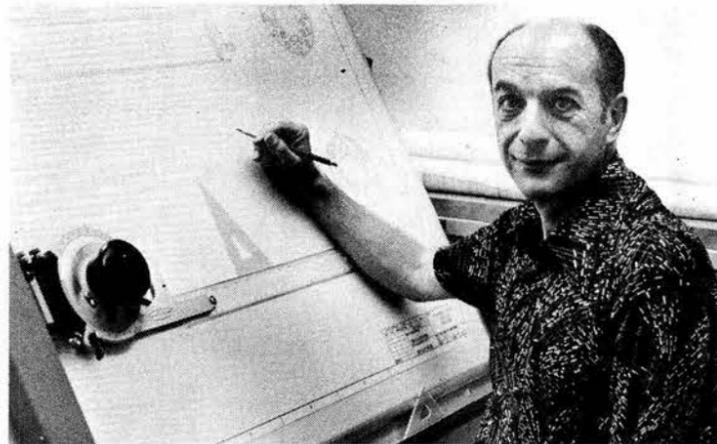
MILEPOSTS

LAB NEWS

JULY 1980



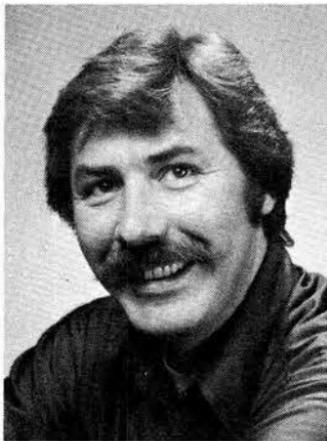
Bob Tirnetta (8257) 15



John Simchock (2458) 20



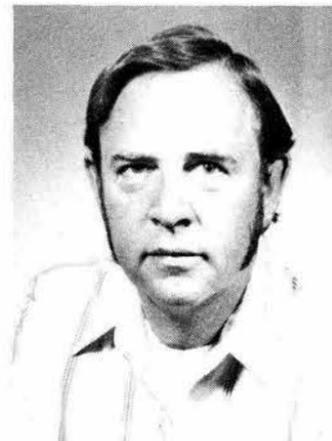
George Horne (2613) 30



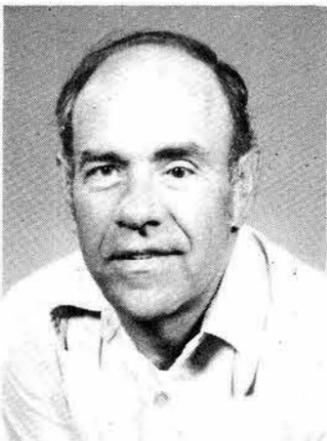
Steve Vasey (8351) 10



Warren Arthur (3618) 25



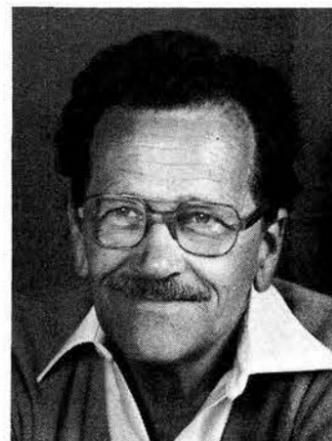
Al Stevens (4734) 15



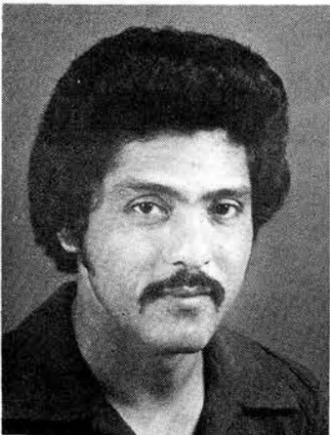
Dave Sample (4731) 25



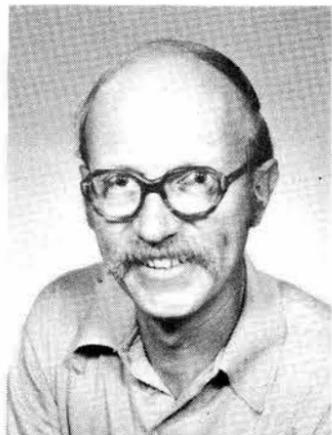
Gordon McClure (2353) 25



Bob St. Hilaire (8441) 15



Jess Castellon (8271) 15



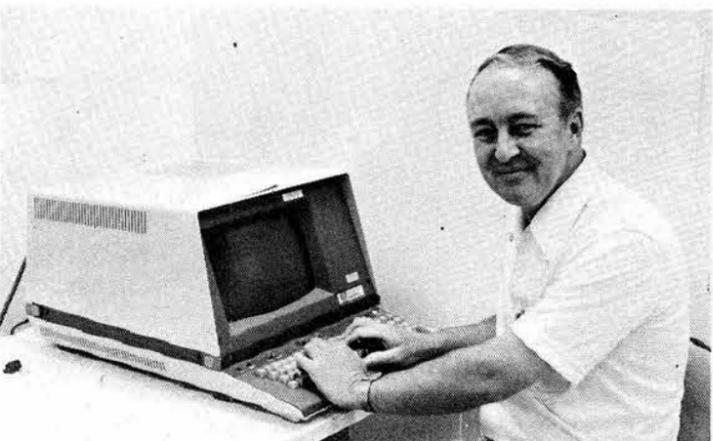
Paul Plomp (1483) 15



Tom Workman (2150) 20



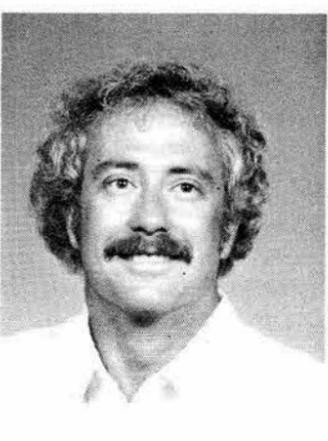
Tony Jojola (1473) 15



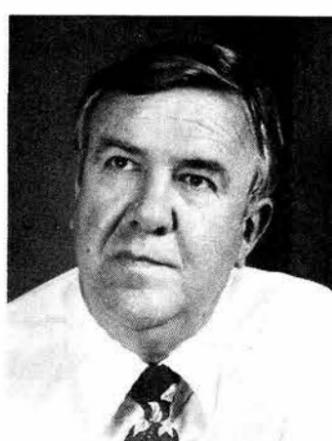
Kenneth Paul (2655) 20



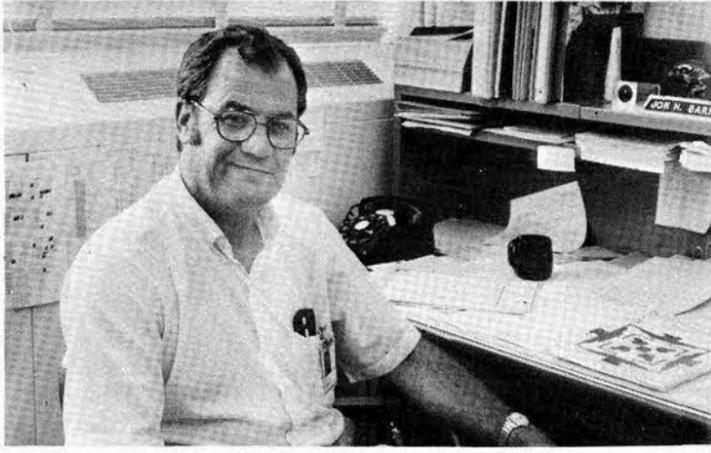
Jay Gilson (8112) 25



Dave Darsey (2644) 15



Jim Bauman (8411) 20



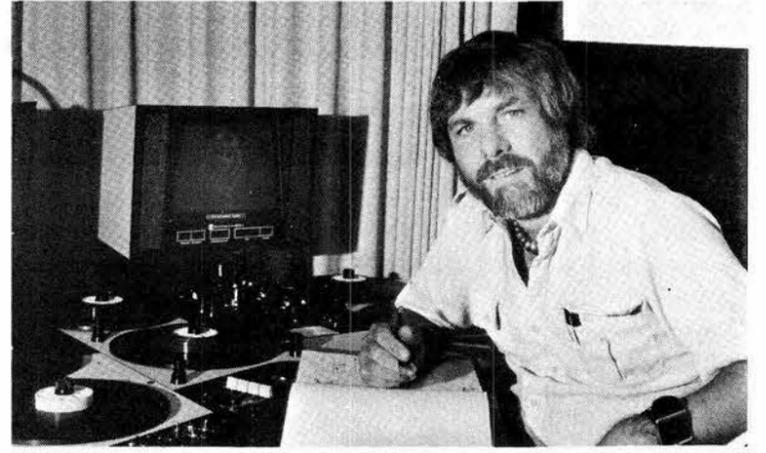
Jon Barnette - 2328

20



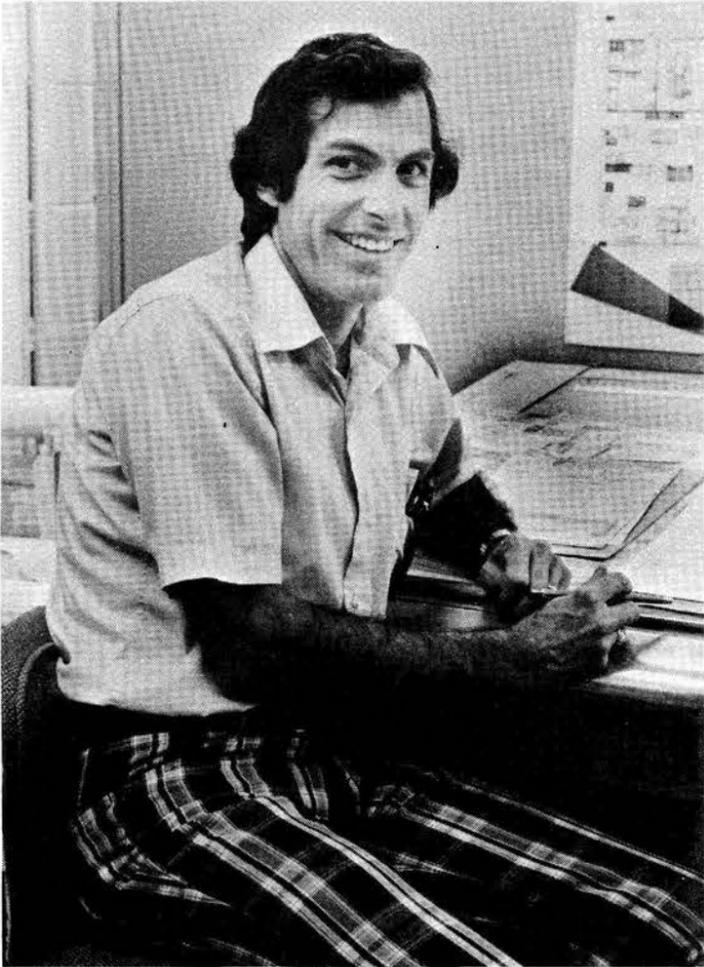
Joe Rodzewick - 2451

20



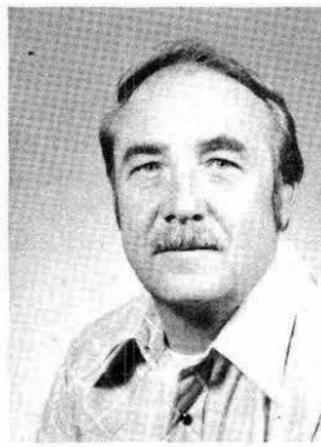
Bruce Hawkinson - 3153

15



Tom Plummer - 3642

15



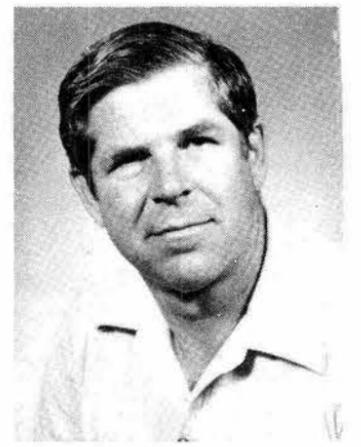
Bruce Wickesberg - 1242

25



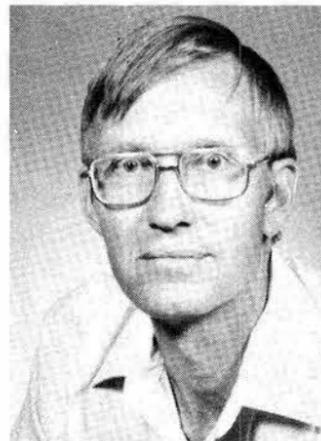
Bill Jackson - 3223

25



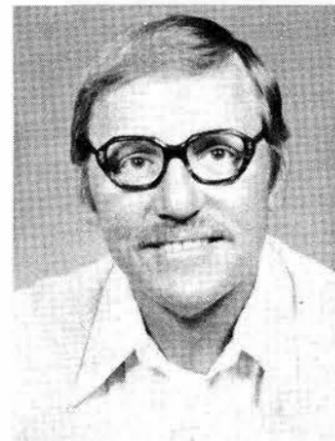
Gerald Rohwein - 4253

20



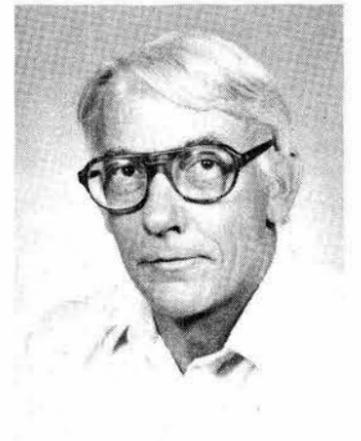
Al Giddings - 2336

20



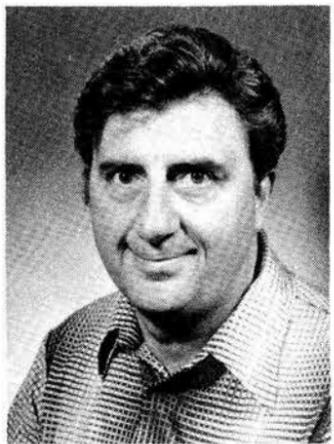
Richard Ashbaugh - 1713

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Bill Sullivan - 4426

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Anthony Russo - 5512

20



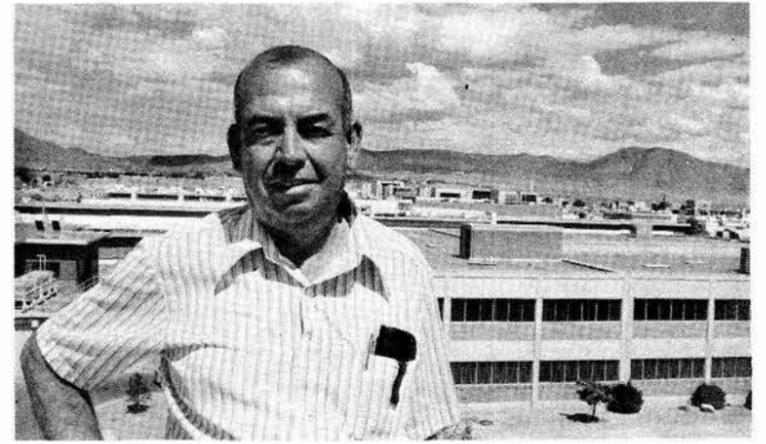
Joe Rivard - 4422

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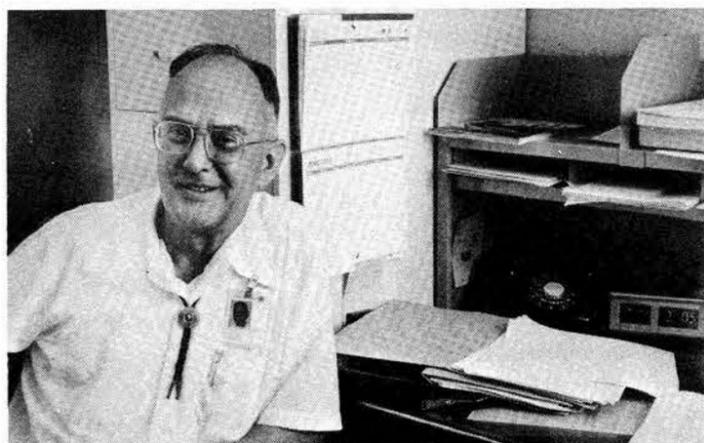
Norbert Siska - 2166

20



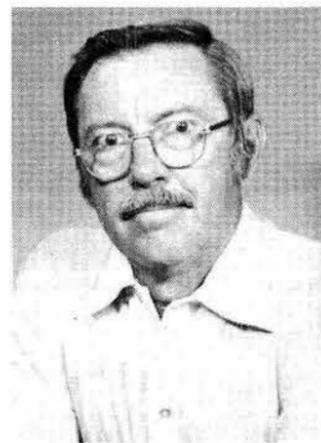
Alex Trujillo - 3421

15



Dick Ashmore - 1729

25



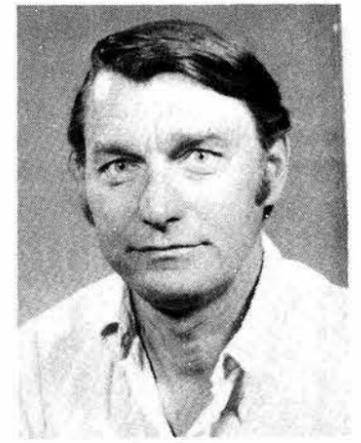
Leroy Brace - 2522

20



Gene Emerson - 4551

25



Dave Nokes - 4337

20

FROM the House Science and Technology Committee, Martha Krebs-Leidecker, who serves as a deputy staff director is briefed by Dick Traeger (4740) on the workings of Sandia's experimental drilling equipment. The Washington visitor is associated with the Subcommittee on Energy Development and Applications.



Congratulations

Ferrell (2533) and Roberta (formerly 2327) Russell, a daughter, Claire Jennifer, July 4.

John (2144) and Debi Harrington, a son, David Joseph, June 13.

Mr. and Mrs. William Morgan (1473), a daughter, June 19.

Mr. and Mrs. Dan Arvizu (DSP at Stanford), a son, Joshua Dan, July 9.

Mr. and Mrs. Richard Kottenstette (5821), a son, Richard Joseph, July 4.

Mr. and Mrs. Ernest Salas (3618), a son, July 15.

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

CLASSIFIED ADVERTISING

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

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name & organization.
9. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

AKC Labrador puppies, yellow, 10 wks. old, champion pedigree, Parvo & first shots, \$200 ea. Robinson, 296-2753.

WARDS 18" reel type mower w/ 2 hp Briggs & Stratton engine, \$60. Keepers, 881-8066.

WOMAN'S 24" single spd. bike, \$25; woman's golf clubs, bag, cart, \$40; BR78-14 rayon radial tire, \$15. Scranton, 869-6589.

VIVITAR 135mm close-focus lens, 2X teleconverter, for Olympus OM, each \$60 or pair for \$110; tripod, \$20. Johnson, 884-8670.

IRISH SETTER, male, 21 mos. old, all shots. Miller, 281-3189 evenings.

RADIO SHACK Realistic brand stereo: 2 walnut speakers, FM stereo receiver, turntable, \$175 (\$340 new). Jones, 299-6186.

ALUMINUM lounge w/woven orange plastic; Egmund acoustic elec. guitar, 2 pickups, case. Burstein, 821-6688.

CHILD'S swing set: 2 swings, 1 teeter-totter, \$25 or make offer. Stephenson, 898-4126 after 6.

20' ARISTOCRAT trailer, fully self-contained, sleeps 6, shower, air, refrig., \$2775. Adkins, 873-2744.

FREE KITTENS to good home, 2 females, 1 3-color calico, 1 grey-white tabby, ready now. Klarer, 268-9772.

VERTICAL gas furnace, 33,000 BTU, suitable for trailer or small house, bottom discharge, intake controls & thermostat, \$10. Stamm, 255-2640.

FIREPLACE, freestanding w/pipe to ceiling, rust color, never been installed, \$150 or best offer. James, 296-2582.

TWIN size white Captain's bed w/mattress, 4 shelves, 3 drawers, \$250 or best offer. Yu, 268-5355.

BED, twin size, mattress, box springs & frame, \$25. Garst, 884-5176.

TYPEWRITER, Remington std. w/table; slide projector, Manon Cabimat w/magazines; Wollensak 4-track tape recorder, open reels, make offer. Krahling, 268-8126.

6-YR.-OLD Quarter Morgan mare & 2-mo.-old Appaloosa filly, \$600 for both; halters, bridle included. Chirigos, 884-5686.

GENERATOR, 3000 watts, Fairbanks Morse w/10HP Wisconsin, 1800 RPM, gas engine, elec. remote start, old, heavy duty, \$400. Muirhead, 844-7885.

DAY BED, 74", makes into dbl. bed, gold tweed, \$20. Young, 256-9158.

COUCH, 3-cushion, green vinyl, \$40; Sears power mower, reel type w/catcher, \$25; outdoor barbecuer, 24x24", \$5. Luna, 884-5023.

HAM EQUIP: YAESU FT-301/FP-301 supply, Dentron MLA-2500 amp., Heathkit SB-610 monitor scope, YAESU FT-221R w/Janel preamp. Richardson, 877-2731.

MERCURY PROPS, 1 15 1/4"-dia. 21" pitch; 1 15 1/4"-dia. 19" pitch, make offer. Neel, 821-4270.

LOVE SEAT hide-a-bed, autumn colored plaid, \$100; green recliner, \$25; lt. blue cast iron wash basin, \$10. Benedict, 299-3832.

FURNITURE: hide-a-bed, recliner, queen-size bed, chest-of-drawers, nightstand, ottoman & other small items. Shortenier, 292-3575.

FREEZER, approx. 16 cu. ft., 4-5 yrs. old, \$200 or trade for lg. freezer, 25-30 cu. ft. or hay; hens & 3-mo.-old chicks, \$3 to \$5; need mill to roll or crack corn. Lackey, 898-6638.

TWO small mares, 11-yr.-old, trained roan; 9-yr.-old sorrel, both gentle w/spirit, tack avail. Marshall, 281-5821.

4 KITCHEN CHAIRS, black legs, yellow-white-brown-orange flower seats & backs, 1 needs minor repair, \$20. O'Bryant, 268-9049.

FRIGIDAIRE (1963), 32" wide, 70" high, 25" deep, LH door, lg. freezing compartment, best offer. Baczek, 255-3429.

FREEZER, 25 cu. ft. upright, \$125. West, 255-5855.

4 TIRES, steel radial GR 70x15 Firestone, mounted on 4 Honey Comb Trans Am wheels; Mitchell insulated camper shell, lights, boot, fits lwb. Baca, 898-9010.

TORO 21" self-propelled gas mower, used 1 season, \$190; fp glass doors, 44"x32" outside, 34"x25" inside, \$40; set of weights, \$40. Jackson, 265-4562.

CENTRAL air conditioner, 36,000 BTU, w/10/ KW heater, 230 V, 37 amp. (ideal for mobile home), \$315 (1/2 new cost). Womelsduff, 281-1693.

SLAB SAW, 20" Highland Park, complete w/3 blades, very little use. Harvey, 884-4327.

FOLDING picnic table; canning jars; heater & oven for camping; some linens. Carpenter, 299-4312.

COOLER, 2-spd., 4500 cfm, best offer. Russo, 256-1816.

PR. OF TICKETS to July 26 Santa Fe Opera, will sell at cost, \$32. Miller, 255-7716.

HAMMOND PORTA-B organ w/Leslie 147, organ breaks down into 2 portable sections, \$1200. Noack, 268-4806.

UNCLAIMED LOST ITEMS—proceeds to S. Hwy. 14 Project. Women's 10-spd., needs minor work, \$35; AM-battery radio, \$3; dark glasses, \$1; wallet-type calculator, \$5; biker's calf lights, \$1; rain coat, \$2; misc. items. LAB NEWS, M0125/Bldg. 814.

PANASONIC AM-FM tuner w/turntable, 2 speakers, Teac cassette deck. Bell, 255-9782.

.22 MAGNUM RIFLE, 4X scope, bolt action, clip fed, made by Savage, \$60. Stuart, 299-9190.

GUITAR, Goya, \$20; porch glider, \$7.50; wrought iron, glass-topped table w/4 chairs, \$75; B&W Magnavox TV, \$15. Miller, 255-6838.

LOW CABINET, 30hx29wx18d, lt. maple, half doors, \$55. Dalphin, 265-4029.

4-BAND vertical trap antenna, \$45; 10" f5.6 astronomical telescope without stand, has 4 eye pieces, \$400. Jensen, 821-6178.

PORT-A-CRIB, little use. Lopez, 344-6097.

FORD car shop manual, 1975-1976, complete; wiring diagram for 1976 Ford Grananda. Lukens, 299-1271.

REMINGTON shotgun, model 1100, semi-auto., 12 gauge w/plain 28" modified barrel, never been fired, \$260. Brammer, 266-5158.

KENMORE built-in dishwasher, harvest gold, \$20; new 220 volt baseboard heating unit, \$10. Baack, 296-2312.

OSCILLOSCOPE, Eico, \$145; audio oscillator, \$80; mixer pre-amp, \$25; E&L breadbox, \$50. Porter, 298-0012.

REFRIGERATOR, 77 Frigidaire, 14 cu. ft., \$200. Moss, 298-2643.

PORTABLE AM-FM radio/8-track player, 3-way power, ext. mike capacity, \$32. Buckingham, 298-1239.

25" MAGNAVOX color console TV, \$100. Amos, 298-1095.

CAMPER SHELL w/boot installed for 1/4 ton pickup; carpet for pickup bed included, best offer. O'Neill, 898-5753 after 5.

WHIRLPOOL refrig.-freezer, 22 cu. ft. w/ice maker, almond, used 1 mo., new price \$850, sell \$650. Cano, 296-6955.

MAC140 chain saw, 14" bar, auto. sharp, auto. chain oil, carrying case, \$90. Swartz, 299-0353.

TWO cemetery lots in Sandia Memory Gardens, \$200 ea. Chandler, 292-3893.

REFRIG., Sears frost-free, \$90; 45 yd. green carpet, 25 yd. blue carpet, \$2.50/yd.; turntable, BSR, \$30; Majestic zero-clearance fireplace, make offer. Manteuffel, 281-5992.

SEARS tent, 12'x12', \$90. Higgins, 299-4302.

TENNIS RACKET, Stan Smith, 14 1/2 ounce, 4 5/8 handle, nylon strung, 55 pounds, \$25. Nowak, 298-3039.

5-PIECE corner group, converts into single beds, \$100; early model non-working 19" TV, make offer. McDonald, 298-9364.

CHILD CARRIER for bicycle, \$9; ironing board w/pad & cover, \$5. Scheibner, 299-5993.

CEMENT BLOCKS, 6x8x16, 4x8x16, 35 ea. size, 1/2 price; 2 yds. clean dirt, free for hauling. Strip, 255-7230.

AMPEX tape deck; Sony TD; Harman Karden tuner; 10" table saw; amp.; poker table. Harris, 299-6664.

TRANSPORTATION

76 LINCOLN MK IV, loaded, moon roof, low mileage, trade for real estate. Baack, 296-2312.

77 TOYOTA Corona wagon, 5-spd., 38,000 miles, NADA \$4250, selling for \$3600. Furaus, 822-0146.

75 BMW R90S, 14,000 miles, w/removable Krauser bags & Vetter tank bag, \$3050 firm. Letson, 884-8920.

73 MUSTANG, AT, PS, new paint & vinyl roof, chrome rims, 8-track, \$1800. Esterly, 881-1973.

76 AUDI 100LS, orig. owner, AC, AT, AM-FM stereo, 35,000 miles, \$3000 or best offer. Scott, 293-2536.

71 CUTLASS 2-dr. 350 V8, \$300. Kessel, 299-3338 evenings.

78 KAWASAKI KZ400, 1400 mi., new windjammer fairing, saddlebags, trunk, luggage rack, touring seat, safety bar w/highway pegs. Conrad, 298-8229 after 5.

MOPED, Peugeot 103 Sport w/accessories, less than 300 miles, 80 mpg, \$475 or best offer. Laney, 865-6772.

79 DODGE VAN, 3-spd., trans., PS, PB, custom interior, 25,000 miles, new tires, \$5900. Mercer, 821-6449.

'69 MERCURY Marquis 4-dr., loaded, \$500. Alvis, 298-3906.

77 PONTIAC Phoenix, V6, AT, PS, PB, AC, AM-FM stereo, velour seats, low mileage, \$4190. Burstein, 821-6688.

78 LINCOLN Continental MK V, 17,000 miles, \$8500. Padilla, 898-0379 or 898-3115.

73 SUBURBAN, loaded, rigged for towing & better gas mileage, 9408 Dona Rowena NE. Carr, 293-0274.

MEN'S COLUMBIA 12-speed bicycle, 27" wheels, 23" frame, w/water bottle & holder, \$65. Bishop, 293-0250.

BICYCLE, Sears touring model, 5-spd., blue, 23" frame, \$55. Olona, 292-5733 after 5.

71 BSA motorcycle, 500cc, single cyl., dirt bike, best offer over \$400. Muirhead, 844-7885.

'61 BUICK Skylark, new tires & trans., \$600, negotiable. Jacobs, 265-7350.

'66 MUSTANG, 6-cyl., AT, AC; new tires, brakes & paint, \$2600. O'Neill, 898-5753.

'77 PINTO SW, complete maintenance & mpg record, 4-cyl., 4-spd., AM/FM stereo, below retail book, \$2700. Geer, 298-7914.

73 MALIBU 4-dr., below book value, \$750. Morgan, 256-7994.

76 CAMERO, AC, AM-FM, 250 engine, 38,000 miles, green, orig. owner. Ray, 255-1755.

71 CHEVELLE Malibu 2-dr., 307 engine, AT, radials. Gallegos, 266-8884 after 5.

74 AUDI 100LS, 48,000 miles, 23 mpg, AT, AM-FM, one owner, \$2400. Horne, 884-7821.

73 KARMAN GHIA convert., \$3750. Roth, 243-3283.

79 BRONCO, hubs, PS, PB, wide wheels, console, captain's chairs, radio, low mileage, \$8000 or best offer. Black, 299-3369.

79 MAZDA RX7-GS, silver, air, alloy wheels, low mileage. Dippold, 821-5750.

75 DATSUN B210, 2-dr., 4-spd., low mileage, \$2350 or best offer. Martinez, 821-8692.

70 VW, complete records, \$1900. Miller, 299-2736.

'69 VOLKSWAGEN squareback, recently rebuilt engine, AT, new paint, best offer. Chavez, 831-9591.

76 FORD window van, dual AC, PS, PB, 12-pass. w/dual gas tanks. Mueller, 296-2973.

78 TOYOTA Corolla deluxe, 20,000 miles, AT, R&H, \$3500 or best offer. McGuire, 345-0539.

72 VW 411, engine & trans. recently rebuilt, AT, AC, radials, \$1795 or best offer. Burrows, 296-9026.

'69 HONDA TR90, \$250. Luikens, 881-1392.

71 OPEL, 1900cc engine, 4-spd., \$800 or offer. Jones, 292-2737.

74 CORVETTE T-top L-82, AC, black interior, orange ext., T/A radials, luggage rack, antenna lead-in for CB, AM-FM radio. Perryman, 294-6113.

'58 BUS-converted: refrig., stove, sink, sleeps 5, 292 Ford engine, less than 5000 miles, reg. gas, make offer. Turnbough, 299-3631.

75 HONDA mini-bike Z50, 50cc, \$135. Kenna, 298-6059.

REAL ESTATE

2 1/2-YR.-OLD 3-bdr., 1700 sq. ft., w/mountain view, energy & comfort features, Wyoming bus line, can finance. Ronan, 268-0726.

4.3 ACRES mountain property (ideal for solar home), 7 miles east of Abq., \$14,000 & assume REC. Barr, 293-7542.

ONE ACRE north El Cerro Loop, easy

access, irrigation, utilities, terms. Gallegos, 266-8884 after 5.

MOBILE HOME, 24'x60', 3-bdr., LR, DR, 2 baths, refrig., stove, AC, skirted, fenced, Del Rey Park, \$23,500. Hurford, 898-5335.

MOBILE HOME, 12'x60', near Base, fenced, 12' built-ins both bdrs., built-in corner china cabinet, some furnishings included, \$8500. O'Meara, 299-1080.

CUSTOM HOME in Brentwood Hills addition, open floor plan, many custom features, 1 yr. old, 1780 sq. ft., 2609 Nakomis. Huerta, 293-2086.

UNM tri-plex, 2 2-bdr., 1 studio, HW floors, fps, storage, 4 yrs. old, new stucco, positive CF, 78K, flex. terms. Gabaldon, 255-7971.

NE, 4-bdr., 2 bath, lg. kitchen w/breakfast nook, den w/rock fp & bar, attached garage, storage shed, access to back yard, avail. Aug. 15. Sanchez, 299-5658.

OPEN HOUSE this weekend at 213 Mezal Cir. NW off Yucca & Central, \$25/sq. ft. buys 2340 sq. ft. adobe style home. O'Malley, 836-1433.

BRICK 3-bdr., den, side yard access, crawl space, perimeter FA heat, \$85,000, negotiable down w/REC. Barth, 299-2668.

3-BDR. custom home, sprinklers, beamed ceiling, lots of storage, 5 miles from Sandia, \$69,500. McDonald, 298-9364.

ELEPHANT BUTTE mobile home, oversize lot, garage, patio, completely furnished, \$28,500; travel trailer lot, all utilities, \$3000. Laster, 298-2461.

FOR RENT

HOLIDAY PARK, 3-bdr., fp, 2-car, lg. backyard, no pets, min. 1 yr. lease, below market to retired couple or small family for good care. Avail. 8/22. Baca, 292-3304.

HOUSE, 2000 sq. ft., 1 yr. old, NE, 4-bdr., 2 bath, mod. kit. w/micro, 2-car garage, landscaped, avail. Aug. 9, \$530/mo. Johnson, 822-0169.

WORK WANTED

PAINTING by experienced UNM junior, free estimates, hourly rates or firm quotes. Stixrud, 292-5002 or 298-0478.

PAINTING, interior/exterior, experienced UNM student, estimates given. Peter Shunny, 265-1620.

WANTED

SCIENCE FICTION/Fantasy contributions for amateur magazine, deadline July 28. Chrissiner, 745 La Charles Dr. NE, 298-9918.

SHOTGUN, 12 gauge, pump action, modified or polychoke barrel, in good condition and reasonably priced. Welch, 266-2074 or 255-3842.

USED patio doors: 6 5'x80" high; 1 3'x80" high. King, 281-3660.

CONTACT desired with anyone who has tried the "color from black and white" experiment demonstrated by Land at his colloquium. Steck, 299-2313.

FINNSHEEP or Dorset ewe, any age; stud service for Karakul ewe (ram must be Karakul of 1/4 Karakul). Patton, 281-5209.

REFRIGERATOR, 4.5 cu. ft. for use in dormitory at NMSU. Ross, 299-0731.

RIDERS to share expenses to Wash., DC, with two college men, leaving about Aug. 23. David Barnaby, 265-4353.

Not How Far Nor How Fast, But Whether

A runner friend looked out my office window at two women who were sedately jogging around the Parade Ground and snorted. He puts in 50 plus miles a week and, with the fervor of the zealot, views lesser performances as deviations from the true faith.

There is in the running world an element of elitism. Those who profess it feel somehow diminished by the plodding performance of the average runner, I suppose because such a performance, to them at least, reflects unfavorably upon their chosen sport. Moreover, many in the higher reaches of the running world arrived there only through much pain and persistence and now project the lofty view that comes from unquestioned moral superiority.

These are harmless enough foibles, to be indulged with a smile, except that the elitists' views of what running is about has influence out of proportion to their number. For them, competition is what running is about, while physical fitness comes in a valued but distant second. This view affects the remainder of running mankind, tending to create among its many members some guilt because they aren't running (pick one) four-, five-, six- or seven-minute miles. Or putting in (pick one) four, five, six or seven miles/day. They'll say, self deprecatingly, "Oh, I'm just a jogger . . ." or "I'm not really a runner—I just trot a mile or two every morning before work."

Well, nuts to elitism and six-minute miles! The reality of today's running world is the citizen who does a slow mile or two several times a week and feels better, physically and mentally, for having done so. If he or she competes, and most don't, it will be in low-key events with, perhaps, the promise of a T-shirt. The number of these runners is overwhelming, yet the tail



wags the dog when we talk of a value system relating to running.

What I'm suggesting here is that running is an intensely personal activity, that how far or how fast someone else goes is irrelevant to your effort, and that you take out of the running experience whatever joy and satisfaction you can.

If you really want to be a competitive runner, that's well and good and train accordingly. On the other hand, if you're one of that vast throng just aiming for a little better fitness, then forget the stopwatch routine and give up fretting if you don't better yesterday's performance. Fitness comes from any sustained activity that gives you an elevated pulse rate (75 to 80% of your maximum), and you may well achieve this doing 10-minute miles or even doing a fast walk. Most exercise physiologists today are agreed that significant gains in cardiovascular fitness come after 20 to 30 minutes of sustained activity four or more times per week.

For most of us, that translates into two to three miles per outing. But suppose you're only able to handle a mile, maybe even less. Is that modest activity all for naught? Certainly not. Fitness is not a threshold that you step over once you put in a prescribed mileage. It's more like the ascent of a gradual slope—if you do a lot,

you go higher; if you do a little, you still go up but not so far.

So do your fitness thing free of hang-ups about performance. Any activity is good of itself. •js

Fun & Games

Shooting—Sandia's Rifle and Pistol Team collected nine individual and team awards in the recently completed National Postal Matches. Linda Hobart (wife of Tom, 1481) was national winner in the women's individual precision air pistol match. This was Linda's first competition. Sandia's .22 and air pistol teams finished fifth and second, respectively. Individual awards went to pistol shooters Dave Bennett (4414), Bill Stephenson (2355), Bob Davis (4220) and K. K. Ma (2331). Rifle shooters Don Bliss (retired) and Dave Overmier (1485) also won individual awards. Info on the team from Dave at 4-3436.

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Dancing—Another four-week session of beginning modern dance starts Monday at the Central Branch of the YMCA, Broadway and Tijeras N.E. Classes (taught by Carrie Kittell) are held Mondays and Wednesdays from 6:30-8 p.m. (There's ample parking in a well-lighted lot.) Saturdays, from 10:30 a.m. to 12:30 p.m., there's a workshop featuring dance improvisation. Further info from the "Y" at 243-4571.

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Bowling—Sandia's Tuesday Night Men's Handicap Winter Bowling League has openings for regular, 6th man and substitutes. During the season, bowling begins at 6:26 p.m. at Fiesta Lanes. Active and retired Sandians, and active and contractor personnel of either Sandia or DOE are eligible to participate. More info from Dan Puetz, 844-8017 or 294-8545.



Coronado Club Activities

One-Day Trips Coming Up

TONIGHT at Happy Hour the buffet menu features a seafood platter. Guitarist Gene Corwin entertains in the lounge and Youngblood plays in the ballroom. Next Friday, Aug. 1, a choice of lamb chops or prawns in the shell is offered on the buffet menu and the popular Watermelon Mountain Jug Band entertains. To reserve buffet tickets, call the Club office, 265-6791, by mid-week.

POOLS will be closed from 4 p.m. today through tomorrow for a Coronado Aquatic Club swim meet; spectators are welcome.

TRAVEL DIRECTOR Frank Biggs

(4231) announces a couple of quick ones:

Gallup Indian Festival, Aug. 16—leave by charter bus from Club early a.m., continental breakfast, parade, exhibit hall, rodeo, dances, all admissions, and snacks and drinks on the bus during return trip; adults \$26.50, children \$22.50.

Cumbres & Toltec Scenic Railroad, Sept. 27—early departure by charter bus from Club, continental breakfast, snacks and drinks on the return bus trip; adults \$43.00, children \$28.00. Train ticket only—adults \$23.00, children \$8.00.

Save a fare increase on the Mazatlan trips by making a \$150/person deposit by Aug. 15.