

AT NEVADA TEST SITE late last month, the nuclear experiment, *Miners Iron*, had a successful detonation. Sandia was a major participant in the DNA weapons effects project, and many Sandia organizations had been preparing experiments for the test for the past two years. Sandy Dolce (1116) was the Labs' Technical Director for *Miners Iron*, while John Allen (1124) was Project Engineer. Before the event, President Sparks visited NTS and is shown here (back to camera) with Howard Viney (1130) outside "G" tunnel where the closure protection system for the experiment in *Miners Iron* was tested. Glenn Fowler (VP-1000) stands at right. Inside the "N" tunnel, Sandy Dolce points overhead to instrumentation cables associated with the nuclear event.

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

Microprobe, Computer Give Fast Data

Microprobe analysis, used by researchers to analyze the various elements present in a small sample of material, has traditionally been a valuable yet tedious technique. Now, using a computer in association with the electron microprobe, scientists at Sandia have eliminated much of the tedium. So reports Bill Chambers of Electron Optics & X-Ray Analysis Division 5822. Says Bill, "Twelve years ago, when I started working with microprobes, all the settings had to be done manually—turning a lot of knobs, punching data onto cards, then taking them over to the main computer, and waiting all day for the data to be analyzed.

"By using a Cameca microprobe with a Tracor Northern data collection system, and software developed jointly by Sandia, Rockwell at Rocky Flats, and Tracor, we can now sit at the terminal and type in commands. This greatly speeds up the operation since data can be processed and collected at the same time."

The microprobe directs a finely focused electron beam upon a material surface, exciting the atoms in a volume of about a cubic micrometer. As these atoms decay to an unexcited state, they emit x-rays. Under computer control, the spectrometers look at the x-rays and reveal what elements are contained in the excited volume. In seconds, these data are displayed on the terminal. Besides this operation, the computer also controls the camera system which can record the distribution of a particular element in a sample. In fact, all of these procedures—spectrometer control,

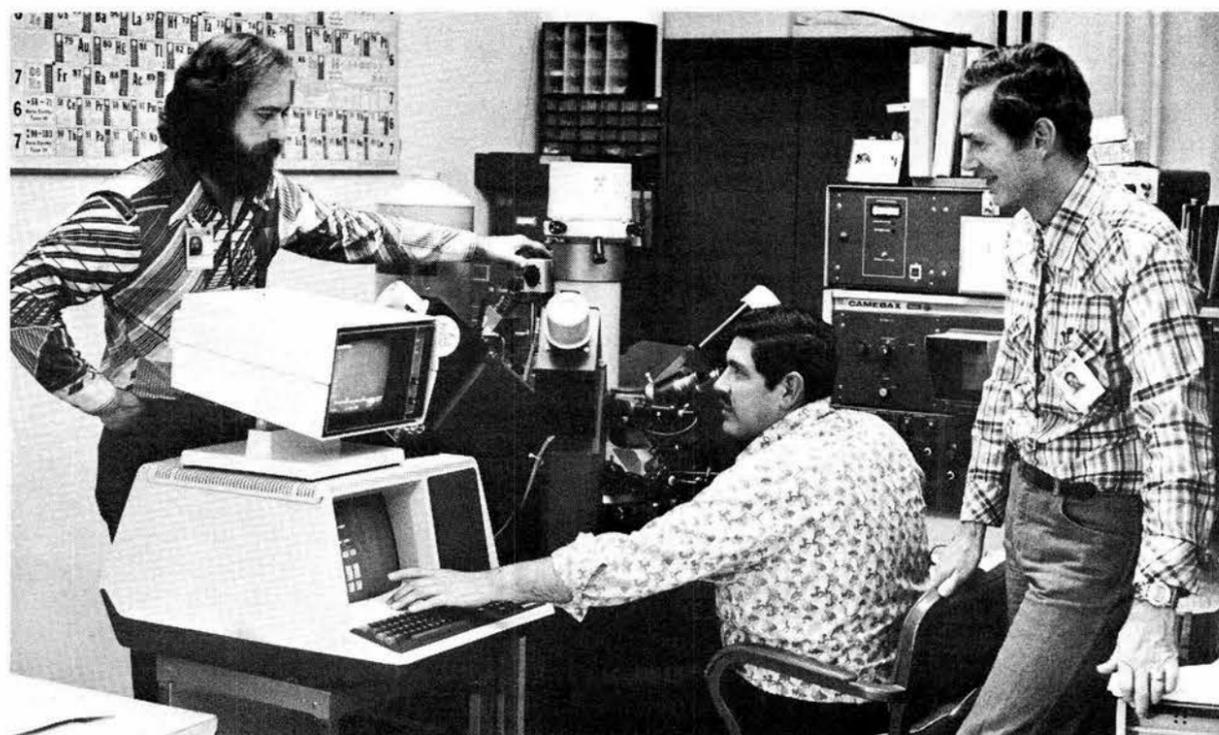
data collection and reduction, photography—can be performed unattended. The system can be programmed before leaving at night and, in the morning, the data or photos will be available.

Bill started working on computer-controlled microprobes in 1968. The French-made Cameca, now at the Labs, is currently the most advanced system.

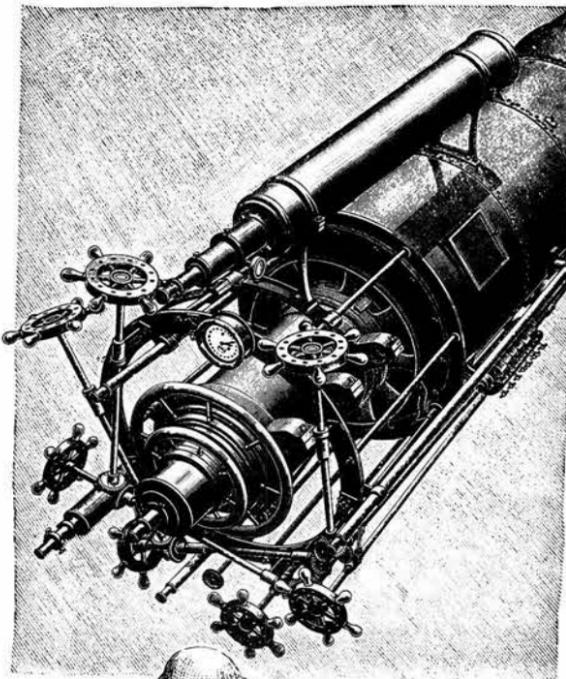
"The procedures developed at Sandia are accepted as the worldwide standard," he reports. "This microprobe-computer technique is being used in all sorts of applications—geologists analyze rocks,

metallurgists and engineers use it to identify structural failures, and physicists examine first-wall materials for the Tokamak. It's used to analyze nuclear waste, synthetic materials, even magma—we've looked at lava from Hawaii and pumice from Mount St. Helens."

Bill's Electron Microprobe group, consisting of Paul Hlava and Rob Smith, has provided demonstrations and consultations for a number of potential users including LLNL, Harvard University, General Electric, ORNL, and Japan Electron Optics Labs.



BILL CHAMBERS (right) looks on as Paul Hlava (center) and Rob Smith analyze data from the microprobe.



Colloquium Speakers

Is There Life Out There?

Chances are slim of our ever encountering Wookies or Klingons when we finally venture into interstellar space. This, in effect, is the opinion of Benjamin Zuckerman of the Jet Propulsion Lab who spoke on "The Quest for Intelligent Life in the Universe" at the Oct. 27 colloquium.

Zuckerman disagrees with Carl Sagan's view that life—especially intelligent life—is fairly common in our galaxy. Said he: "We might be the most advanced brains in the Milky Way." In the physical universe, life is a minor sidelight and we are simply spectators. But in a biological universe, life is the essential aspect and we are participants. At present, the universe is like a wilderness we are just beginning to explore. In this, we may pursue two approaches—(1) to look for simple life forms and (2) to look for technical, communicative civilizations in the Milky Way galaxy.

Zuckerman explained that there are two search modes for technical civilizations. There is the passive—we let "them" do all the work and find us. Or we have the active mode in which we try to detect radio signals from other planetary systems and launch rockets to nearby stars. Among the points touched on by Zuckerman is the search for infrared transmissions from a "Dyson sphere"—a planetary system re-engineered by an advanced civilization, taking planets apart and using the material to build a shell encompassing its sun so as to capture all of its energy.

Someday, Zuckerman predicts, we'll put huge telescopes in space—tens or even hundreds of miles long—at about 10 astronomical units from the sun (one A.U. is equal to the distance between earth and

the sun—about 93 million miles). Such telescopes would be able to detect planets revolving around nearby stars.

Zuckerman feels that if such advanced civilizations did exist in our galaxy, they would not be content to just transmit radio signals. They would re-engineer their solar systems, build giant telescopes, and travel to nearby stars. Thus, we would have been "found" by now, and the fact that we haven't been—Zuckerman feels—indicates that there probably aren't any intelligent beings out there.

After the colloquium, we sought out Sandians' reactions to the Zuckerman presentation. Rod Geer (3161) states Zuckerman's ideas were "... very direct, entertaining. They sound plausible and he supported them logically. Many people who believe in life on other planets do not take into account the 'zone of life' discussed by Zuckerman where planets enter and leave such a zone over geologic time periods. Some may enter this zone but not remain in it long enough to develop life."

Ken Gwinn (5524) disagrees: "Zuckerman tries for a realistic approach but, with so many unknowns, his ideas cannot be judged as more or less probable than Sagan's. His analogy that believing in extraterrestrial intelligence is like thinking there's a candy island out in the Pacific is irrelevant. We've explored the oceans, but we haven't explored the galaxy."

Bob White (5151) feels that Zuckerman's argument is reasonable but largely conjecture. "I believe life is common throughout the universe—whether intelligent or not. His observations seemed to be founded more on his personal philosophy than on his math."



The cost of an hour of prime-time programming these days runs anywhere from an estimated \$450,000 invested in a single installment of *The Misadventures of Sheriff Lobo* to \$620,000 for the hit *Dallas*, and a fantastic \$800,000 for an hour of *Buck Rogers in the 25th Century*. In contrast, an hour of *60 Minutes* is said to cost but \$140,000; *20/20* about \$160,000. Yet both these informational programs earn as much in advertising revenue as their entertainment competition. No wonder the networks prefer them to an expensive situation comedy. But the real bargain in informational programming is *Sunday Morning*, whose budget for a full year of weekly broadcasts, 78 hours of programming, comes to slightly more than \$2 million; in other words, less than the cost of four episodes of *Dallas*. —*American Film*

Galileo Scientist Describes Project

On Oct. 31 John Casani from JPL reported to a Sandia audience on the status of Project Galileo—an orbiter and atmospheric entry probe scheduled for 1984 launches to Jupiter. Casani expressed gratitude to Sandia for fabricating all 11,000 radiation-hardened microprocessors, memories, and custom-integrated circuits to be used in both the Galileo and Solar Polar programs (LAB NEWS, April 18, 1980).

Casani began by reviewing the Voyager missions and showing slides of the close-up images transmitted to Earth of Jupiter and its satellites—Io, Europa, Ganymede, and Callisto. He also showed some of the first pictures of Saturn sent back by Voyager I on its current encounter with the ringed planet.

Project Galileo, explained Casani, was originally planned as a single launch for July 1982 in which the spacecraft was to carry a combined orbiter and atmospheric probe. Budget considerations forced a change in plans and two launches in 1984

of separate probe and orbiter missions are now planned. Each spacecraft will first head for Mars to take advantage of the red planet's gravitational "slingshot" effect.

The probe will carry six instruments to measure radiation and atmospheric temperatures and pressures. It will enter the Jovian atmosphere close to the equator to more closely match its speed of 150,000 feet per second to that of the atmosphere. ("It will *not* penetrate the Red Spot!") Descending about 100,000 feet into the atmosphere, the probe will transmit data for about one hour before Jupiter's heat and pressure destroy it.

Casani shared with his audience some of Voyager's initial discoveries regarding Saturn. By the end of October, it had already detected four new satellites and an intriguing "spoke-like" structural feature that remains steady from one ring system to another—remarkable because the inner band moves faster than the outer ones. The rings themselves are one- to three-kilometers thick and consist mainly of ice chunks a few inches in diameter.

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ALBUQUERQUE, NEW MEXICO
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Editorial offices in Albuquerque, N.M.
Area 505 844-1053
FTS 844-1053
ZIP 87185
In Livermore Area 415 422-2447
FTS 532-2447

john shunny is editor
&

don graham ass't. editor

carl mora & norma taylor write
louis erne does picture work
aided by gerse martinez

barry schrader & lorena schneider report livermore.



A RECENT EFFORT to clean up outside storage areas throughout the Labs resulted in this collection of unused equipment and material — estimated to weigh more than 80,000 lbs., with 10 float loads from Area III alone. The material will be sorted by Reclamation Division 3418 for reuse, sale and disposal. Working on the project are Basilio Villegas, Seferino Sanchez, Luberto Ortiz, Chester Chavez and Anthony Tewahaftewa.

Fun & Games

Shooting—Sandia Security's Pistol Team took first place at the recent DOE Pistol Match held at Idaho Falls. Team members are Captain Harold Garcia, Lieutenants Byron Gardner and Celso Montano, and Security Inspectors Grant Aguirre, Joe Yambrovich, and Gary Malin. Besides taking first place in the team event, Lt. Montano won first place Marksman, Lt. Gardner third place Sharpshooter, and Insp. Malin first Expert and third overall. Over a hundred shooters competed in the annual contest.

* * *

Skiing—Cross country skiing is one of winter's more pleasant pastimes, and the Coronado Club rec program now makes it possible for novices to learn all about the sport because it plans to offer a beginner level cross country clinic. The class, run by UNM's ski coach Klaus Weber, consists of an indoor session on Dec. 17, 7 to 9:30 p.m. at the C-Club, and two outdoor sessions in the snow, Dec. 20 and 21, 9 to 1 p.m. Cost of \$20 includes ski equipment (\$13 if you have your own), and enrollment is limited to 20 students. Call Tom Lenz, 4-8486, if you're interested.

The Coronado Ski Club has engaged Brian Gallagher of Action Sports to talk about ski and binding maintenance on Thursday, Nov. 20, at 7:30 p.m. in the C-Club. He'll discuss how to check bindings for safety and how to adjust them.

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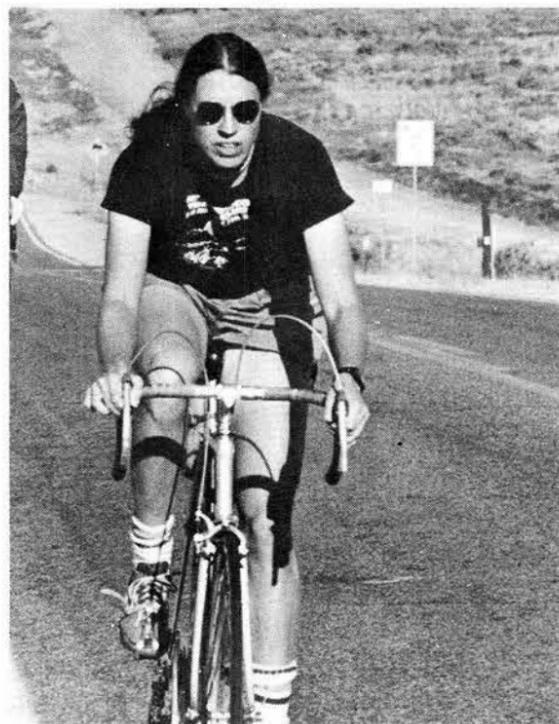
Arts & Crafts—Classes coming up at the A&C Ctr. include lapidary, Nov. 18 (one session); pottery, Nov. 18 (six sessions); poinsettia brandy snifter, Nov. 19 (one session); and Christmas boots, Nov. 20 (one session). Contact: 4-0222.

* * *

Bright ideas—C-Club rec manager Tom Lenz wants yours—ideas relating to the Club's recreation program and how the program might be enhanced, through additional activities, changes in existing activities, etc. Tom is on 4-8486.

* * *

Basketball—Men and women interested in the winter basketball league should contact Ron Van Theemsche, 4-6824. Play at all skill levels is planned.



TRIATHLON contestant Jackie Snyder (1758) is shown during bike phase of the bike-run-swim contest held earlier this month. Jackie went on to become the first Sandian to complete the event, placing 15th in the field of 85 with a time of 71:10. Dave McCloskey (4410) was the next Sandian, 18th and 72:15. The Triathlon, the Jay Benson Memorial, is sponsored by the Coronado Club. It calls for 10 miles by bike, a 5-mile run and a quarter-mile swim, all back-to-back and without pause. Overall winner, for the fourth time, was Ron McCurley with a 61:32.

feed back

Q. Suggest some heat lamps be installed over the hot food section in the cafeteria—most of the hot food is not-so-hot.

A. Thanks for your comment concerning cold "hot" food.

Corrective action is already being taken. Heat lamps will be purchased and installed where needed and should eliminate this problem.

Thanks again for your interest.

J. R. Garcia—3500

Q. As a new employee, I'm interested in finding out when my family can tour the Tech Area. I understand that general tours are held every several years. Anything coming up soon?

A. Traditionally, the Labs has held a Family Day program about every five years. Our last was in 1975, coinciding with the nation's bicentennial celebration. Next year, 1981, would seem to be an appropriate time to hold another Family Day, and some tentative planning is already under way. The programs have been held in the spring or in the fall. Fall '81 is the time currently being planned for. I hope that this will be soon enough for you. Tours aren't held very often because they are very costly. Areas must be cleared of classified information, special gates and barriers established, in some areas work stopped completely, and many security and other details must be handled.

K. A. Smith—3100

Hotel Fire—Do You Know What To Do?

[Ed. Note: Joe Abbin (2324) sent us this article which was carried in ASME's Safety Division Newsletter. It's a condensation of an article by R. H. Kaufman, a firefighter specialist with the Los Angeles Fire Dept. At any given time, scores—maybe hundreds—of Sandians are on the road. Would you know what to do in a hotel fire? Read on—knowing what to do could someday suddenly become your most vital concern.]

If you are awakened at 2:30 a.m. by the smell of smoke, two things are apparent: 1—You are lucky and 2—If you do not know where a stairway exit is, it may be too late.

We sign in at a hotel desk, take an elevator to an upper floor, find our room, drop our luggage and either answer nature's call, unfold the suits and dresses or flop on the

bed. DON'T!!! Go back out to the hallway and find the stairway exits. Are they left, right or both? How far away is it? How many doors? This is helpful as you may have to crawl to it if heavy smoke fills the hallway.

Use the same habits in every place you stay. Get into a routine about keeping your key on the nightstand, taking it with you every time you leave the room and closing the door behind you. (You will need the key to get back into your room if you can't make the exit.)

If you are now in the habit of checking your exit and leaving the room key on the nightstand, you're pretty well prepared to leave the hotel in case of fire, so let's walk through it once.

Something will awaken you during the night. It could be the telephone, someone banging on the door, the smell of smoke, or some other disturbance. Whatever it is, investigate it before you go back to sleep.

Let's suppose you wake up to smoke in your room. Grab your key off the nightstand, roll off the bed and head for the floor on your hands and knees. Even if you can tolerate the smoke by standing, don't. You'll want to save your eyes and lungs as long as possible. Smoke will

contain high concentrations of carbon monoxide which is the fatal killer in fires. Also, if smoke gets in your eyes, chances are you will not be able to open them!

Before you open the door, feel it with the palm of your hand. If the door or knob is quite hot, don't open it. The fire could be just outside. We'll talk about what to do here a little later. With the palm of your hand still on the door (in case you have to slam it shut), slowly open the door and peek into the hallway to "assess conditions."

As you make your way to the exit, stay against the wall on the side where the exit is. It's very easy to get lost or disoriented in a smoke atmosphere. If you're on the wrong side of the hallway, you might crawl right on by the exit. If you're in the middle of the hall, people who are running will trip over you. Stay on the same side as the exit, counting doors as you go.

When you reach the exit and begin to descend, it's very important that you walk down and hang on the handrail as you go. Don't take this point lightly. The people running will knock you down, and you might not be able to get up. Just hang on and stay out of everyone's way.

All you have to do now is leave the building, cross the street and watch the action. When the fire's out and the smoke clears, you will be allowed to re-enter the building. If you closed your room door when you left, your belongings should be in pretty good shape.

Smoke will sometimes get into an exit stairway. If it's a tall building, the smoke may not rise very high before it cools and becomes heavy. This is called "stacking." If your room is on the 29th floor, for instance, you could enter the stairway and find it clear. As you descend, you could encounter smoke that has stacked. Do not try to run through it; people die that way. Turn around and walk up. Now you must really hang on to the handrail. The people running down will probably be glassy-eyed and in a panic and will knock you right out of your socks.

After you check your exit and drop your key on the nightstand, there is one more thing to do. Become familiar with your room. See if the bathroom has a vent; turning it on can help remove vapors. Take a good look at the window. How does it open? Now open it (if it works).

Should you wake up in your room filled with smoke and you decide you cannot leave, don't panic. Many people have defended themselves quite nicely in their rooms and so can you.

One of the first things you'll want to do is to open the window to vent the smoke. Don't throw a chair through it as there may be smoke outside and you may be trapped. The broken glass may also injure you or someone outside. If there is fresh air outside, leave the window open but keep an eye on it. If you must open the window and it is inoperable, break it with a heavy object (like a toilet tank top).

Now, here are some things you should do in the event help does not arrive instantly: If the room phone works, let someone know you're in there. Flip on the bathroom vent. Fill the tub with water (don't get in, it's for fire fighting; you could be cooked in there.) Wet some sheets or towels and stuff the cracks of your door to keep out the smoke. With your ice bucket bail some water onto the door to keep it cool. Feel the walls; if they're hot, bail water on them, too. You can put your mattress up against the door and keep it in place with a dresser. Keep it wet; keep everything wet. Who cares about the mess?

A wet towel tied around the nose and mouth is an effective filter. If you swing a wet towel around the room, it will help clear the smoke. If there is fire outside the window, close it, pull the drapes and move everything that's combustible away. Bail water all around the window. Be creative and other ideas will come to you. The point is, there shouldn't be any reason to panic; keep fighting until reinforcements arrive. It won't be long.

If you can make it to the hallway, NEVER use an elevator to make your exit from the floor. Elevators are complicated devices that seemingly have minds of their own during fire situations. They have been known to stop on floors where a fire is raging, open their doors and allow the passengers to be killed. The call buttons sometimes act in contrary ways and an elevator will stop on every floor on the way down. This can cause a tremendous crush as more people try to enter on each successive stop. You can be crushed to death or suffocate.

Do not hesitate to call the fire department. Many hotel managers will investigate a call to their front desk reporting a fire rather than disturb their guests. This causes a delay in the fire department responding and often allows the fire to spread and cause more panic than might otherwise have occurred.

Only you can condition yourself to react in a hotel emergency. You can be well prepared by developing the habits we've talked about.

Wampler Big on Heavenly Bodies

Ever since Bill Wampler (5111) can remember, he's been star-struck. No, he's not a movie buff—his passion is astronomy which he pursues as a hobby. This led him to join the Albuquerque Astronomers, a group of dedicated stargazers, as soon as he arrived in town four years ago. Bill has been club president for the past two years.

"I heard about the club from another Sandian," Bill was telling us recently. "And since I wanted to meet other people interested in astronomy, I joined right away. There are 76 members in the club and I can't even begin to guess how many of them are Sandians—there are quite a few.

"The club meets once a month in a different member's home," Bill continued, "and we schedule a variety of activities—guest speakers from Sandia and UNM, films, telescope workshops. When the weather permits, we hold star parties—observation sessions where members set up telescopes, usually in Cedar Crest but occasionally in an area of the city where there isn't too much light pollution."

Bill explains that there are different aspects to amateur astronomy—it's not only stargazing. Some members enjoy astrophotography or building their own telescopes. In fact, the club is planning workshops on these and other topics. Once in a while a trip will be scheduled instead of a regular meeting—a couple of months ago the club toured the VLA site near Socorro, another time they visited the optics area of the Air Force Weapons Lab. Last summer the club took a weekend trip to the solar observatory on Sacramento Peak near Cloudcroft.

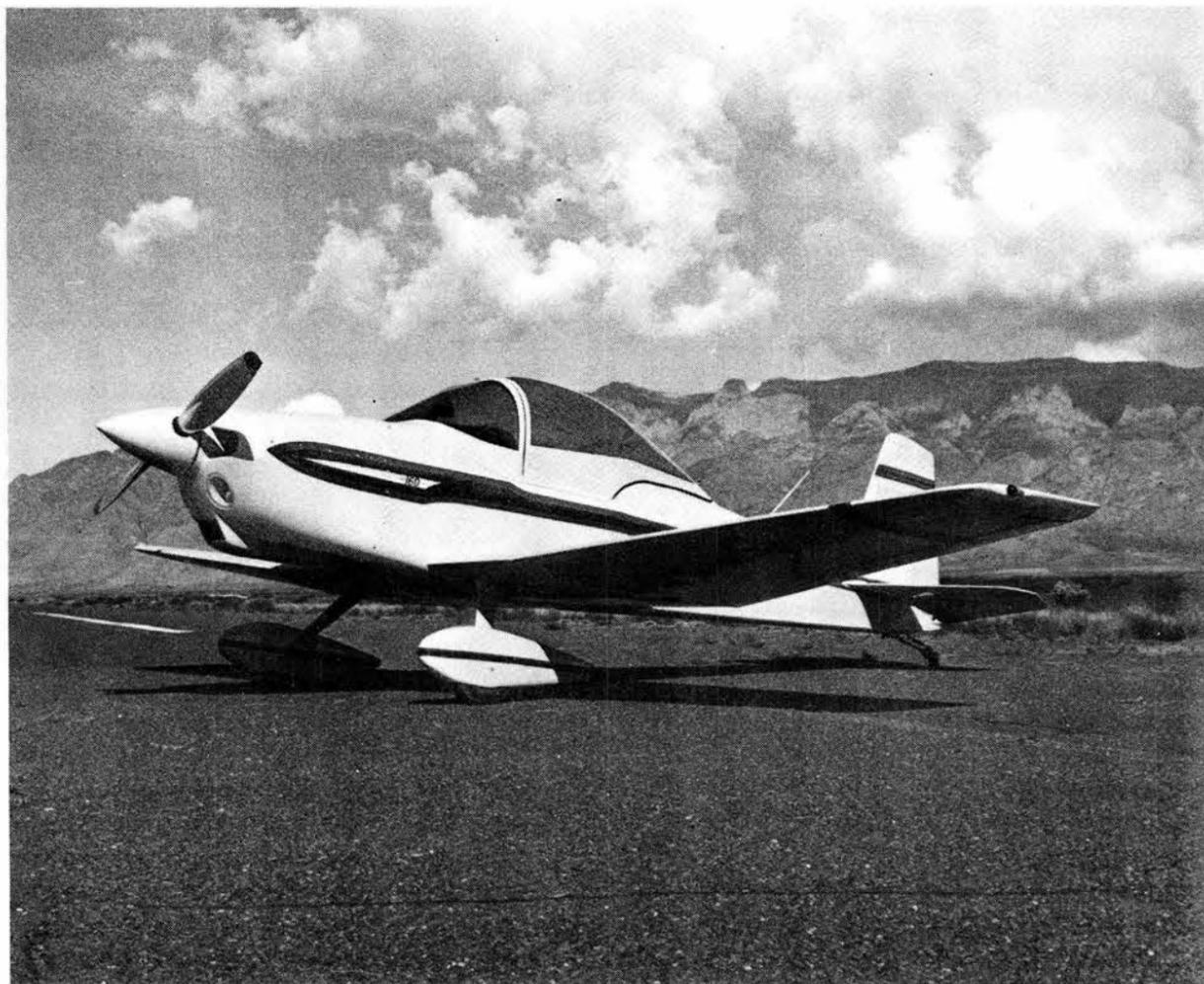
"There's no particular level of expertise required for membership," says Bill. "An interest in astronomy is the only prerequisite—you can learn the rest here. And the club owns an 8-inch reflecting telescope that's available to members, as well as an extensive library of astronomy books. One final note—New Mexico is ideal for



BILL WAMPLER zeroes in on a deep-sky object with his 6-inch Newtonian reflector. He built the telescope when he was in high school—the instrument has an equatorial mount and clock drive.

amateur astronomy—the high altitudes and generally clear weather provide excellent observing conditions."

Anyone interested in Albuquerque Astronomers is welcome to attend meetings as a guest. Call Bill on 265-2426 for more information.



Bill Guernsey Builds Mini-Mustang

The airplane is a beautiful thing. As an object of art, it is as perfect as skill, craftsmanship and 11 years of painstaking labor can make it. It bears more than a passing resemblance to the sleek P-51 Mustang of WWII. Bill Guernsey (1481) built it from plans purchased in 1969.

The plane passed FAA inspection and certification late last September, and Bill now has logged about 40 hours of flight time. On two out-of-town trips, Bill flew to meetings of the Experimental Aircraft Association in Arizona and Texas.

"What a reception!" Bill says. "These guys are my peers. They build and fly their own airplanes and they thought mine was great. What an ego trip."

Not only does the airplane look good, it flies well. Top speed is 250 mph, rate of climb fully loaded with gas, pilot and one passenger is 1700 ft. per minute, and fuel consumption cruising at 210 mph is seven gallons per hour (about 30 miles per gallon). The engine is a 160 hp, four-cylinder fuel injection Lycoming.

"It's quick," Bill says, "instantly responding to controls. And it doesn't stall easily." Bill incorporated top-of-the-line electronics, radio and navigational equipment into the custom instrument panel.

Construction of the aircraft is called "monocoupe"—all metal with strength and rigidity derived from the aluminum skin which is riveted to a very light "skeleton" of bulkheads and stringers.

It was the riveting that got his son Billy involved in the project. "There's no way," Bill says, "that one man can buck and shoot rivets. Billy was six years old when he started holding the bucking bar for me. He's helped all the way and the plane is now a 50-50 partnership. Billy is a freshman engineering student at UNM."

Bill says that no special tools were required for the construction, but he

fabricated hundreds of one-of-a-kind jigs, alignment devices and wood forming blocks. Most of the aluminum skin was hammered out with a rubber mallet over a wood block. Bill had to learn some plastics technology in fabricating the motor cowling, wing tips and wheel pants. He called on retired Sandian Charlie Riley to help him cast the wheels and other small parts. Bill made the wooden patterns and Charlie cast the parts in his home foundry.

Precision fabrication is nothing new to Bill—he's been a machinist since before he joined Sandia 16 years ago. He's also worked on aircraft since he was a kid and lived near airports in Dayton, Ohio. In 1960 he bought a "basket case" Piper J4 and completely restored it. Then, a couple of years later, he rebuilt an Aeronica Super Chief and worked on various aircraft projects before starting the Mustang II.

Right now, Bill is enjoying flying the new plane. After 15 years of non-flying, he had to renew his pilot's license. Initial testing of the plane was turned over to a friend, Billy Hill, who has test pilot experience.

"I'm already planning the way I'll build the next one," Bill says. "The wingspan will be a little longer than the 25 ft. of this one and the fuselage will be slightly longer with a little more cockpit room, a larger engine, retractable wheels . . ."



The British Post Office has launched the first international electronic mail service. Letter writers in a hurry can now "post" an item of mail in London and have it "delivered" via satellite in Toronto two minutes later. Later this year the same type of system will operate between Britain and other centers abroad. The system, known as Intelpost, conveys replicas of letters or other documents between terminal points. At present it costs four pounds (£9) to flash a page of typescript between London and Toronto, but the postal authorities expect the price to drop once people get used to the system and take advantage of its flexibility. —*Christian Science Monitor*



BILL GUERNSEY (1481), in cockpit, and his son Billy spent 12 years building this all-metal Mustang II. Billy was six when he started helping with the project. Completed in September, the plane has top speed of 250 mph and a 1700-feet-per-minute rate of climb with its 160 hp Lycoming engine. Pilot and passenger sit side-by-side in plush custom interior.

Bruce Dale Featured in Chorus Concert



Bruce Dale, an auditor in Internal Audit Division 3223, is a featured baritone soloist in an upcoming concert of the New Mexico Symphony Orchestra and Chorus. Bruce's solo is part of Shubert's "Mass in G." Other selections on the program include "Benedicite" by Ralph Vaughan Williams and "Song of Democracy" by Howard Hanson.

The concert is Friday, Nov. 21, at 8 p.m. at the First United Methodist Church, 4th and Lead SW. Tickets at \$3 are available from chorus members, from the NMSO office or at the door.

In addition to his Master's degree in accounting, Bruce also holds a BA in music theory and composition. Active in local theatre, he's appeared in Civic Light Opera Association productions of *Fiddler on the Roof* and *My Fair Lady*.

Other Sandians in the NMSO Chorus include Bruce Caskey (2652), Fred Sexton (2146), Wilson Brooks (4332), Hugh Church (4533), Duane DeWerff (2336) and C. E. Abraham (ret.).

Take Note

Jess Wright Is a Good Loser

Colloquia coming up: Nov. 18, Anna Sofaer, "A Unique Solar Marking Construct of the Ancient Pueblo Indians"; Nov. 19, James Bassham, "Photosynthesis and Biomass"; Nov. 26, Edward Burgess (4718), "The National Solar Photovoltaic Program and Sandia's Role." All start at 10 a.m. in theater building 815.

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The Sons of Confederate Veterans are organizing a New Mexico Camp, with headquarters and most meetings in Albuquerque. If you're interested, contact John McDermott, 7201 Ottawa NE or, at Sandia, Tom Edrington (5627).

* * *

A video replay of the first lecture in "Let's Talk About Aging" will be shown in Bldg. 892, Rm. 207, from 12 to 12:30 p.m. on Tuesday, Nov. 18, and Thursday, Nov. 20. Dr. James Goodwin, chief of gerontology at UNM's School of Medicine presents the lecture, "Biological Perspectives on Aging."

* * *

At the Base library, Children's Book Week is being observed from Nov. 17 to 23. A story hour for children five and up will be presented on Nov. 19, starting at 3 p.m. Title is "Bits about Dolls." Refreshments will be served.

* * *

The Base's Que Pasa Rec Center is offering a couple of events of possible interest: an indoor flea market on Sunday, Nov. 16, from 9 to 5, with tables furnished at \$3; and, on Dec. 13, a one-day bus tour to Bosque del Apache Wildlife Refuge near San Antonio. Cost is \$6, bring a sack lunch, and make reservations by Dec. 5 on 4-5420. The Que Pasa Rec Center, incidentally, is just south of the C-Club's patio area, Bldg. 20155 (the former NCO Club).

* * *

Is your organization sponsoring a Christmas charity project? The LAB NEWS wants to hear about it. Call Norma on 4-7841.

* * *

Can you not smoke for 24 hours? This year the Great American Smokeout will be held on Thursday, Nov. 20. Last year a Gallup poll indicated that nearly 15 million smokers attempted to give up cigarettes on Smokeout Day. Five million succeeded. One to three days later, 2.3 million people were still off cigarettes. According to Arlene Price and Phil Cheromiah, instructors in the Quit Smoking classes here at Sandia, "Setting a specific quit date is one of the best ways to quit smoking. Why not take aim Nov. 20?"

* * *

Communications in Statistics, a technical journal, has devoted an entire issue to an article co-authored by Ron Iman (1223) and W. J. Conover (Texas Tech). "Small

Jess Wright (1423) is a new man. Two weeks ago Jess observed an important milestone in his life—in a sustained effort of dieting he lost 101 lbs. in a period of 184 days.

"Let's face it," Jess says. "I'd been overweight for 20 years. Sandia Medical and my doctor had been after me all that time to lose weight. I had high blood pressure, took a lot of medication and felt like hell. I was tired by the time I walked from the parking lot to my office.

"No more," Jess says. "I'm a new man." Losing weight is not easy. Most adult Americans will readily admit that they'd like to lose a little weight but, like Jess, they put it off. "I'll start my diet next week," is the standard line.

"Don't put it off," Jess says. "It's a lot easier to lose 20 lbs. than it is to lose 100. I almost dawdled too long. I was a walking coronary waiting to happen."

Sandia Medical offers a number of programs to help employees with individual weight problems. In consultation with a Sandia physician, dietician Susan Brammer will design individual nutrition programs and work with employees to achieve their goals.

"It was too late for me," Jess says. "I needed a very stern regimen. I signed up with a local weight loss clinic, saw one of their professional medical staff three times a week and attended a 'behavior modification' class once a week. It worked. The clinic provided pre-packaged food (everything but fresh vegetables) and I lived on 700 calories a day for six months. The support and encouragement was terrific—the class was like group therapy—and my co-workers helped."

Jess remembers the elation he felt after the first few weeks of dieting when, after

Sample Sensitivity Analysis Techniques for Computer Models, With an Application to Risk Assessment" appears in Vol. A-9, No. 17, 1980.

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Some 30 educators and administrators from the Education and Research Council of Associated Western Universities were at Sandia Livermore recently for discussions on solar energy and combustion research. The group also toured the new Combustion Research Facility.

* * *

If you'd like to learn more about climate and its influence upon your life, then attend the next meeting of ASME to hear climatologist Iben Browning present his views on the subject. The joint meeting with IEEE is set for Nov. 25 at 6 p.m. at the Mama Mia Spaghetti House, 1430 Carlisle NE. Reservations: no later than Nov. 24, call Kathleen McCaughey, 4-1573.



THE NEW JESS WRIGHT (1423) contemplates trousers worn by the old Jess Wright. "It's equivalent to four large bags of dog food."

buying a 25-lb. bag of dog food, he realized the bag represented his weight loss achievement. "Now," he says, "I've lost four of those big bags. I'm even more elated."

Jess feels that he still has another 20 lbs. to lose, but he's on his own now.

"I weigh 179," he says. "I plan to watch it, count the calories, and lose those 20 lbs. in the next few months. My blood pressure is normal—no more pills—and I feel great. I even enjoy taking the dog for a brisk walk every day."

LAB NEWS is altering its schedule slightly over the holiday period. Issue dates will be Dec. 5 and 19 and Jan. 9. Ad and copy deadlines for those issues are Nov. 28, Dec. 12 and Dec. 24.

* * *

George Cosden (3732) presides at the 16th annual NM Accounting and Management Seminar at the Classic Hotel (Menaul at Louisiana) on Nov. 21. John Cantwell (3163) will be the luncheon speaker, and Jim Giachion (3416) and Bill Hollis (3253) will participate in a panel discussion. Registration information may be obtained from George (4-3565) or any of these committee members: Mike Coleman (3255), Fred Mitchell (3212), Mary Nation (3726) or Melodie Owen (3251).



When it comes to ethanol, beets beat corn, wheat, potatoes and sweet sorghum. Despite a commonly held vision of the corn belt as a fuel belt, *Science News* reports that beets are our best bet for producing ethanol for gasohol. With a 90% conversion rate of sugars to alcohol, sugar beets offer a potential of 493 gallons of alcohol per acre compared to 283 for corn, 82 for wheat, 316 for potatoes and 300 for sweet sorghum. Sugar cane's potential is 650 gallons per acre but requires a climate we don't have much of in the U.S.

Phil Mead, Dramatis Persona

If you caught the Classic Theater Company's recent production of *Rosencrantz and Guildenstern are Dead*, you saw Phil Mead (400) in the role of Polonius—a part he will also play in the Classics' presentation of *Hamlet* in February. This assumption of the same character in two different roles might be unusual for many actors but old pro Phil takes it in stride. He's had speaking roles in 15 films, a half-dozen or so TV series and movies, and many, many plays. And he does TV and radio commercials besides.

We talked with Phil about his acting career: "I started singing, accompanying myself on guitar, when I was in high school, where I also played trumpet and drums (not at the same time) in the school band. In Connecticut, I did some acting with the Hartford Players until I was drafted. In the Army Air Corps, there were some Hollywood types who kept things stirred up by organizing shows. Though I was in counterintelligence at the time, the Air Corps gave me time off to fly around Idaho and Washington doing Special Service shows."

After the war, Phil attended Hiram College near Cleveland, did plays, and studied opera. He sang the role of Mephistopheles in *Faust* in the first TV production of an opera in Cleveland. He won a scholarship to the Tanglewood Music Center in Massachusetts. He did plays in Las Cruces, New Mexico, and, in 1956, moved to Albuquerque to complete his PhD at UNM, and a year later joined Sandia. A stint at Sandia Livermore between 1960 and 1965 gave Phil a chance to sing with the Opera Workshop at UCal

Berkeley, in addition to doing musical comedy and plays in the Bay Area.

"When I came back to Albuquerque in '66, I learned that the old Albuquerque Light Opera Company was defunct. Robin Hubert asked me to help her reorganize it, and I became the first production VP of the new Civic Light Opera. In 1968 I played the title role in *The King and I*, ACLOA's first show at Popejoy Hall. I shaved my head for the role since that was the image created by Yul Brynner. The next time I played the king, a couple of years ago, I needed my hair for a movie I was making, so I wore a rubber head-cover to make me look bald." Phil saw Brynner in a revival of the same show in London this May.

While directing Shakespeare's *Richard II* at the Old Town Studio in 1965, Phil needed an actor. He recalled seeing a spear-carrier in a Little Theatre production whose name was familiar from the Sandia phone book. Phil called him, and the man agreed to take the part—his first speaking role. The actor was Gene Ives—now New Mexico's top actor/baritone.

With John Gardner (3141) and Bill Carstens (retired), Phil organized the Classics Theater Company and was its president for several years.

In 1969, *The Cheyenne Social Club* was being filmed in New Mexico. "That was my first movie. I was film-tested in Hollywood for the sheriff's part, but Gene Kelly, the director, decided I was too short. I ended up mostly as a voice behind the titles, but I got to work with Jimmy Stewart and Henry Fonda." Shortly thereafter, the New Mexico branch of the Screen Actors



PHIL MEAD as Polonius in *Rosencrantz and Guildenstern Are Dead*.

Guild was formed, and Phil became its first president.

Among the 21 movies and TV productions that Phil has appeared in are the pilot film for *The City* with Anthony Quinn; *A Gunfight*, with Kirk Douglas and Johnny Cash, and, most recently, *Detour Into Terror*, about a bus hijacking in the desert, in which Phil co-starred with O. J. Simpson and others. Unfortunately, though the film was made in Albuquerque and Grants, using many local performers, it was not seen here because it was pre-empted on its first showing by a local basketball game. "That was a good role, but my biggest part was in *Showdown*, with Dean Martin and Rock Hudson," says Phil.

"I still do movies when I can, as well as regional and local commercials, and I enjoy 'live' acting as a hobby. I've been tempted to try acting full-time in Hollywood or on the road, but I react poorly to the phoniness and backslapping that it seems to take in the business. There is also the cold fact that of about 47,000 Screen Actors Guild members nationally, over 90 percent make less than \$10,000 a year in the acting profession."

Some of Phil's impressions of people he's worked with: "The older stars like Douglas, Fonda, Stewart, and Martin tend to be aloof. They've been pestered for so long that they don't want the attention and adulation any more. Others, like Johnny Cash, Rock Hudson, Karen Black, and Jane Alexander are more friendly and open, always willing to chat or sign autographs for cast, crew, and by-standers."

Phil teaches acting workshops for the Civic Light Opera, and does private coaching. "Acting, and teaching others, have been fulfilling for me, and I expect to keep at it. It's demanding and time-consuming, but it's always fun." •cm



WHAT'S THE OPPOSITE OF JUNK FOOD? Nutritionist Susan Brammer from Medical has a partial answer before her—some of the items to be stocked on a trial basis in vending machines in Bldg. 880 in response to suggestions by Sandians. Included are low-fat milk and fruit juice (the average 12 oz. soft drink contains about nine teaspoons of sugar), pretzels (not fried as chips are), fresh fruit, nuts and raisins (vs. a candy bar or sweet roll), and sandwiches made with brown bread and turkey, roast beef or tuna. Susan plans to highlight nutritious choices of foods with information posted on the vending machines. If non-junk food proves popular, the vending machines in other areas will be similarly stocked.

LIVERMORE NEWS

VOL. 32, NO. 23 LIVERMORE LABORATORIES NOVEMBER 14, 1980

Unusual Vacations

Over the Trinity Alps by Motorcycle

[Ed. Note: Have you taken an unusual vacation? Tell us about it—call 4-2952.]

"We logged over 1000 miles and covered 90 percent of the paved roads in Trinity County, with excursions into the surrounding counties of Humboldt, Shasta and Mendocino," says Sherry Bowen (8265). Riding two-up on their motorcycles, she, husband Dave and another couple spent a week this summer touring Northern California's Trinity Alps.

The two couples had earlier loaded their Suzuki and Honda Gold Wing motorcycles onto trailers, which they towed behind two motorhomes as they headed north. At Trinity Lake they found a double campsite for their RVs that served as home base for the venture. Here they readied the bikes and mapped routes for various one-day exploring trips.

Sherry says Trinity Lake turned out to be centrally located to such points of interest as Lewiston's dam and fish hatchery, Whiskeytown Lake, Shasta Dam and Redding.

"At Weaverville, south of Trinity Lake, we discovered an old town with shops, old-West architecture, a historical museum and the Joss House, the oldest,

continuously used Chinese temple in California. There's a Chinese historical museum next door.

"South of Weaverville and the rustic towns of Douglas City, Hayfork, Peanut, Forest Glen and Mad River, we rode through forested mountain passes, fertile valleys with rushing streams and logging areas.

"We had the greatest changes in terrain and temperature on the trip to Eureka, where it was foggy and 50°. Traveling back through the coastal hills and along the Trinity River, temperatures were in the 90s. Our ski jackets, sweaters and lined gloves felt like saunas. We stripped down to long pants and tank tops."

The four had experienced another forty-degree temperature swing traveling over the summit of Scott Mountain in the Alps down through Scott Valley to Yreka, where Mt. Shasta's entire snow-capped north side was clearly visible.

They found the Trinity Alps beautiful and unlitlered, with touches of California history around every corner. As Sherry puts it, "There is something to tempt everyone—museums, varied flora, mountain peaks for hiking of photographing, and clear lakes with fishing and boating facilities."



ENROUTE TO MAD RIVER south of Weaverville, Sherry Bowen and cycling friend. The two women and their husbands traveled over 1000 miles riding two-up on motorcycles during a week's trip through the Trinity Alps.

LEAP '80 Campaign Tops Goal

This year's LEAP campaign is successful, with Sandians at Livermore contributing a total of \$73,334, well above the \$70,000 goal. The amount represents an 8.1 percent increase over last year.

Employee participation is 84.4 percent, and the average gift per contributor is

\$81.94, up from last year's \$77.68. Of those contributing, 174 gave a FAIR or LEAP share.

Chairman Pat Gildea (8443) says, "The fact that Sandians do care has made the campaign such a success. Thanks to all who gave and helped."



LEO GUITIERREZ (8400) at left talks with DOE Assistant Secretary for Conservation and Solar Energy Thomas Stelson during recent dedication of Solar One near Barstow, Calif.

Milestone

Solar One Site Is Dedicated

The site of Solar One, the nation's first solar thermal central receiver power generating plant, was dedicated recently. Located in California's Mojave desert at Daggett, 12 miles southeast of Barstow, the new solar facility is expected to be completed by December 1981.

One Livermore Sandian present at the Oct. 30 ceremonies was Al Skinrood (8452) who reports that the foundations for all 1818 heliostats (mirrors) are in, field wiring has been completed, and the four sections of the 325-foot power tower are assembled and are now ready to be put up.

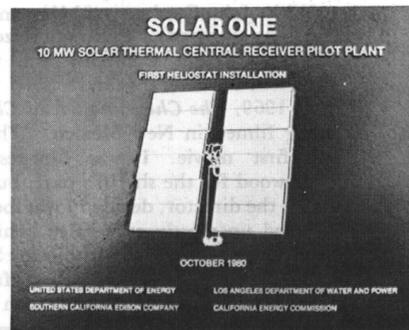
The Visitor's Center has been open for a few months and, already, has been visited by some 3500 people. Included in its exhibits are Sandia displays set up by Jim Bartel (also 8452). Leading the SNLL contingent to the dedication was Director of Engineering Leo Gutierrez (8400) along with Jim Smith (8452), Tom Brumleve and Chuck Pignolet (both 8451), as well as Skinrood and Bartel.

Sandia has participated in the project since its inception in 1973 when initial planning with the National Science Foundation took place. Labs people were on the site selection panel and helped in selection of the conceptual design for the plant. Since then, Sandia's role has been to provide technical overview of the project—assuring that the plant satisfies DOE program needs.

"We'll continue to provide an independent analysis of the work, to review program planning, and to define the operational testing to be done once the plant is turned over to Southern California Edison about June of 1982," states Skinrood.

Other assistance from Sandia includes the work of Bill Morehouse (8451), assigned to the Solar Ten-Megawatt Project Office of DOE in Los Angeles in support of the construction process.

Testing of the prototype components for Solar One has been done by Bill Marshall's



SOLAR ONE plaque commemorating first heliostat installation.

(4713) Central Receiver Test Facility Division in Albuquerque where solar receivers and two types of heliostats have been tested.

The field of computer-directed heliostats covering approximately 100 acres will track the sun, reflecting its rays onto the solar central receiving tower. The steam created by this concentration of the sun's energy, reaching temperatures as high as 950°F, will then be directed back to the ground to drive a conventional steam-turbine electric generator.

The \$140 million project will produce enough electricity to serve about 6000 customers in the Daggett-Barstow area.

Sympathy

To Sylvester Grisby (8411) on the death of his mother in Oakland, Oct. 17.

To Gene Voelker (8121) on the death of his father in Baltimore, Oct. 20.

To Britt-Marie Manrow (8411) on the death of her mother in Livermore, Oct. 29.



SUCCESSFUL CANDIDATES: Bob Hawk (2436), seated, was elected to New Mexico's House of Representatives from District 19. For the past six years, Bob has served on the Bernalillo County Commission. Winning by a margin of one vote, Bob characterizes his victory as a "landslide." (As we go to press, we learn that a foul-up in the vote count may diminish Bob's "landslide.") Ward Hunnicutt (3600) was elected to the board of directors of the Albuquerque Metropolitan Arroyo Flood Control Authority. He replaces Bill Hereford (1582) who retires from the board on Dec. 31.

My Favorite Recipe

New Series for LAB NEWS

From time to time, readers have asked us to add a recipe column to the LAB NEWS. We know there are lots of good cooks out there and think there may also be lots of "recipe clippers" who would be interested in good, tested recipes. So if you have a favorite recipe, send it to LAB NEWS with your name, organization and phone number and we'll call you. Include a bit of background: "This is Great Aunt Grace's recipe for apple pie—no one in the family would think of using any other."

To get the series started, we called on a few of our friends; here's the first one.



Harold Rarrick (4542) has the reputation among his friends and family of being an excellent cook. When his brother in San Francisco sent him 25 pounds of steamed crab for his birthday, Harold decided to be innovative. "I checked out a number of recipes but didn't really care for them. So I came up with my own," Harold says. "I even tried this later with canned crab and it's very good. And you can buy a couple cans of crab meat for around \$4 and serve a real party dish."

CRAB HAROLD

Sauté 8 thin-sliced green onions (not tops)
1 4-oz. can sliced mushrooms, drained (save liquid)
1 garlic clove cut in half
In ½ cube butter; remove garlic when it starts to brown.
Add 1½ Tbs. flour; when flour-butter mixture bubbles, stir in 2 cups chicken broth and liquid from mushrooms. Bring to boil for two minutes or until thickened.

Add ¼ cup good sherry or white wine
1 tsp. white pepper
1 tsp. salt
Simmer 30 minutes.

Add 2 cans drained crab meat. Stir and return to slow boil for 2-3 minutes. Add ¼ lb. Monterey jack or Swiss cheese. Stir until cheese is melted. Add ½ cup half-and-half or whipping cream. Stir and serve over white rice or patty shells (try Pepperidge Farm).

I like to serve with fresh asparagus or broccoli, a salad with Green Goddess dressing and warm sourdough bread. A medium to medium dry wine goes well. Serves 4-6.



In Eldon, Missouri, the word "bed" is strictly a noun—and there isn't a dictionary in the high schools to refute it. When the school board discovered that *The American Heritage Dictionary* salaciously pointed out that "bed" can also be used as a verb, they promptly banned the book, according to the *Washington Post*.

STILL NUMBER ONE.

Leading Causes of Death United States: 1972 Estimates

Diseases of Heart and Blood Vessels 1,062,160

All Other Causes Combined 950,843

WE HAVE YOUR BEST INTEREST AT HEART

Give Heart Fund
American Heart Association

Gary Shepherd Directing

Neighborhood Drama Project In Tenth Season

The opening of *Snore Trek* tonight at the Neighborhood Drama Project, 1020 Edith SE, marks the beginning of the tenth season for director/producer/writer and NDP founder Gary Shepherd, computer consultant in Division 2614.

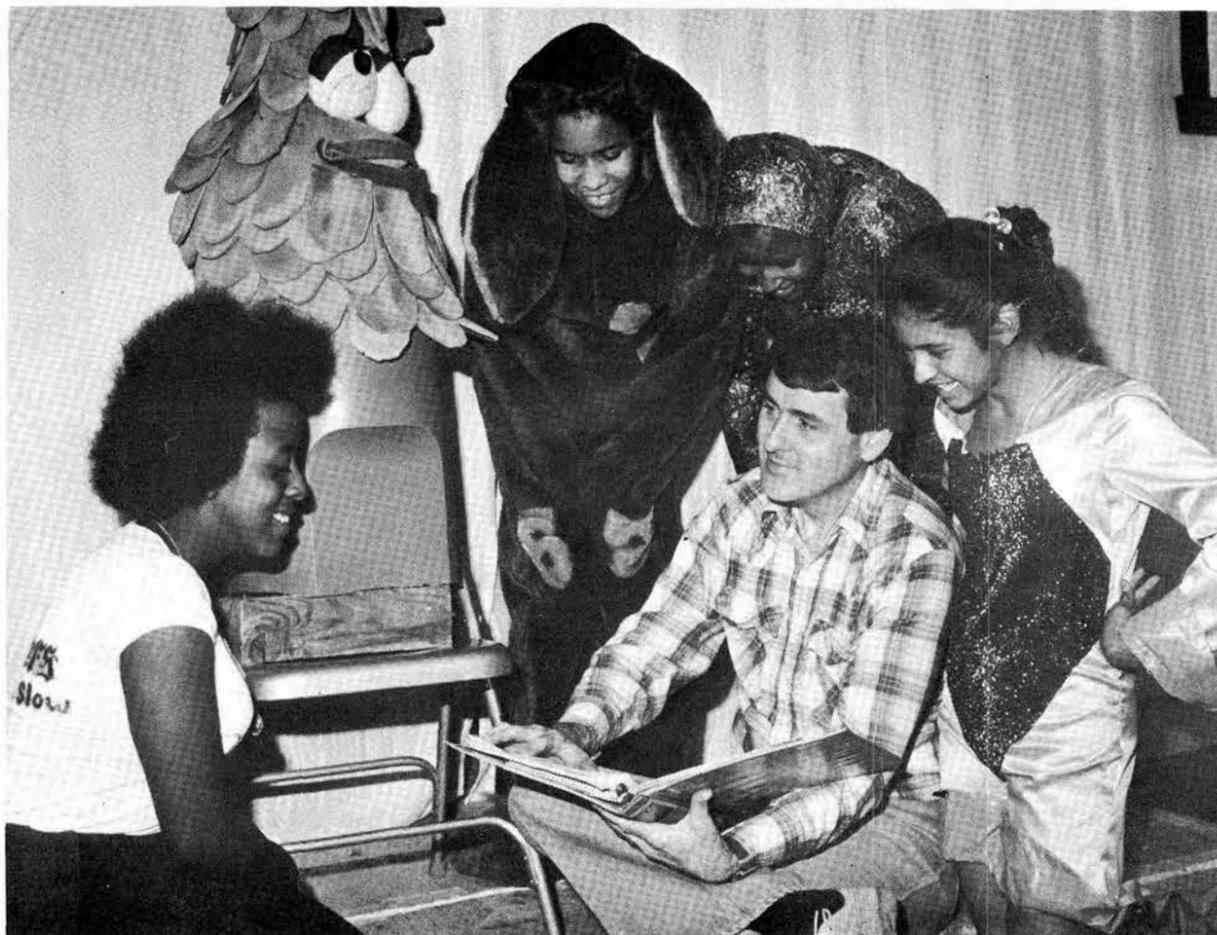
Late in 1969 Gary and a few friends got together in a church in the South Edith area to help some kids put on a play. One thing led to another and Gary became involved—now he writes the plays, writes the music, plays piano, directs the actors, and helps design the sets, costumes and lighting. The Drama Project produces two plays a year, is financially sound, has a great collection of lighting equipment, modern sound systems and the continuing enthusiasm and support of the neighborhood.

Gary will quickly tell you that he has a lot of friends who put in a lot of dedicated effort. His friends will tell you, just as quickly, that there would be no Drama Project without Gary.

"I believe," Gary says, "that participating in a theater project is a great educational experience. My satisfaction is in seeing the kids grow and learn new skills, gain confidence. It's the same kind of satisfaction that any teacher receives."

Snore Trek has a cast of 25 youngsters ranging from 7 to 16. They sing and dance and act out a science fiction fantasy of space travel. The costumes include giant muppet-like characters shaped from plastic foam. The actors have a lot of laughs performing the show. The audience has a lot of laughs watching. The sets, the sound track and the lighting are as professional as any stage production in the city. You leave the theater humming the tunes—they're that good.

The show plays tomorrow at 2 and 8 p.m. and again on Sunday at 8. Admission is \$1 or a donation. Take your kids. They'll probably catch some of the contagious enthusiasm.



GARY SHEPHERD (2614) discusses the script of *Snore Trek* with young actors of the Neighborhood Drama Project.

Energy Do-It-Yourself

Metal Stove Fitted Into Fireplace

[Ed. Note—This is another in a series of articles about Sandians and energy-saving systems they have devised around their homes. LAB NEWS is interested in these projects—modifying furnaces and fireplaces, installing solar systems, modifying vehicles. If you have an operating energy-saver, call us on 4-1053.]

Tex (1482) and Evelyn Arterburn (5632) cut and split a lot of ponderosa pine but they've also cut their home heating gas bill from \$54 to \$14 a month. Last January, Tex installed a metal stove in front of his existing living room corner fireplace. It's a handsome unit, built locally, and was relatively easy to install. (For Tex, that is. He's supervisor of Machining Division 1482 and a very handy man with tools. Tex insists that installation is easy and that any homeowner could do it.)

"My brick-faced fireplace is flush with the wall," Tex says, "so I drilled some holes in the inside edge of the masonry and bolted a frame of angle iron inside. I cut a piece of sheet metal to fit the frame, drilled and tapped holes and bolted it into place. Before the final fitting, I cut a hole in the sheet metal to match the smoke vent of the new stove. I also had to extend the ceramic tile of my floor-level hearth to accommodate the extra length of the new unit."

The stove has a couple of nice features—it can operate with metal doors closed or the doors can be open and a metal screen inserted for protection with an open-face fire.

"If I bank it right," Tex says, "a fire will burn up to eight hours. It's very efficient. Our furnace vents are high on the walls and the house had never really been warm at floor level. Now it's great.

"I installed glass doors and a vent with a fan in our other fireplace in the den to

increase the heating efficiency in that part of the house. Last winter, I burned about 2½ cords of wood in the two fireplaces."

Tex readily admits that if he had to buy wood (at about \$100 a cord) and considering the cost of the new stove unit (about \$600), the installation would not be economical, but Tex cuts and hauls his own wood. Tex has a cabin (more like a large vacation home) in the Jemez country which he also heats with wood. They have cut and split about 12 cords of wood since last September to see them through the winter and store up some reserve. Tex and Evelyn spend almost every weekend at their home in the Jemez.

Tex uses a large 24-in. chain saw and hydraulic woodsplitter for the woodcutting chore. He stores the wood in a shed at the cabin and hauls what he needs to Albuquerque.

"I need the exercise," he says, "and burning wood does save natural gas."



TEX ARTERBURN (1482) starts fire in his metal stove in the living room. Fire will burn eight hours if properly banked.



Ira Holt Likes Fighters

If you grew up as an American boy in the '30s and '40s, chances are you wanted to become an airplane pilot. And if you were going to be a pilot, then you wanted to go first class and be a fighter pilot. In those decades, Hollywood was producing a steady, heady fare of fighter pilot movies, and it was hard for any young man to resist the fighter pilot package: excitement, great uniforms, travel, comradeship and, always waiting wistfully on the ground, the beautiful girl.

Here at the Labs is a Sandian who has led the fighter pilot life for a length of time that the movies never contemplated, since Hollywood fighter pilots always projected the bloom of post-puberty. Grey hair—never! Yet Ira Holt, an engineer in Org. 5632, has a few, and Ira has just concluded 28 years of active flying as a fighter pilot, having recently retired from New Mexico's Air National Guard. They were eventful years, too, with service in both Korea (100 missions) and Vietnam (249 missions). Plus some events that Ira would just as soon have passed up: a mid-air collision back in '52 with another fighter aircraft followed by a quick (and successful) bailout, and an engine failure in his F-84 a few miles south of Kirtland which necessitated a 200-mph, dead-stick landing (also successful).

He's flown a bunch of hot planes in those years, including the F-80, F-84, F-86, F-100, and the A-7 currently employed in the National Guard. It was the F-84 that Ira flew in Korea and he recalls deep penetration missions into North Korea: "On those missions, we always had briefings where they have the map on the wall, covered, then the curtains are pulled away and there is a line drawn where you are going. That was always a breath-taker. On those raids, two or three percent didn't



TWO MOMENTS in a 28-year career of flying military jets . . . at left, Ira Holt (5632) stands next to Air National Guard A-7 shortly before retiring from the Guard. In 1952, a younger Ira Holt (at right) was in Korea and exchanges congratulations with his flying companions upon completion of their 100th combat mission. After 100 missions, a pilot returned to the States.

come back."

"Is that kind of flying physically taxing?" we asked.

"Yes, it is and in many ways it is a young man's game. I think I could still perform—but not five missions a day as we did once in Korea. You see, you're pulling Gs and that takes something out of you. Some flight surgeon is supposed to have determined that flying a jet fighter for an hour is equivalent to three hours of hard labor . . . at least that's what I always told my wife."

Ira got out of the Air Force and came to Sandia and the NM Air National Guard in 1957. At the time, the Guard had eight pilots from Sandia.

Vietnam and activation of the Guard unit came along in early '68 and many in Ira's group were Sandians. They were flying F-100s, chiefly in ground support in South Vietnam and Laos. Instead of a prescribed number of missions, units remained in Vietnam for a one-year tour.

"Was it dangerous?"

"Not too bad," Ira recalls. "We got a lot of small arms fire in South Vietnam, though over in Laos we picked up heavier antiaircraft fire—definitely more dangerous. I say it wasn't too bad, but we did lose three out of 25 pilots and planes during the year."

After Vietnam, Ira planned to retire after 20 years' service. "But in '73 we got the A-7s and I decided I still liked flying too much to quit." He continued with the Guard until last month, with nearly three decades of service, 4500 hours of jet fighter time.

"Will you continue flying in private planes?"

"Well, I'm thinking about it. There is a slight hitch . . . I don't have a pilot's license." •js

Sandian Teaches Firearms Safety

John Snowdon (3643) was recently named the year's outstanding instructor by the New Mexico Wildlife Federation. He teaches a course on hunting and firearms safety to aspirant hunters under 18.

"I give the course four times a year," John told us. "It's 12 hours of classwork and one shooting session at the Zia Rifle and Pistol Club. I try to instill in the young people an awareness of the responsibilities and ethics of hunting, to make them realize that game laws are for the preservation of the sport and that they, as hunters, have to follow the rules."

In New Mexico, a person under 18 who handles a firearm must have a course-completion certificate. Students may be as young as eight, although parents of those under 10 have to take the course with their children. Parents of older students are also encouraged to attend.

"I want to change the idea that it's all right to play 'cat and mouse' with the game warden as long as you don't get caught," said John. "Much of our wildlife is having a hard time surviving because of encroachment upon its habitat. For example, 20 years ago the area east of Juan Tabo was a winter habitat for deer—now it's full of houses and the deer have to go up on the hills where food is scarcer."

John points out that most accidents happen at very close range and are usually the result of an inadvertent action—the person simply wasn't thinking. He passes on the three basic rules for gun safety:

1. Keep the gun unloaded and the action open until ready for use.
2. Control the muzzle at all times—do *not* point it at anyone.
3. Treat every gun as if it's loaded.

Deaths

Leon Hobbs, supervisor of TM Components and Transducers Division 1585, died suddenly Oct. 31. He was 57.

He had worked at the Labs 28 years.

Survivors include his widow, a daughter and a son.



* * *

Wallace Mitcham of Buildings and Facilities Design Division IV 3644 died Nov. 1 after a short illness. He was 57.

He had worked at the Labs since December 1951.

Survivors include his widow, a daughter and a son.



* * *

Jack Armbrust of Project Engineering Division 1733 died suddenly Nov. 4. He was 56.

He had worked for the Labs since September 1952.

Survivors include his widow, a son and a daughter.



* * *

Paul Péwé, supervisor of Shipping and Receiving Division 3417, died suddenly Nov. 8. He was 59.

He had worked at Sandia almost 29 years.

Survivors include his widow, a daughter and a son.



Human Factors

Report Addresses Training for Nuclear Plant Operators

Emphasizing operator capabilities and habits and providing for more in-plant practice under simulated emergency conditions would reduce operator error and thereby increase nuclear power plant reliability, a Sandia National Laboratories report concludes.

The report, scheduled for release this fall as a Nuclear Regulatory Commission document, provides information and human error probabilities to aid government regulatory agencies, utility companies, and nuclear power plant designers. It was authored by Alan Swain and Hank Guttman of Statistics, Computing, and Human Factors Division 1223.

"Many of the changes that could reduce the probability of human error by up to 100 times can be readily made on existing plants and designed into new plants by paying special attention to control panel layouts, written procedures, and work schedules," Alan says.

The handbook points out that under normal operating conditions the most likely human errors are errors of omission (forgetting to adjust valves or failing to follow operational checklists) or errors in reading (misreading gauges or lengthy instruction sheets).

"However, systems in nuclear power plants are very forgiving of human error," Alan continues. "On many occasions they actually remind an operator that a task has not been done. Also, in most cases, human errors do not result in serious situations."

The report notes that programs regularly exposing operators to simulated crisis situations—like similar programs for airline pilots—should receive more emphasis. "An operator must be prepared to respond to a specific accident, even though the possibility that it may occur is almost zero," Alan says.

The handbook discusses numerous "factors that shape human performance." These can be external (general appearance of work area, work hours, and availability of proper work equipment), internal (previous training or experience, intelligence, or motivation), or stress (fatigue, noise, temperature, or sudden emergencies).

The handbook also offers an assessment of the relationship between people and machines and suggests how that relationship can be improved.

Conclusions reached in the handbook are based on human factors and human reliability analyses developed at Sandia since the 1950s to establish how humans influence safe operation of nuclear weapons systems. Such analyses can be applied to other complex systems such as electric power generating plants and spacecraft.

Human factors analysis takes into account the capabilities, needs, and limitations of people who operate complex systems. Human reliability analysis uses human factors data to predict the quantitative influence of human error on system operation.

The authors emphasize that the human error predictions in the handbook have wide bounds of uncertainty because of limited data about error probabilities in nuclear power plants. Also, they say, since considerable judgment is required, the handbook should not be used as a "cookbook" by persons with limited knowledge of human performance technology.

During preparation of the handbook (NUREG/CR1278 Handbook of Human Reliability Analysis with Emphasis on Nuclear Power Plant Applications), the authors and researchers visited several U.S. and European power plants.

Letters

Director of Information Services Ken Smith (3100) has received a letter from Janet Jenkins (3155) concerning a portion of an *Afterthoughts* item, "Those bad words," that appeared in the last issue of LAB NEWS. (The sentence in question reads as follows: "I find it interesting that many women today unblinkingly exercise their prowess with the conventional obscenities and scatologia in all companies, but it's not the hackneyed phraseology that interests—it's the fact of usage and what it denotes.")

Ms. Jenkins' letter states:

"A Code of Conduct includes:

'Employees should not use insulting, abusive, or offensive language or actions toward one another. Ethnic or sexist slurs, and other comments which might embarrass or offend others should be avoided.'

'Sandia has a clearly stated Affirmative Action policy of not discriminating on the basis of race, color, religion, sex, national origin, age or handicap. All employees are expected to conduct themselves in a way that will ensure that our practices match our policies.'

"The inclusion by the editor of the judgmental observation of 'many women' in the context of an already highly charged emotional issue is not only inappropriate, it is gross sexism. The impact of profanity may diminish with use, but the impact of sexism increases with use, especially when given the power and repetition of the printed word.

"I find the editor's position and words unfortunate, embarrassing, and offensive. I see a contradiction between the 'clearly stated Affirmative Action policy' of this laboratory as stated in *A Code of Conduct* and the editorial practice of the LAB

NEWS. It seems appropriate to note that because there is no published disclaimer of editorial sexism, it does appear that the editor is speaking for the entire Sandia National Laboratories and is indeed putting policy into practice. I feel that the recent public exposure of the sexism at Sandia needs an equally public apology. I respectfully request your attention to this matter."

[Ed. Note: I did not anticipate that noting a trend in our social mores would bring a charge of "gross sexism." I'm sorry to have offended Ms. Jenkins, or any other readers, in exercising the editor's prerogative of making a personal observation in an editorial column. The sexism—if that's what it was—was unwitting, and, in any event, does not represent the view of Sandia Labs.]

Skiing the Andes in August

[Ed. Note: Have you taken an unusual vacation? Tell us about it. Call 4-1053.]

For a skier, the greatest thing in life is to be able to ski in August. Joel Lipkin (who normally is preoccupied with the ocean bottom in his work with Seabed Programs Division 4536) decided this past summer to check out Portillo, Chile, in the Andes. The ski area is in the shadow of Aconcagua, highest peak in South America at 22,831 ft.

"The ski lodge was above timber-line at about 9500 ft.," Joel says. "The two double chair lifts left from the lodge area and provided about 1500 vertical feet of skiing. There were a number of steep runs, the weather was perfect, and the skiing was great on a five-foot base. It was all open—no trees—and you could ski right to the door of the lodge.

"The typical run," Joel continues, "was about two minutes down, then 15 minutes back up on the lift. You could do a lot of skiing in a day.

"The best skiing at Portillo would be similar to that at the back bowls at Vail, but on a much smaller scale—no more than one-third of the terrain you can ski in Vail's bowls."

Joel is enthusiastic about Portillo's scenery: "Spectacular. Rugged, Aconcagua looms overhead. A partially frozen lake at the base elevation. Bright, brilliant days—much sunburn."

Hotel Portillo is a luxury place, reports Joel, with super facilities, good food and an enclosed pool—great for relaxing after a session on the slopes. And expensive—\$45 a day for a bunk in a room shared with three strangers.

Traveling alone, Joel decided to forego a trip package to see if he could beat the advertised rates—he saved about half.

Joel spent five days at Portillo, then spent another week sightseeing in Santiago, Cusco and Lima. He visited museums, parks, churches and marketplaces. "Tremendous contrasts," he says. "About 15 miles from the ski area are the orange groves near the Pacific coast."

Sightseeing in Cusco was the high point of the trip, Joel says. The city, elevation 12,000 feet, was the ancient capital of the Incas, and Inca ruins surround the city. Also, he recalls, spectacular Spanish colonial churches with gilded altars.

Joel spent one day visiting the "lost city of the Incas—Machupicchu." This ruin, terraced on the steep slopes of the Andes, was not discovered until 1911 and remains in "pristine condition" under the watchful eye of Peruvian authorities.

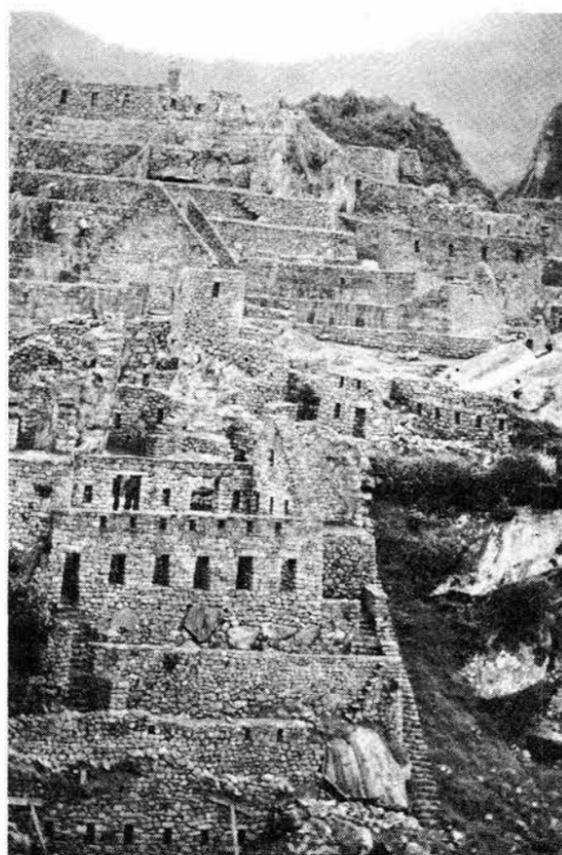
Joel was impressed. "You marvel at the technical achievements of an ancient civilization which had only primitive tools—cutting and moving massive stones across steep mountains from a quarry 60 miles away—and then you wonder what time will do to our modern world. Viewing the ruins was both an intellectual and emotional experience."

Logistics: Roundtrip air fare from LA to Santiago was \$1080. Living expenses were high in Chile—lunches and dinners aver-



PORTILLO ski lodge, near the Argentine and Chilean border in the Andes, is at right in this photo with the lake to the left and ski runs in the distance. Skiers come down through the gap in the rocks to the lodge door.

aged about \$20 to \$30, a single room in a "best" hotel was \$100 a day. Joel found an acceptable place, interior room with no windows, at \$30 per day. The Cusco/Machupicchu package (two nights in Cusco, train to the ruin) cost \$150. Roundtrip air fare from Lima to Cusco was \$120. Prices were "mercifully cheap" in Peru with dinners running from \$12 to \$15 and a single room in a "good" hotel was \$25 per day. Joel bought an alpaca sweater for \$12 and a small copper bowl for \$15 in the Lima marketplace, although he feels the language barrier may have prevented him from making better buys.



MACHUPICCHU, ancient city of the Incas, clings to terraces on the steep slopes of a remote Andean mountain. Joel Lipkin (4536) visited the ruin last August.

Events Calendar

- Nov. 16—Folk Concert, Robin & Linda Williams, 7:30 p.m., Woodward Hall, UNM.
- Nov. 16—Eastern NM State University choir in concert, inspirational music—spiritual & gospel, 2:30 p.m., Kimo Theater.
- Nov. 16—National Chinese Opera (Nov. 15, 8:15 p.m., free lecture-demonstration on Chinese Opera), 8:15 p.m., Popejoy.
- Nov. 16—Fine Arts Music Series: John Clark, piano & organ; 1st Methodist Church, 4th & Lead S.W., 4 p.m., 243-5646.
- Nov. 19—ASUNM Speakers Committee presents Abbie Hoffman, 8 p.m., Popejoy.
- Nov. 20-23—Indian National Finals Rodeo & Arts/Crafts Trade Show, Tingley Coliseum, horse arena & ag. exhibit hall, 766-2151.
- Nov. 21-23—Christmas Show, Los Novicios Craft Guild, Wyoming Mall, 883-5151.
- Nov. 22—NM Jazz Workshop presents "The Art Ensemble of Chicago," 8 p.m., Kimo Theater, 766-7816.
- Nov. 22—The Senior Citizens 7th annual Arts & Crafts Fair, Convention Center, 10 a.m.-4 p.m.
- Nov. 28-30—NM Symphony Orchestra and the Oakland Ballet Company present The Nutcracker Ballet, 7:30 p.m. (matinees, 2 p.m. 29th & 30th), Popejoy, 842-8565.
- Dec. 3—"The Messiah," 8:15 p.m., Popejoy.
- Dec. 4—ASUNM Speakers Committee presents Gordon Liddy, 8 p.m., Woodward Hall.

MILEPOSTS
LAB NEWS
NOVEMBER 1980

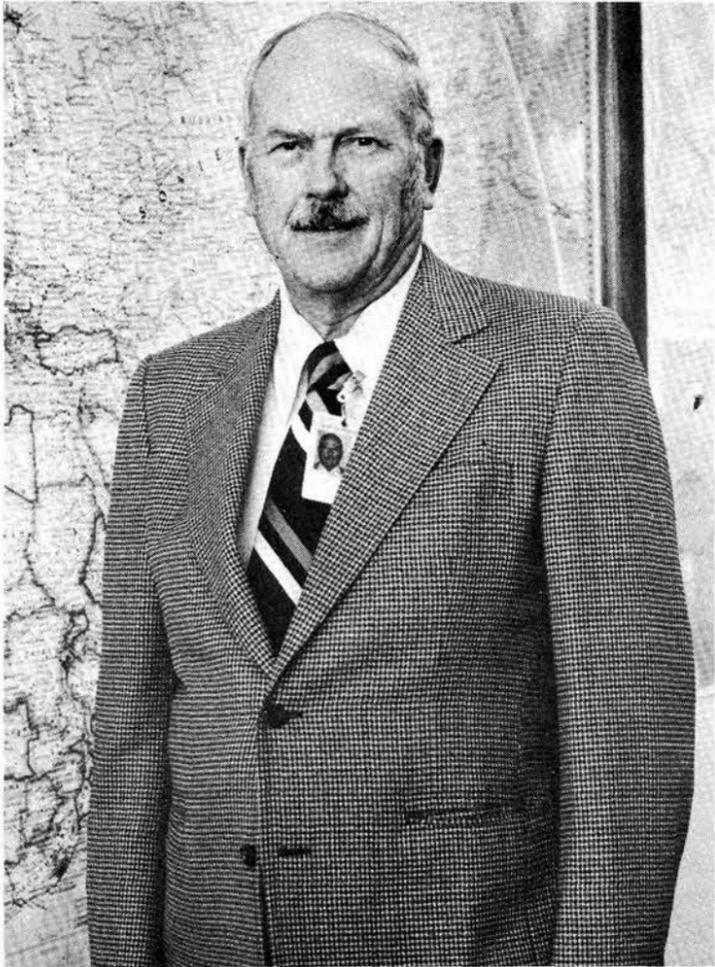


Marge Mederios - 8275 15



Don Barack - 3741

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Glenn Fowler - 1000

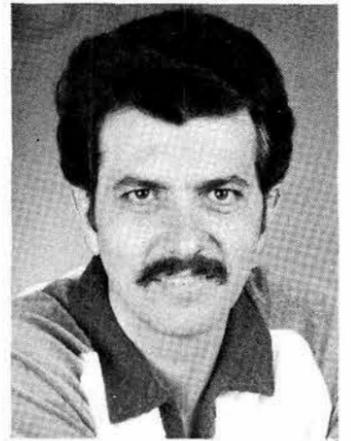
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Jerry Huntting - 8152 20



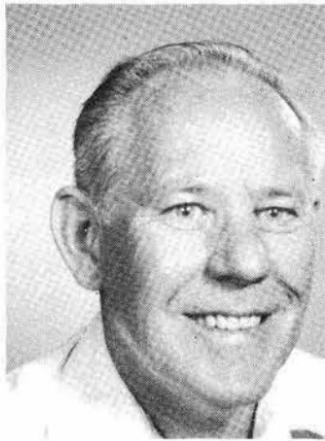
Gerald Gallegos - 3615 10



Rich Campiotti - 8423 15



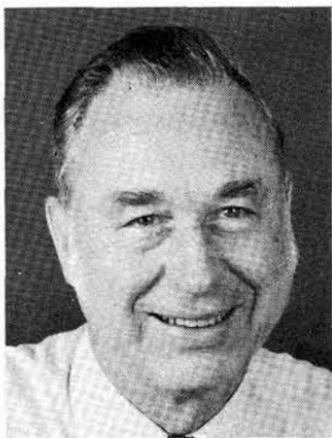
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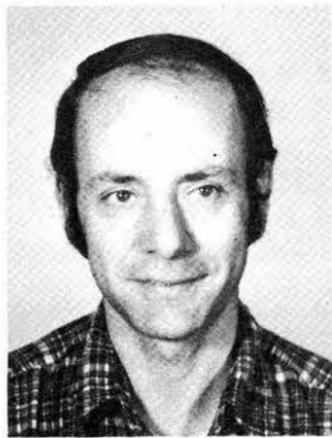
Floyd Hursh - 2433 25



Martha Leverenz - 8273 25



Ed Holbrook - 8411 25



Tom Undieme - 3612 10



Hank Lucas - 8275 15



Al Lujan - 2342

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Howard Hadlock - 3432

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John Weber - 1533 20



Alton Simpson - 3611 30



Don Quale - 1473 30

My Favorite Old Photo



[Got an old photo that means a lot to you? Bring it over to LAB NEWS and tell us about it.]

HOMESTEADING in Blaine County, Nebr., in 1895 was a matter of survival but the coming winter was going to be all right—the pigs are the winter food supply. That's my grandfather on the left and my great-grandmother and great-grandfather near the doorway of their one-room home, a considerable improvement over the sod shanty—the "soddy"—which preceded it. (Bob Clay—4738)

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

YASHICA 35mm camera, w/f1.7 lens, rechargeable flash & accessory kit (telephoto & wide angle lenses, filters, tripod & more), \$130. Dandini, 296-4975.

FOUR Lobo basketball tickets: S-15, R-25, \$70 ea.,—any or all; 1 reserved parking (south), \$20. Sowell, 883-6877.

FURNITURE, solid maple: china base cabinet & hutch top; lamp table, drum style. Holmes, 292-0898.

FREE-STANDING fireplace, turquoise, \$150; custom crafted bar, suitable for large room, best offer over \$250. Wright, 299-5396 after 6:30.

GE ELECTRIC STOVE, 30", \$60; Toro lawn mower, 22" reel type, \$35. Kindschi, 256-0531.

CAT, 3 yrs. old, black female (spayed), has shots. Thompson, 298-5800.

LG. PIPE VISE, \$15; water cooler, upright, \$30; wooden swivel chair, \$5. Vigil, 265-6691.

FREE to good home: 5-mo.-old female puppy, shepherd/chow cross. Lyons, 296-8866.

BAZAAR & rummage sale at Sombra del Monte Christian Church, Sat., Nov. 15, 9-4, serving breakfast & lunch. Beasley, 298-3398.

72 32' Streamline Regency trailer, refrig. AC, elec. tongue, equalizer hitch, canopy overhang, loaded w/other options, \$5800. Brunacini, 881-3772.

ZENITH 12" B&W TV, brand new, \$85; Toshiba 9" B&W TV, DC power pack included. Hollingsworth, 299-0567.

DINING TABLE & 6 chairs, 1 leaf, \$85. Clark, 298-2527 after 5.

INSTAPURE water filter by Water Pik, 3 replacement filter cartridges, attaches to faucet, new, \$30, sell for \$15. Schkade, 292-5126.

BABY FURNITURE: crib, \$30; dresser/changing table combination, \$40. Quintenz, 298-3955.

HEATHKIT C1-1096 timing lite tachometer advance meter, reg. price \$69.95, sell for \$55. Nogle, 299-3863.

DISHWASHER, Roper, 6-cycle, little used, \$150; air conditioner, Sears, 7600 BTU, EER 8.1, best offer. Zipperian, 821-2309.

CLOTHES DRYER, 220V; refrig. air window unit, 110V; 40w x 45h wrought iron gate; best offer on each. Strip, 255-7230.

DINING TABLE, solid oak, 60"x40", 4 matching chairs, table extends to 90", \$100. Glass, 884-4415.

SELECT vertical bench mill, collets, drill chuck, vise, turntable end mills, stand, \$1975. Hesch, 881-9874.

TOBOGGAN, 7', aluminum complete, w/cushion, \$10. DeLollis, 299-5384.

SHOP MANUAL & 2 13" rims for 1976 Datsun 710. Rowley, 281-3815.

TENT, 10'x12' canvas cabin style, \$50. Bauerle, 873-0043.

TWO PARAKEETS w/cage & stand, \$20. Houston, 255-4658.

77 HOLIDAY RAMBLER trailer, model 127 Statesman, rear bedroom, lg. refrig., AM, FM, 8-track, storm windows, all factory extras & more, \$11,500. Morgan, 299-2850.

GUINEA PIGS, 5 weeks old, some longhair, some whorled coats, \$5 ea. French, 281-3872.

MOTORCYCLE helmet, white, \$15; motorcycle bumper rack, \$15; ski boots, size 6, skis for youth 14 yrs. old, make offer. Arana, 299-1214.

TWO 10-gal. aquariums, \$10 ea.; twin bed, complete, \$25; green/gold couch, \$65; dinette table, \$5; bowling ball w/bag, \$20; negotiable. Latta, 822-0912.

ONE NM Symphony Orchestra season ticket for dates: 1-10, 2-7, and 4-18. Yio, 821-3569.

HEATHKIT sine/square wave generator, \$17.50. McConnell, 268-3109.

35mm CAMERA, Mamiya Sekor 500DTL body; lenses: 50mm, 135mm, 70-205 ZOOM, 3X tele-converter, strobe, cases, \$275. Nava, 299-3017.

FREE—clean fill dirt, will help you move the dirt to your place. Hudson, 884-7621.

SNOW TIRES, A78-13, Goodrich 4-ply, used about 8000 miles, \$20 for the pair. Cameron, 292-4636.

FULL-SIZE mattress & box springs. Self, 296-4137.

10-VOL. SET Collier's Junior Classics, '63 Edition, \$50. Walls, 299-2209.

RANGE free with refrigerator, \$150; port. dishwasher, \$50; other appliances; 4 Jackman rims for Bronco. Lopez, 265-3296.

COMPUTER TRS-80, Model II, 64K memory, single 8" floppy disk unit; TRS desk unit, approx. 6 mos. warranty, manuals included. Halbgewachs, 266-5821 or 268-4936.

FIREPLACE SCREEN, brass trim w/black curtain, fits 24hx33 1/2 w opening; shop manuals for '70 Buick; radial tire chains, Champion model 2810, fits GR14. Siska, 884-4713.

BRAKE DRUMS, backing plates, wheel cylinders, 11"x2" brakes from '63 Jeep Wagoneer, all four complete, \$20. Holton, 844-9287.

BICYCLE WHEELS, set of 27" Clincher, quick release hubs, high pressure tires, never used, \$75. Drumheller, 821-9527.

TWO-DOOR garage door, roll-up type w/key lock, disassembled & transportable in pickup, \$150. Ballard, 344-8751.

HEAVY, down-filled jacket, size large, \$20. Sheives, 296-9780.

REFRIGERATOR, 12 cu. ft. GE, 12 yrs. old, copper tone, 2-door, frost-free, \$125. Hartman, 292-6560.

SETCHELL-CARLSON 25" color TV, near new picture tube, \$125; 17" B&W Arvin console, \$35. Jeske, 299-2810.

HEATHKIT H8 personal computer, assembled, 8080A, etc., ET3400, assembled, 6800, ET3401, micro-processor self-instruction. Madrid, 294-5780.

POP-UP CAMPER, sleeps 8, 3-burner stove, sink, carpet throughout, 2 dinette tables, \$700 or best offer. Menschel, 892-5827.

WILSON GOLF CLUBS w/bag, \$50; Northwestern beginner clubs w/bag, \$30; 4-vol. medical encyclopedia, \$25. Barnard, 831-4114 evenings.

TWO SACKS of misc. dry Amaco glazes, unopened & in orig. bags, labelled, etc., yours for picking them up. Boyes, 265-6357.

UNM Basketball season tickets, 2 tickets for 80-81 season. Pavlakos, 298-5387.

TEDDY BEAR HAMSTER w/elaborate hamster home, food & many extras, \$17. Davis, 294-0139.

NEW 35mm camera, never used, \$50. Stevenson, 242-7635 after 5.

SNOW TIRES, G78x14 on Ford 5-hole rims, 2 ea., \$30 ea. Booker, 299-3554.

ANTIQUE brass fireplace screen, adjustable, fits approx. 26"x34"; Garrard SL 72 auto. turntable; massive colonial rocking chair. Peters, 293-6356.

ALUMINUM frame 6' sliding glass door, best offer. Santana, 294-0536.

TWIN BEDS w/mattress; camper for LWB, stove, refrig., water tank, storage, HD. Herrera, 836-1768 after 6.

LEATHER JACKET, dressy, w/hood, was \$150 new, asking \$40. Davis, 281-2429.

GAS DRYER, Kenmore, almost new, still under maint. contract, \$125; reel type power mower, \$25. Woodfin, 281-2702 (can deliver).

BUNK Beds, \$35. Hall, 298-8617.

TRANSPORTATION

75 VW Rabbit, green, 2-dr., newly upholstered seats, \$2500 or best offer. Hawkins, 898-0618.

'68 CHEVY Suburban 292, 6-cyl., 1/2 ton, 4-spd.; new brakes, shocks, head, clutch. Anderson, 265-0403.

73 PLYMOUTH Duster, 318 cu. in. engine, std. shift, 3-spd. trans., \$1350. Prevender, 299-5253.

BOY'S 3-spd. English bicycle w/coaster brakes, needs tires, \$30. Quintenz, 298-3955.

79 YAMAHA YZ250F pro-ported motocross bike, new tires, \$1250; Moto-X Fox mono-airshock, \$150. Navratil, 292-3897 or 293-5527.

76 FORD van, custom paint, captain seat, CB, AM/FM stereo, bed, 41,000 miles, ice box, carpet, AC. Garcia, 299-6996.

'66 PONTIAC Tempest LeMans, AT, new radials, Ballerle, 873-0043.

70 YAMAHA dirt bike, \$98. Garcia, 255-3201.

BICYCLE, 20" Wards dirtbike, mag wheels, used 4 mos., \$100; B-B gun, Crossman semi-auto. CO2 pistol, \$1950. Roscoe, 884-4151.

JEEP CJ5, power take-off, winch, V6, 3-spd., sell or trade for 4x4 truck of equal value. Arana, 299-1214.

78 OLDS Toronado, low mileage, loaded, all power, terms, 6% interest. Brunacini, 881-3772.

'69 FORD Fairlane 4-dr., 302 V8, AT, PS, 2 snowtires & wheels. Anderson, 294-8451.

79 MUSTANG, Turbo 4 Cobra, air, PB, PS, radio w/tape, 12K miles, \$4200. Robertson, 299-7661.

76 YAMAHA 100 street bike, 1800 miles, best offer. Candelaria, 243-5331.

'74 CORVETTE T-top, AC, black interior, T/A radials, luggage rack. Perryman, 294-6113.

'80 MAZDA 626 sport coupe, AC, AM/FM stereo, luggage rack, 5-spd., 28+mpg. Schwartz, 299-8709.

74 HONDA 550-4 motorcycle, new tires, fairing, \$950 or best offer. Crooks, 296-6182.

'67 CHRYSLER New Yorker, \$350. Piper, 884-4484.

'80 VW Rabbit, 4-spd., 12,000 miles, under warranty, 32 mpg, \$6500 or best offer. Leonard, 865-5338.

79 LINCOLN Mark V, champagne gold, quad stereo, all power equip., 9800 miles, \$17,200 new, sell for \$11,500. Romero, 298-8586.

'77 DIESEL RABBIT, blue, AM-FM stereo, sunroof, B Book retail \$4500, will consider offers less than retail. Clark, 296-3924.

76 HONDA CB360T, low mileage, \$850 or best offer; roll-away bed, twin size, \$40. Zirzow, 822-1376.

'80 AMC Spirit, less than 8000 miles, AT, AC, PS, Cruise Control, tilt wheel, AM-FM cassette stereo, \$5995. Riley, 821-6431.

'80 DATSUN 210 deluxe, cloth interior, AM-FM stereo, 2-dr., 12,000 miles, 40 mpg, \$500 below book, \$4700. Hartman, 292-6560.

76 MAZDA RX4 4-dr., \$2500. Long, 298-1668.

'65 BUICK Electra w/all extras. Kraft, 299-2157.

REAL ESTATE

4-BDR. HOUSE, NE hts. near foothills, 2 1/2 baths, fp, split level, dbl. garage, 5 yrs. old, 2300 sq. ft., .3 acre lot. Bouktinghouse, 298-3458.

2400 SQ. FT. custom house in Bosque Farms, 2 yrs. old, 4-bdr., den, 2 1/2 baths, DR w/oak floor, many extras, \$105,000. Schmidt, 869-6493.

4-BDR. HOUSE on extra lg. lot, professionally landscaped, 16x32

covered patio, huge master suite, walk to shops, church, school, \$68,500. Ripi, 884-4683.

HOUSE in Tijeras NM, 3-bdr., 2 baths, FR w/lava rock fp, dbl. garage, lg. deck, barn & corrals, 1 1/2 acres. Christensen, 281-5451.

WANTED

ALUMINUM duck or John boat, 10' to 14' long. Anderson, 265-0403.

PRESIDENTIAL campaign buttons, 1972 & earlier, buy or trade. Thompson, 298-5800.

SMALL economical truck for reliable transportation. Ahr, 294-2731 after 5.

EXPERT ADVICE concerning backyard installation of television satellite antenna. Prevender, 299-5253.

FEMALE AIREDALE of impeccable breeding & refined manner for liaison with our airedale. Object: puppies. Shunney, 265-1620.

RAW DEER SKINS suitable for tanning. Marrs, 822-0367.

ANYONE interested in obtaining group rates at the Nautilus Fitness Center. Rivord, 296-9151.

SKI RACK w/locks, suitable for 2-dr. sedan. Navratil, 293-5527.

TIRE RIMS for 79 Honda Accord (13"). Rowley, 281-3815.

DRAFTING TABLE. Holmes, 296-3480 after 6.

BOWLING COUPLE for 6:30 Wednesday mixed doubles CC league at San Mateo Lanes, San Mateo at Lomas. Crooks, 296-6182.

RADIO CONTROL, 2-3 channel for glider, need transmitter, receiver, servos & battery box. Pierce, 821-7536.

RIFLE, .243, 30-06, or 7mm magnum w or w/scope. Holton, 844-9287.

USED utility building, 8x10' or larger, prefer metal, will disassemble, call evenings w/size, condition & price. Hottinger, 884-9360.

CEMENT MIXER. Neal, 299-3587.

GOOD, used, economical car, prefer around 1960 to 1970 small engine & reasonable, for 17-yr.-old girl. Herrera, 836-1768.

SHARE-A-RIDE

ALBUQUERQUE to Winston-Salem, North Carolina: leaving Dec. 20 a.m., returning Jan. 4 p.m., five riders wanted to share expenses. Bailey, 299-0184.

RIDERS WANTED from Sandia Park-Cedar Crest area to Base and/or airport area. Car pool arrangements possible. Davis, 281-2429.

WORK WANTED

BABY SITTING in my home weekdays, infant preferred, close to Wyoming & Harper. Zyperian, 821-2309.

LOST & FOUND

LOST—Gold opal butterfly necklace, sentimental value, vicinity Bldg. 802 or 880. Campbell, 299-2556.

New Events, New Travel Coming Up

TONIGHT at Happy Hour the Weeks Trio entertains in the lounge from 5 to 7, Natural Persuasion is on the bandstand from 8 to midnight. The buffet is a special—roast duck or veal cutlet.

Happy Hour on Friday, Nov. 21, features king crab and lobster in Newburg sauce. The Country Showmen play for dancing.

On Nov. 28, the Friday after Thanksgiving, Happy Hour starts at 4:30 but there will be no buffet or band.

MARK your calendar now for the biggest event in the coming holiday season. Hardworking C-Club VP Charlie Clendenin (2633) reports that Friday, Dec. 5, is the date of a super party and dinner dance for the Club membership. Starting with Happy Hour at 4:30 with Gary Waters entertaining in the lounge, the party progresses to sit-down service in the dining room with hors d'oeuvres and a choice of three entrees.

A new group to the Coronado Club—the South Side featuring singer Dede Mirabel and Johnny Moya (1482) on drums—plays a big band sound for dancing.

"The Club's December calendar is usually dedicated to private parties," Charlie says. "This Dec. 5 party is for the entire membership—use your calendar discount tickets. We promise an outstanding dinner and fine entertainment. The coupon will not be valid for any other event in December nor for the New Year's party. Pat Corcoran and the C-Club staff are determined to keep prices down, quality up. You can make reservations for tables or put together a group when you get there. Just get there—this one will make history."

Christmas
Seals
fight
lung disease

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The Christmas Seal People®



AS CHRISTMAS APPROACHES, Lisa Polito (3431) displays gift goodies available at LAB NEWS office in MO125 near Bldg. 814. The large aerial photo of Tech Area I is in color and comes in the 16"x20" size shown here mounted on heavy mounting board for \$12, or in the 11"x14" size unmounted for \$3.50. The Sandia Labs cap is \$4.25 and the T-shirt is \$4. Sale profits benefit the South Highway 14 Village project which distributes Christmas food baskets to needy families.

ON MONDAY NIGHTS the Coronado Grandsquares continue to offer free workshop lessons and group dancing to anyone eligible for Club membership. Called by John Lewin (4445), workshops start at 7 p.m. and club dancing at 8. You're cordially invited.

SKI CLUB publicity chairman Milo Navratil (1584) sends us these enthusiastic words: "Skiers from all over the world flock to ski on New Mexico snow—unrivaled anywhere! During 'Ski New Mexico Night' on Tuesday, Nov. 18, the Ski Club will highlight various ski areas within New Mexico borders. We have them all—large, small, old and young, tough and snow-bunny stuff. Find out which are which, get acquainted—or renew old acquaintances with your home ski areas. Refreshments are served at 7 p.m., the program starts at 7:30. Bring items for the trader's corner left over from the Ski Swap."

REDONDO round dancing club meets Thursday, Nov. 20, and Wednesday, Nov. 26, for club dancing from 8 to 10 p.m. under the guidance of Fred and Kaye Haury.

TRAVEL DIRECTOR Frank Biggs (4231) announces a new trip during the Christmas break. It's a charter bus to Las Vegas Dec. 27-30. Stay three nights at the 17-story Maxim Hotel on the Strip, get discounted meals and shows plus refreshments and snacks on the bus, tour Hoover Dam and spend only \$120 for the package. Deposit of \$60 is due at the Club office Dec. 1.

Frank reports two spaces left on the Rosebowl parade/Disneyland package Dec. 28-Jan. 4 and space left on the Jan. 3-10 cruise trip out of San Juan.

See Frank in the Club lobby tonight at the travel table to discuss upcoming trips to Disneyland and Mexico.

Sympathy

To Robert Duke (ret'd) on the death of his wife, Kathleen, in San Diego, Oct. 20.

To Tom Moody (2153) on the death of his mother in Wyoming, Nov. 6.

Congratulations

To Theresa De Vargas (1132) and her husband, a son, Eric Lee, Oct. 20.

To Bob Axline (2344) and his wife, a son, Ryan Lucas, Oct. 6.

Retiring



Bob Casper (2154)



Noel Kent (3432)