

NEW DOWN-FIRING GUN recently underwent a series of test firings near Edgewood. The gun is used to fire projectiles into the ground as part of the Labs' continuing terradynamics program.

Can't Miss

New Gun Fires Projectiles Into Ground

A novel technique of using a down-firing gun to propel projectiles into the soil proved successful during a recent series of field tests near Edgewood.

The Sandia-developed gun is raised from a horizontal to a vertical position for firing the projectiles. The specially-instrumented projectiles then transmit data on how much the various layers of rock and soil affect deceleration of the projectiles, thus providing information about the composition of these layers for the Labs' terradynamics program.

Terradynamics research and development was started as part of the weapons program at Sandia 14 years ago when there was very little valid information on high speed earth penetration. Since then, the Lab has developed air-dropped instrumented projectiles or penetrometers that have been used to remotely measure the thickness of ice in the Arctic and the hardness of different levels of ocean floor sediment; to deploy remote seismic and acoustic detectors; and to make remote electrical resistivity measurements.

The new gun offers several advantages over the conventional method of dropping the projectiles from aircraft. Projectiles can be fired from the gun at higher velocities — up to 3000 fps as compared to about 1400 fps from an aircraft drop. A small target of a particular

type of rock or soil can be pinpointed, and the gun is more economical.

The gun barrel is 35 feet long, with an inside diameter of 12 inches. It has no breech block and is open at both ends. A "reaction mass," positioned above the powder charge and projectile, serves to seal the barrel during firing.

During initial tests, 50 and then 200 pounds of propellant were sandwiched between the 355-pound steel projectile and the 1241-pound mass which is blown out the top of the barrel. The projectile achieved velocities of 1600 and 2400 fps in these tests.

The gun is designed to operate at 50,000 psi and to withstand pressures up to 100,000 psi. It will propel a six-inch-diameter projectile weighing 300 pounds up to 3000 fps.

The gun and trailer, which have a combined weight of 74,000 pounds, were designed by Larry Seamons (then 9333 and now 1712). Wayne Young (5716) is conducting the terradynamics research program and Division 9414 under Gordo Miller operates the gun. Early next year, the gun will be moved from its Edgewood site to Tonopah Test Range for higher velocity tests.

Needed: Another Dozen

Ret Job Ref Serv

That's what the military would call it. We call it the Retiree Job Reference Service. And we have on file in the LAB NEWS office (832/20) an even dozen Sandia retirees with skills for hire.

Do you need:

- a watch repaired? Sol Azouz is a certified master watchmaker, and a rubber stamp maker to boot. He's at 266-3512.

- minor repairs on your auto to get it through the next 100,000 miles? Or maybe an automatic garage door opener installed? Roy Buckner at 255-6024.

- a general handyman? Hy Dancy can handle carpentry, painting, plastering, plumbing, yardwork, hauling, even typing. He's at 299-8223, and he's available evenings and weekends.

- a general handyman with nearly as many talents as Hy? Carpentry, yardwork, hauling, etc. Reynel Garcia, Sr., at 344-6325.

- a saw or a tool sharpened? That's Maurice Grant at 255-6105.

- some skilled carpentry, specifically a cabinet built or a new furniture item constructed? John Gustafson is at 299-3270; he's had a couple of medical problems recently so he may not be able to take on any big job soon.

- some original jewelry, or an old piece repaired? Silver, gold, turquoise, agate—call Wilbur Henry at 266-6467.

- your coin collection appraised? Louis Jamme (299-5797) has 20 years experience, all licenses, and is a member of American Numismatic Assoc.

- your auto tuned? a small appliance repaired? Call 268-8459 for Ralph Lepore.

- a chair fixed or some other carpentry work, or hauling or yardwork? Call Benjamin Martinez at 344-7850 before 4 p.m.

- a typist, stenographer, and editor?



IS THERE a seamstress in that file somewhere?

Dorothy Matlack (256-7371) has an electric typewriter and the talents listed. But no theses, thanks.

- some furniture repaired and re-finished or some chairs re-caned? Clem Wagner at 299-2347.

(Note to Sandia/AEC retirees: If you'd like to be a part of the service, call LAB NEWS at 264-7841 and ask for a copy of the Job Reference Service form.)

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lorena schneider reports on livermore

The Stratosphere — New Focus For Sandia

More study of the atmosphere, including ozone research, is needed if the nation is to pursue energy development without compromise of atmospheric integrity. Ken Touryan, manager of Aerosciences Research Department 5640, sees the stratosphere as one new focus for Sandia.

"We've been studying weapon effects, real and simulated, in the stratosphere and mesosphere for years," he says. "We've used rockets to carry our measurement devices, but lately we've acquired a good deal of experience with balloons. They're better than rockets in that they allow measurements over a much longer time span and over a greater geographic area. Their maximum height is about 50 km, or the top of the stratosphere. And they're cheaper.

"Note that the entire atmosphere is one giant, dynamic system, powered primarily by solar radiation that we separate into layers. Each layer — in fact, everything up there — is interrelated. That's basic.

"Thus Sandia's ongoing programs in both the troposphere and the mesosphere will contribute to our understanding of the stratosphere. Two new programs have been proposed for measuring and understanding the behavior of pollutants, primarily those from coal-burning, in the troposphere, the layer of the atmosphere where we live. First, we can do *in situ* studies using advanced optical techniques, portable mass spectrometers, hot-wire anemometry, and LIDAR (Light Detecting and Ranging, a Sandia-developed laser-radar device). And second, we can also readily adapt computer codes on fallout dispersion and transport to non-radioactive particulates.

"Sandia has been in the mesosphere for over 15 years. Some of our most valuable work is theoretical but we've also fielded experiments in rockets to tell us about temperatures, densities, and winds; we've made spectrophotometric measurements of nitric oxide, measured the densities of electrons and of neutral particles and ions, studied emission and absorption spectra, related solar variations to transient atmospheric phenomena, performed spectrophotometric studies of aurora and airglow emissions (correlating them with magnetic field and charged particle measurements), studied the interaction of 100-keV sodium ions with the atmosphere and the earth's magnetic field, and more. And the data we've already gathered, plus that we plan to gather, and the tools and techniques we've used will be of great value in understanding what happens in the stratosphere — and why."

Ken is enthusiastic about a cross-disciplinary approach to the stratosphere within Sandia. "We've already begun on a small scale. Frank Hudson (4762) has been a driving force in getting us to recognize our potential; he's been doing a stratospheric chemistry modeling as part of the DOT's Climatic Assessment Program (CIAP). And we've worked with ASL (White Sands' Atmospheric Sciences Lab) in some balloon-based experiments.

"We've got the technical expertise and large testing facilities necessary to support atmospheric studies. Specifically, we have:

- wide knowledge of scientific instrument design and measurement techniques;
- unique experience in packaging instruments under constraints of size, weight, and ruggedness;



KEN TOURYAN (5640, left) adjusts the entrance slit on a tunable diode laser as Colin Hackett and Dave Smith (both 5642) look on. The laser would be a primary analytical tool of a stratospheric measurement program.

- our own field test locations — Tonopah, Kauai, and Poker Flats (Alaska) — plus shared use of the range at Holloman; and
- recognized capabilities in theoretical modeling and systems studies."

One new development likely to be valuable is tunable IR (infra-red) laser spectroscopy, an optical technique for detecting and monitoring pollutants. The use of lasers means high power, directionality, spectral purity, and the recently demonstrated wavelength tunability. Both spin-flip Raman and tunable diode lasers would be exceptionally useful in high altitude

experiments. Add to these an Ebert scanning-spectrometer with low λ resolution, a recently proved anemometer which uses the speed of ions traveling from electrode to cathodes to measure air speed, and the unique, Sandia-developed balloon-borne quadrupole mass spectrometer; Sandia has much to offer an atmospheric measurement program.

"No one agency or lab can handle an atmospheric studies effort of the size needed," Ken adds. "But we're certainly qualified to share the effort and to lead in many areas. The work needs doing, we can handle it, and we're eager to get up there." • bh

A Saga of Snowshoes & Shorts

If you were in the Manzanos a couple of Sundays ago and, looking up the snow-filled road, had noted one of Sandia's more distinguished division supervisors trudging along in snowshoes and his Fruit-of-the-Loom shorts in the company of a pretty university coed, you probably would have taken a second, maybe even a third, look.

The supervisor is Don Mattox (5834) and he claims to have a pretty good explanation.

Don had been called out to help find and evacuate that UNM class on survival that got stranded in the Manzanos following a snow storm. He's a member of the Mountain Rescue Council. After his arrival on the scene, most of the class was accounted for, but one girl — Jill — was still missing and was

reported to be stranded up a side road. OK, Mattox to the rescue (fully clothed).

After an hour or so of hard snowshoeing, Don reaches Jill. She's in her sleeping bag, which is sensible because while looking for other students her cotton jeans had gotten soaked. The jeans now repose beside the bag, frozen stiff, obviously unwearable. What else can a gallant rescuer do? And Don did. . .

So Don and Jill strolled down the mountainside. He modestly disclaims any heroism in the donation of his trousers, but we think recognition is called for. Let's see, there's the Order of the Garter . . . how about the Order of Sacrificial Pants?



PEOPLE in Remote Areas Maintenance Division 9718 have more fun than anyone because they get to drive 50-ton M48 tanks and other heavy stuff all around Coyote Canyon. They are, from left, Florencio Baca, Paul Silva, Lewis West and Lloyd Kelton. Following tests, tanks were driven back to loading dock at Tech Area. Somehow tank assigned LAB NEWS editor hasn't made it back yet.

Christmas Week Credit Union Hours Announced

If Santa Claus needs help during Christmas week, your Sandia Laboratory Federal Credit Union will be on hand. The CU will be open Monday, Thursday and Friday of that week from 8 a.m. to 3 p.m. On Dec. 24, the doors will be open from 8 to 11 a.m. Christmas day will be observed as a holiday.

At Livermore the Credit Union staff will take the week off, but employees there may call the Albuquerque office for any regular Credit Union service. Call (505) 264-4555.



But Where Is Pat Pending?

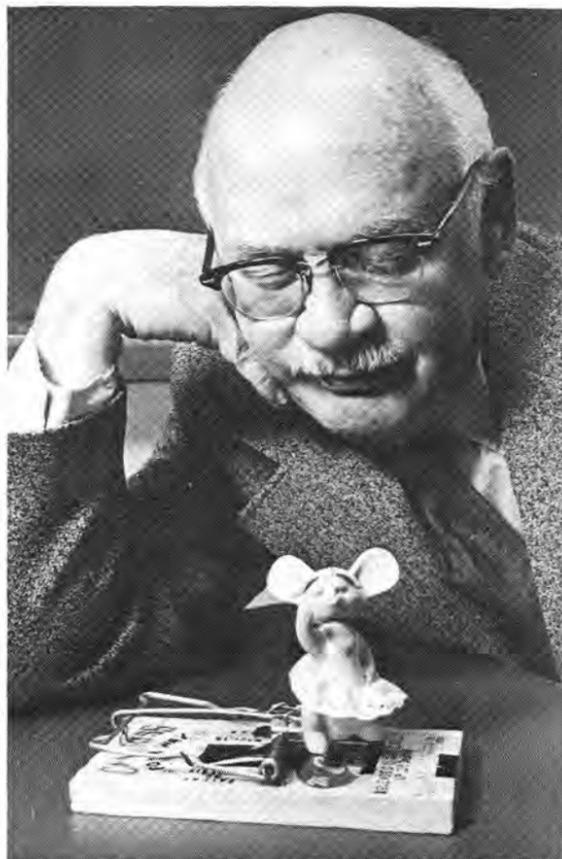
Every Sandian, president to post-hole digger, signed a Patent Agreement when hiring in. Since then most haven't invented anything beyond an excuse for being late, but some have, deliberately or accidentally, invented something on the job. That's when they encounter Gene Newlin (6011), our patent engineer.

Gene's a knowledgeable guy. He has to be — his job demands that he be able to ask intelligent questions of technical experts, understand the answers, then explain both in layman's language.

He downplays his wide-ranging expertise. "I've been a patent engineer for 25 years, almost 21 of them at Sandia. I've scanned or studied every SL report for years. And I've been taught by some very talented Sandians, leaders in their fields."

The job's important. If a technique, tool, or device is patentable, the AEC wants to know it. Gene ensures that an invention disclosure is clear and complete so that the AEC's patent searchers can decide whether the invention has a reasonable chance to be granted a U.S. patent.

If AEC's patent search discloses no similar (or identical) invention and the AEC decides to file for a patent, an application goes to the



NOW WHY wouldn't that work? Gene Newlin (6011) ponders the better mousetrap aphorism. (Mouse by Cae Kunz)

U.S. Patent Office where it is examined by an expert in the field into which the invention falls.

"It's at this point," says Gene, "that some good ideas are rejected simply on the somewhat frustrating grounds that the invention is 'obvious to one skilled in the art.'"

But if it gets through the hurdles, AEC is awarded a patent. A patent's purpose is to keep others than the patent-owner from making, using, or selling the device. If the patent-owner were a private firm or individual, then a patent is justification for collecting royalties from other manufacturers of the new item.

In the case of AEC, public funds financed the invention, so no royalties (from American firms or individuals) are in order. The AEC grants a non-exclusive license to any U.S. individual or manufacturer who makes proper application.

In a given year, Gene estimates, some 250 disclosures arrive in his office. Of these nearly all will be forwarded to the AEC searchers. About 30 will survive the search and go on to the Patent Office, where nearly all will be granted an AEC patent in the name of the inventor.

It sure looks good in a personnel file. • bh



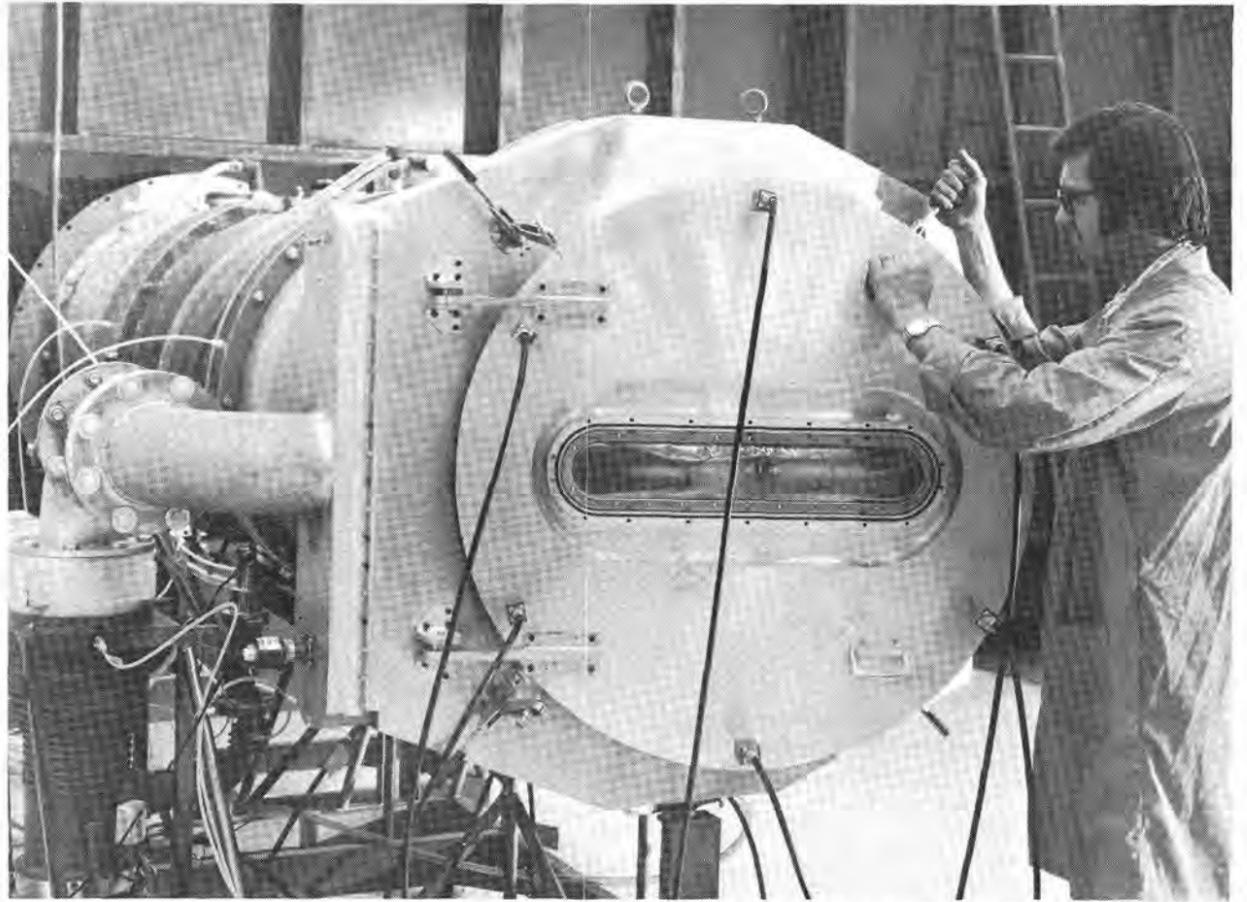
JACE NUNZIATO of Explosives Physics Division 5131 displays the Pi Tau Sigma gold medal and certificate awarded him by ASME "for outstanding achievement in mechanical engineering within ten years following graduation." At Sandia since '69, Jace has done research on wave propagation in polymeric and explosive materials. He acquired his BAE from Rensselaer and MS and PhD degrees from West Virginia University.



SAFETY GLASSES VS TABLE SAW — Jack Carnohan (9711) had sawed through a two-by-four on his table saw at home and noted that a short length had wedged between the blade and fence. Reaching to turn the machine off, Jack was struck near his right eye by the short piece, suddenly thrown out by the still-turning blade. Force was sufficient to shatter frame of safety glasses, and Jack ended up with black, but intact, eye.

Events Calendar

- Through Dec. 22** — The Mime Experiment - Family Christmas Show, "The Story Train," 7:30 p.m., Rodey Theater.
- Through Dec. 24** — Guild Theater, "Alfredo, Alfredo." 265-0220.
- Dec. 22** — NM Mt. Club, snowshoe hike, Sandia Crest to North Peak, 4-5 miles, Western Skies, 9:00 a.m.
- Dec. 22** — 1st Methodist Church - "Christmas procession" by Scott Watson, 10:15 a.m. at church, 4th & Lead SW.
- Dec. 24** — Ceremonial dances following midnight Mass, most Pueblos.
- Dec. 25** — Guild Theater, "Harold and Maude" thru Dec. 31. 265-0220.
- Dec. 26-29, 31** — Civic Light Opera, "Gigi," 8:15 p.m., Popejoy Hall, UNM.
- Dec. 25** — Buffalo, Deer, Harvest, Social, Basket, Rainbow & Matachine dances, most Pueblos.
- Dec. 27-28** — Basketball, Lobo Invitational Tournament, 7:00 p.m., UNM Arena.
- Dec. 29** — NM Mt. Club, snowshoe hike, Tree Springs to Cienega, 4-8 miles, Western Skies, 8:00 a.m.
- Jan. 4** — NM Mt. Club, Tent Rocks, 4-6 miles, Gulf Mart, 9:00 a.m.



EXPERIMENTS with lasers pumped by electron beams are the primary use planned for this 20 kilojoule electron beam machine now being installed in the new laser physics laboratories in Bldg. 893. Built to Sandia specifications, the machine's maximum output will be two million volts at 200,000 amps for 50 nanoseconds. John Bagg (5212), project leader, expects the machine to be operational by the first of the year.



VICE CHAIRMAN Ernest Lovato (second from right) of the All Indian Pueblo Council visited Sandia this week. He is shown with (from left) Ray Powell and Dick Bice, VP's of 3000 and 9000, and former Sandian Bernie Kayate. To Mr. Lovato's left is Juan Abeita (9654/211); Bob Garcia (200), standing, looks on.

Recreation Notes

FUN & GAMES

Handball — Carroll Hungate (9550) was number one in the Master's bracket (40 to 50) in the recent Hamm's Invitational Handball Tournament. This is the second year in a row that Carroll has won this position. The tournament was held in Albuquerque and attracted players from around this country and Mexico.

Sandia Runners Ass'n. — Running is possible in cold weather says *Runner's World*. It's just a matter of proper clothing. Even in very cold temperatures not too much clothing is needed, however. A sweat suit, gloves,

maybe a towel for a scarf, and a hat if you're a little thin on top. The floppy sweat suit has been replaced by the more elegant running suit which not only looks and feels better but doesn't shrink.

At long last we can report that SRA now has a female member — Kathy Pitts, secretary to several divisions in Dept. 2320. Kathy has been running most of this year, outside in warm weather, inside in the gym in winter months. She usually logs a mile a day, states that the new locker room for women at the gym is super, and wouldn't mind a little moral support from a few more female runners.



INVENTOR John Matsko (3622-1) displays a sample of his low density syntactic foam.

Patent Awarded For Low Density Syntactic Foam

A process for making low density syntactic foams, invented by John Matsko, supervisor of Ceramics Section 3622-1, has been patented by the AEC. The invention was prompted by the need for a lightweight compacted material that would be flame suppressant. (A syntactic foam is defined as an orderly arrangement of hollow spheres incorporated in a resin matrix.)

"Several ways of preparing a compact containing flame suppressant powder were tried," John says. "The use of glass microspheres and freeze drying was suggested because of the need for a low density product containing uniformly dispersed powders. Quick freezing prevented segregation of the light weight microspheres and powders during processing. Freeze drying enabled the removal of the large amount of solvent used during the mixing process. The integrity of the material was not affected, as was the case when oven drying techniques were used."

After removal of the solvent, only a small amount of binder material remains. The foam weighs from 0.202 to about 0.409 grams per cubic centimeter and has a hollow microsphere-to-resin weight ratio of 90 to 10.

In addition to its flame retardant characteristics, the foam may be used in traditional applications, for energy absorption, insulation and buoyancy.

John has worked at Sandia for 12 years, mostly in materials and crystal growth research. He became supervisor of the Ceramics Section in July 1973.

Death



Donald Peacock of Plant Maintenance Division 9712 died Dec. 7 after a short illness. He was 55.

He had worked at Sandia for 23 years.

Survivors include his widow and two daughters.

An Interim Report

'The Hardest Part Is Getting Started'

Five and a half years ago, Mike Robles was: 26 years old; married (10 years); father of three; and working for the post office downtown.

Today Mike is: 32 years old; still married; father of four; and working as a staff member in Sandia's Data Processing Computer Operations Division 2632.

No putdown of Postal Service employment intended — but that's something of a

jump. The difference between the '69 model Robles and the '74 model is education: Mike has qualified himself for his better job. He progressed from high school graduate with some T-VI courses in data processing to a bachelor's degree in business administration from UNM.

Mike is first to point out that he had a good deal of help along the way. At work, supportive supervisors like Bill Gardner (4273) and his current bosses Ed Domme (2632) and Art Arenholz (2630). At home, wife Dolores.

Mike began using the Educational Aids Program almost as soon as he accepted a staff assistant position in Sandia's computer organization. "I've always liked accounting work and I have an eye for details so I headed for a business degree with a concentration in computer science. Once I got started — that's



WHEN THE DISKS WHIR, Mike Robles (2632) grins. He's become an expert on the care and feeding of the Univac 1108.

the hard part (that, and freshman English) — it wasn't bad."

In October 1971 Mike was promoted to section supervisor and worked second shift. "For the first time I had all day for school so I could carry a full load."

Mike worked hard, but he sometimes brought home a B rather than his usual A. Not often though — Dolores tends to make caustic comments, like "That's what you get for watching football when you ought to be studying."

Not surprisingly, Mike's continuing his education. "I get much more out of school now than I did when I was 18. School can be a drag, of course, but it remains a challenge and offers real rewards. So I'm registering now for courses leading to a master's in business administration."

That's why this is an interim report.

Legend & Lore, Tale & Tradition, Fact & Fiction

They All Add Up To Christmas Customs

Throughout the Roman Empire Dec. 25 was known as *Dies Natalis Invicti Solis*, the Birthday of the Unconquered Sun. Across Europe and Asia other midwinter festivals also celebrated the sun's rebirth at the winter solstice. Houses were decorated with evergreens, bonfires were lit on high places to help revive the sun, and candles and wreaths were exchanged as presents.

Church policy was not to eliminate these pagan festivities but rather to purify and transform them wherever possible to give them a Christian meaning. Thus evolved many of today's yuletide customs.

However, during the 16th and 17th Centuries, these same pagan origins offended the Puritans in England and America. In 1659 New England Puritans enacted a law forbidding the celebration of Christmas. Although the law was repealed in 1681, hostility continued for many years. But the customs survived and, in fact, prospered: people contrived to hold secret celebrations in their homes, while new immigrants contributed their customs so that by the time hostility faded we had a pretty good stock of Christmas traditions.

* * *

Statesmen's Dishes is the name of a book published in 1890 which gives these instructions on preparing a turkey for Christmas dinner:

"... the turkey should be cooped up and fed well sometime before Christmas. Three days before it is slaughtered it

should have an English walnut forced down its throat three times a day and a glass of sherry once a day. The meat will be deliciously tender and have a fine nutty flavor."

(Ed. Note: take the shell off the walnut first.)

* * *

Here's some more lore superstition associated with the season:

— eat a mince pie on each of the 12 days of Christmas and have 12 happy months.

— bread and cakes baked on Christmas morning will have special virtues: they probably won't get moldy and if saved, dried, and reduced to powder may have curative powers.

— a fine preventive medicine is the dew which appears Christmas Eve.

— a bath or a change of underwear on Christmas day will bring on a rash of boils.

— a white Christmas means a green Easter.

— the number of days between the first winter snowfall and Christmas indicates the number of snowfalls before spring.

— bring in the yule log on Christmas Eve, light it from last year's log, place it on the fire for a while each night until Twelfth Night, keep it under a bed for the ensuing year and you've protected your home against fire and thunder.

— and persons born between 11 and 12 on Christmas Eve can understand what the cattle have to say. We imagine the dialogue is probably a bit heavy on barnyard humor. • nt



Retiring

Following are the Sandians retiring at the end of December 1974.

Russ Asbury (3644), Lou Baldwin (1612), Reuben Barwick (4124), Andy Blain (4822), Ralph Bowers (3723), William Bradford (4733), Wilson Brown (1254), Doug Bruce (5623), Gertrude Byrne (5000), Guy Coburn (2000A).

Bill Davis (4151), Reo DePew (9654), Ken Dickerson (3647), John Erni (5162), Clifford Fawver (9633), Charles Fletcher (9423), George French (9633), Erroll Gay (9531), Lee Gomel (4811), Glen Goodloe (9541), Raymond Gorney (3646), Ralph Griffin (5725), Carl Hawk (3155), Eugene Hopkins (3621), Elmer Irving (4811), George Ison (2110), Edwin Jenkins (1132), Charles Johnson (9344), Johnnie Johnson (1000), Clarence Lane (9516), Frank Lane (5241), Loyt Lathrop (9486).

Kermit Lindell (5252), Emilio Lopez (3612), Charles Lumpkin (3151), Lamar McKay (3721), Hugh McLaren (1135), Paul Mathews (9633), Chadwick Miller (1234), J.J. Miller (1251), Joe Miller (4154), Roland Millican (9421), Harley Moody (9351), Oleta Morris (3731), Vince Nelson (5833), Lou Paddison (9300).

D.G. Palmer (1115), William Parker (3644), Marion Phelps (9484), Robert Piper (9743), Herb Plagge (9334), Eldon Prawitz (1135), Richard Preston (2325), Ernest Re (9743), Art Redlinger (9715), Earl Robbins (9552), Brad Shaw (1135), Chester Smith (2414), Bill Stamm (9743), French Stewart (1135), Charles Stoner (2344), Cliff Taylor (3613), Howard Thomas (9541).

Gordon Troyer (9633), Charles Tucker (9611), Hup Wallis (1611), Gail Ward (3155), Elmer Wendt (9611), Walt Westman (9513), Harry Wheeler (9341), Lawrence Witt (2412), Les Wright (4820), John Anderson (4151), Severn Starzynski (1511).



NEW SHOES and little children make a nice combination, and these youngsters are among the ninety from Coronado, Riverview and Longfellow schools outfitted by the org. 1600 shoes-for-kids Christmas project. Tom Oglesby (1613) was chairman this year, the 17th for the project.

Energy Projects Gain Funding

The National Science Foundation's Grant Review Board has just approved a grant of \$1.2-million in support of the Labs' Solar Total Energy Community project, according to Glen Brandvold, manager of Exploratory Projects Department 5710. The funds, to be used during the remainder of FY 75, constitute NSF's share of support for the solar project, which the Foundation is jointly funding with the AEC's Division of Applied Technology (DAT). DAT has already provided funding of \$800,000 for the project in FY 75.

The NSF funds will be used to complete the first phase of a test facility located in the fenced area east of Bldg. 832. The facility will include 10,000 square feet of focused solar collectors of various types and a turbo-generator and associated equipment to fill most of the energy needs for Bldg. 832.

In other energy-related developments, Brandvold revealed that DAT has allocated \$20,000 to Sandia's work on down-hole replaceable drill bits (being considered for use in the drilling of oil wells) and \$45,000 to

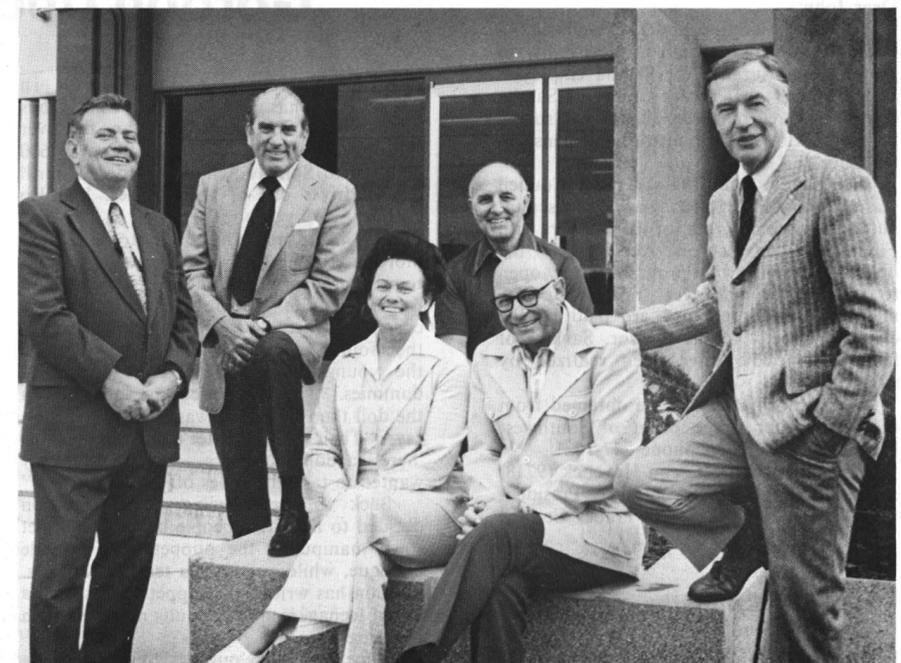
initiate a study of geophysical logging techniques, with especial reference to logging techniques applied to geothermal wells.

ENERGY SAVINGS

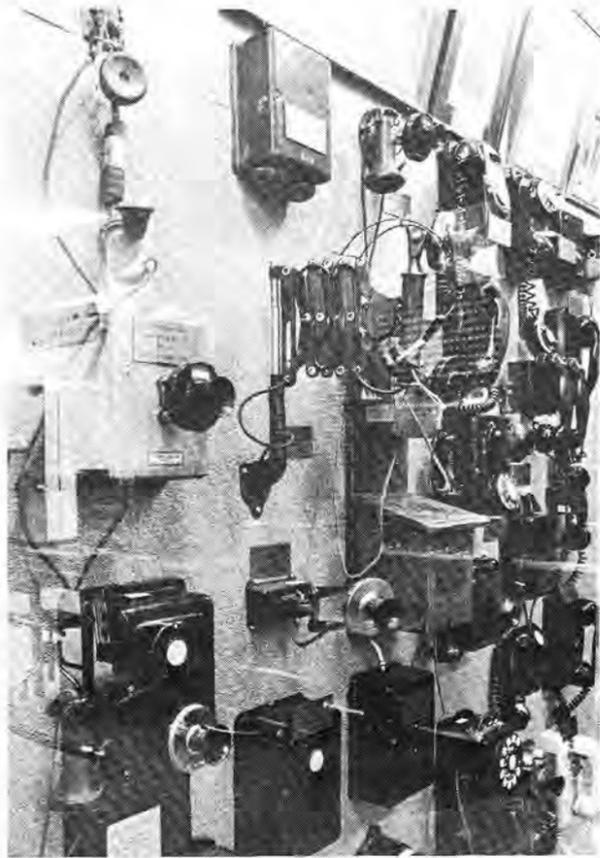
COMPARED WITH USAGE IN BASE PERIOD—SEPT. 1972 THRU AUG. 1973
CURRENT REPORTING PERIOD ENDING NOV. 74

ELECTRICITY	BASE PERIOD 91,200 MWH 1974 76,585 MWH	16.0% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 229,240 BBLs 1974 193,083 BBLs	15.8% SAVED
VEHICLE MILES	BASE PERIOD 2,475,000 MI. 1974 1,973,000 MI.	20.3% SAVED

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RETIRING at Livermore under the Sandia Early Retirement Program are, from left: John Bryson (8421), Jerry Maloney (8432), Fern Graves (8433), Roy Wilcox (8433), Jim Brock (8433) and Bill Jamieson (8218).



THE LARGE WOODEN TELEPHONE in the center is a pay telephone once located in downtown Albuquerque. Long distance calls were so expensive that the coin box had a slot for silver dollars, half dollars, quarters and dimes.



THIS SWITCHBOARD was used by the telephone company in Columbus, New Mexico from 1910 until 1956. During the raid of Pancho Villa the operator flashed the alarm to General Pershing; bullet holes in the back of the switchboard attest to the ensuing battle.

Our Town

Mountain Bell Pioneer Museum

If Nostalgia with a helping of technology appeals to you, visit the Mountain Bell Pioneer Museum. Located at 201 Third NW (the old Fedway building), the museum features telephone equipment: from a replica of the earliest telephone — an 1876 hardwood box with one tube used for speaking and listening — to all the latest instruments.

Stan Bartles from Mountain Bell's

engineering department is chairman of the Historical Committee which maintains the museum. Currently, about 500 artifacts are displayed; an additional 400 items are stored. The displays are periodically rotated, and nearly all the items are from New Mexico. The museum is open to the public from 8 to 5 weekdays.

Letter to the Editor

Dear John:

In your last issue under "Feedback" a question was raised about the possibility of group auto insurance for Sandia employees. Did you know that nearly a hundred Sandia employees are currently enrolled in just such a program, with no administrative expense to the Labs?

The Sandia Labs Metal Trades Council was successful in negotiating a group discount auto insurance program for its members with Firemen's Fund insurers. According to the underwriter, this group program is now open to all Sandia employees (not just MTC members), and premiums are paid by the employe directly to the insurer. Savings of from 25 to 35% have been realized by subscribers.

More information can be obtained from the underwriter Bruce Becht of Southwest Insurance Agency, telephone 247-1021.

Glenn Haycock (9718)
President
Metal Trades Council

Sympathy

To Jose Martinez (9715) on the death of his wife in Albuquerque, Nov. 21.

To Tony Repetti (2415) on the death of his brother in Arlington, Mass., Nov. 30.

Buses, Bible Stories Ventriloquism

Gordon Dodrill's Sundays

Bella Vista Baptist Church in Albuquerque has a program they call the bus ministry — a fleet of 17 buses fans out over the city on Sunday mornings to carry 600 children to Sunday School. Gordon Dodrill (1244) drives one of those buses. He also teaches Sunday School.

Hoping to make his Bible stories a little more interesting to his young audience (first to sixth graders), Gordon devised a couple of papier-maché puppets, completed a correspondence course in ventriloquism, but then found he couldn't hold the attention of the youngsters by using the puppets as dummies. "The kids were more interested in the doll than in what it was saying," Gordon says. "Their reaction after a few minutes was 'here's a doll that talks — so what?'. They wanted to take the shoes off to see the feet."

Back to the drawing board. Gordon decided to have two people behind a puppet stage manipulate the puppets and provide dialogue, while out front a teacher explains. Gordon has written 30 puppet scripts, and a dozen teenagers and 30 adults now help with the program.

"One week the puppets might be King Solomon and David; perhaps next week they'll represent Daniel or Jonah. We change their costumes when we change their identity

Take Note

At the American Nuclear Society's Jan. 10 meeting, Bill Snyder, manager of the Nuclear Fuel Cycle Programs Dept. 1720, is featured speaker. His topic is "Nuclear Power: A Case History in the Maturing of Panaceas" and he plans to discuss the growing pains of the nuclear power industry. Work being done at Sandia on reactor safety and waste management will also be described. The meeting will be held in the Sheraton Inn in Santa Fe, starts at 6:30 with a social hour, and dinner follows at 7:30 (\$6.25 each). Guests are welcome. Reservations should be made by noon, Jan. 8, with Bob Jefferson, ext. 4296.

The Sandians, an organization of wives of employees, will meet Monday, Jan. 6, at 7:30 p.m. at the home of Judy James, 13013 Gray Hills Road NE. Mary Reeder will discuss "Genealogy." More information is available from Anita Solberg, 298-9248.

The Sandia Labs shutdown next week will result in a substantial savings of energy. Compared to the usual one-and-one-half days Christmas closing, the shutdown will produce estimated savings of about 45 percent in electrical energy and about 30 percent in fuel — a total energy savings equivalent to 2300 barrels of oil. The shutdown is the first week-long closing in the Labs' nearly three decades of operation.

LAB NEWS
PAGE TEN
DECEMBER 20, 1974



and the children seem to relate to them," Gordon says.

Sandian David Barton (4124) works with the puppets and also captains a bus in the bus ministry.



GORDON DODRILL (1244) made these puppets to use in his Sunday School classes. This week they represented King Solomon and David.

feed *back*

To get a response to your comments and questions about Sandia Labs, complete a Feedback form (available near bulletin boards) and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

Q. The pedestrian walkway between gate 1 and Main Street on the north side of H street is unpaved and presents hazards of mud, water puddles and ice spots. Why don't we improve this walkway, used daily by large numbers of people?

A. A sidewalk on the north side of H Street hasn't been provided because pedestrians are supposed to walk on the south side of the street where there is a sidewalk. This pattern is for safety reasons since the cars exit on the south end of the parking lot. A barricade has now been installed to discourage further traffic on the north side.

R. E. Hopper - 9700

Q. I was recently informed that the reusable internal mailing envelopes are no longer available at Livermore. Since these envelopes can be used 21 times versus once for the conventional envelopes, this appears to be a tremendous waste of paper; i.e., trees. Is there a legitimate reason for this, or is it simply an oversight?

A. The reusable envelope, good for 21 mailings, has been replaced by two larger (and cheaper) envelopes good for 38 mailings. The conventional, non-reusable envelope is intended for external mailings or for internal mailing of private information.

R. J. Hansen - 4800

Q. Why can't traffic lights at intersections like those near parade grounds, at gym, etc., be changed from the yellow red green yellow sequence to a flashing yellow flashing red sequence for non-peak traffic hours?

A. The light at 7th and F (north of Medical) is a simple timed device. The only way the light can be changed to a flashing caution light is to manually change the controls and then repeat this procedure when normal traffic resumes. Air Police have agreed to change these controls at 9 a.m. to flashing amber and red and at 3 p.m. the signal is returned to the normal red-green sequence. The lights at 5th and F and at Texas and F (base gym) are part of the computerized system and are supposed to be traffic actuated so there should be little or no waiting during low-traffic periods. As time and money permits, the Air Force informs us that they plan to change the old style signal at 7th and F to the computerized system.

L. J. Heilman - 9500

Q. What are the guidelines for ESA promotion from level 210 to 250? Specifically, what is expected of a 210 to be selected for promotion?

A. Promotion from 210 to 250 ESA is dependent upon a consistently high level of performance and continuing availability of the higher level assignments. A determination must first be made that an organization has

250-level work. In cases where there are 250-level openings, the 210 ESA's considered for promotion would have to meet the criteria of consistent high level performance.

R. J. Edelman - 4200

Q. Why can't a Division Secretary be paid on a merit basis? I am aware that Division Secretaries are controlled by the Union but I feel this would make the position of a Division Secretary more challenging and rewarding.

A. Your interest in a merit program for Division Secretaries is very understandable. Establishing such a program for 30-series employees would be a matter for union negotiations. Perhaps you may best relate your interest in such a program to your union representative.

R. J. Edelman - 4200

Q. What is the effect upon our retirement plan of the retirement bill recently passed by Congress? Specifically, the effect upon vesting requirements and portability?

A. The Pension Reform Act of 1974, signed into law by President Ford on Labor Day is of considerable interest to many of us. However, it is expected to be some time before the Treasury Department and Department of Labor have promulgated their regulations, so until that happens, we will not know the full impact on Sandia's Retirement Income Plan.

Some of the major sections of the new law deal with eligibility, vesting, funding, and reporting and disclosure. Our plan has for several years contained most of the safeguards the law sets. None of the law's provisions affect pension payments themselves.

The new law provides three minimum vesting alternatives and these are being studied by Sandia and Prudential to determine which one will be used in our Retirement Income Plan. Pension plans which were in existence on January 1, 1974, are not covered by the new provisions of the law until the first plan year beginning after December 31, 1975.

Our Pension Plan does not provide for portability into or out of the plan. While portability was originally a part of the proposed bill, this feature was removed prior to passage.

R. J. Edelman - 4200

Q. I'm riding a Sandia Special bus to work. If the bus is late because of bad weather will our time be docked?

A. The Laboratories' policy on tardiness or absence resulting from the use of any of the special bus services is no different from that relating to the use of other public or personal transportation.

R. J. Edelman - 4200



JUAN ABEITA is now working with Affirmative Action Division 211 and is available for discussion or consultation in his office at the west end of Bldg. 832, ext. 9396. A veteran of 21 years at the Labs, Juan and his family live at the Isleta Pueblo where he has served as Councilman, Lieutenant Governor, and Judge.

Hanukkah — Joyous Holiday

Another major religious holiday celebrated during December is Hanukkah (Hebrew word meaning "dedication"). This "Feast of the Dedication" is celebrated for eight days — this year from Dec. 9-16 — and it commemorates a battle by the Jews against a familiar enemy, the Syrians. Only this battle took place 2000 years ago.

The Jews' victory restored the Temple of Jerusalem to them, and they proceeded to purge the sanctuary because it had been a Syrian place of worship. A legend in the Talmud, the book of Jewish tradition, relates that when the sacred lamp in the temple was relit only enough oil to last one day was found, but miraculously the small portion burned for eight days. Thus the ritual of Hanukkah, The Festival of Lights, is explained. Lighted candles are placed in the nine-branched menorah (a candelabrum) each evening for eight days; the ninth candle is used to light the others.

Hanukkah is observed as a joyous family holiday; gifts are exchanged, homes are decorated and festive meals are prepared. Combining joy with solemnity, Hanukkah celebrates the Jewish victory and symbolizes their religious belief in one God.

Variable Annuity Unit Values

January 1975	1.105
December 1974	1.149
Average 1974	1.361

MILEPOSTS

LAB NEWS

December 1974



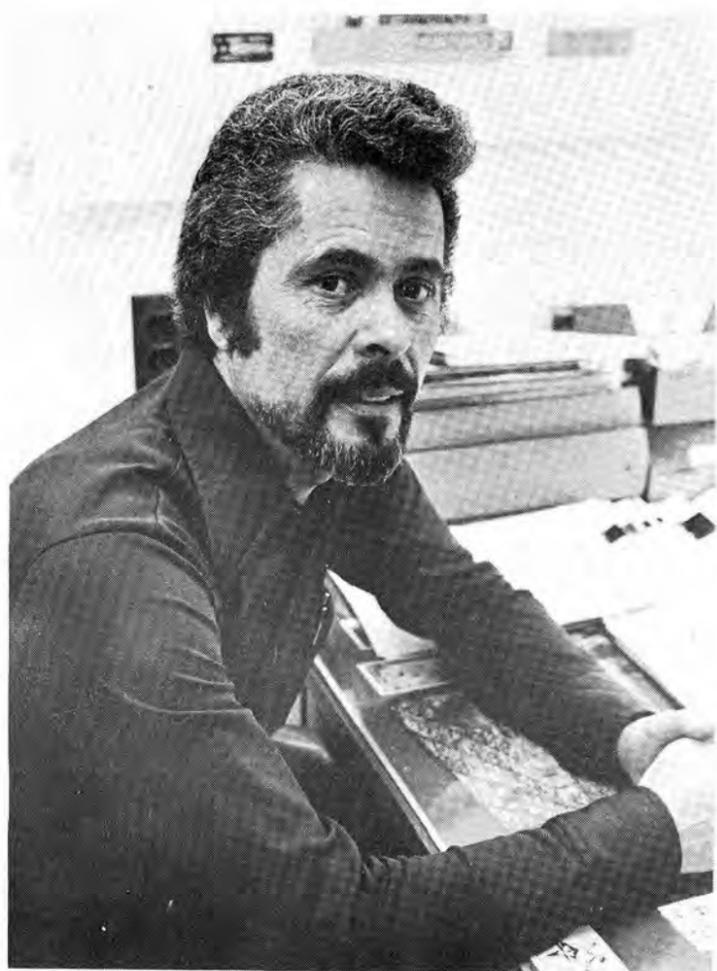
Julian Silva - 9753

25



Richard Preston - 2325

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Ralph Pena - 4812

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Roger Buehler - 2123

20



Evelyn Horn - 5642

15



Bob Banks - 4143

15



Gail Ward - 3155

20



Margaret Crawford - 9752

15



Vincent Hansen - 1735

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Reo De Pew - 9654

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Geraldine Costello - 2633

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George Hiatt - 1133

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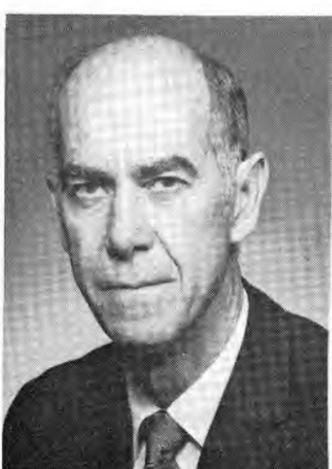
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Mac Griffin - 2510

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John Barnum - 2115

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James Robinson - 9712

25

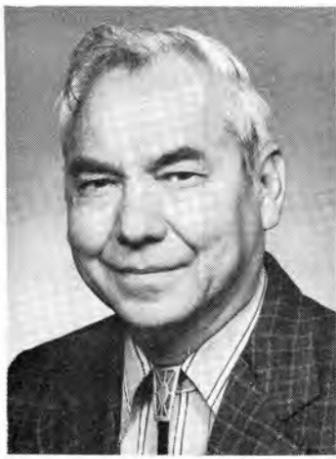


Robert Newman - 9486

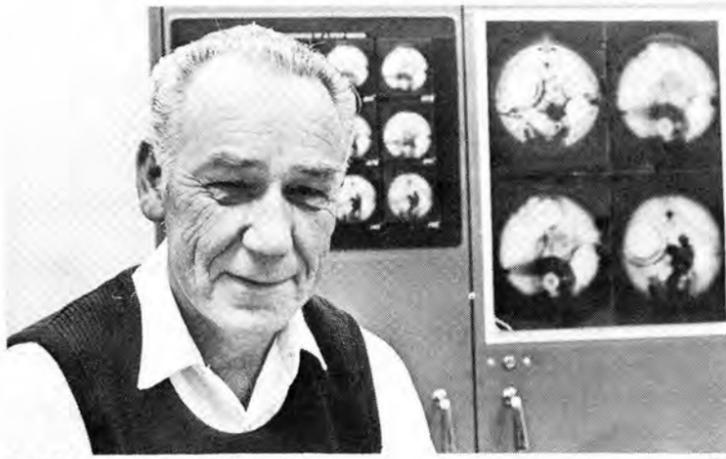
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Donald Cook - 3622 10



George Buddrius - 9515 20



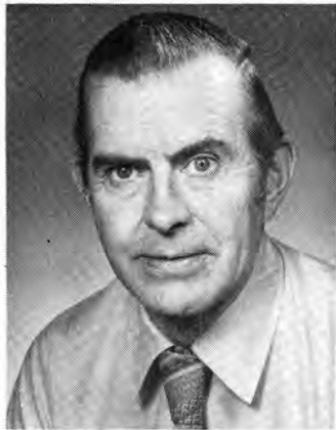
Art Hasencamp - 9351 20



Nancy Hunt - 8433 10



Leo White - 2331 25



Ralph McRae - 9614 20



Clarence Mehl - 4010 20



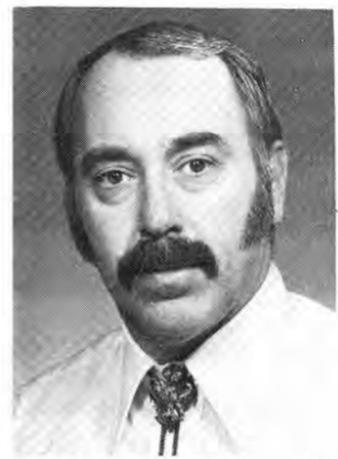
Dick Meyer - 5824 15



Silviano Candelaria - 2631 10



Val Cowen - 8000 15



James Pacini - 1241 15



Bob Strout - 8158 15



Charles Allen - 1613 20



Henry Togami - 2325 20



Victor Schaeffer - 3644 20



George Edgerly - 3621 15



Jim Meikle - 9530 25



Ray Chavez - 3155 15



Hazel Minter - 9300 20

Mexican Adventure

Tracking the Rio Urique

The Colorado River and the Grand Canyon are familiar to all, but few Americans have heard of the Barranca Urique, an awsome deep—5000 feet—canyon in the Sierra Madre range of northern Mexico. Like the Grand Canyon, a white water river, the Rio Urique, flows through the Barranca, and it was to this river that a group of Sandians recently journeyed. Object: a raft trip of several days duration and 45 miles extent, terminating at the small village of Urique.

Don Mattox (5834), who specializes in trips to out-of-the-way places, came up with the Barranca Urique and the mode of getting down the river, about which more later. He was joined by Walt Herrmann (5160), Don Peterson (9624) and wife Adair, Mac Weaver (9651), Jim Hickerson (5832), Ray Berg (5834) and Hugh Pierson (5846). All are experienced back packers.

Just getting to the river was an effort. Starting from Albuquerque, the group drove south to El Paso, crossed the border, then continued south for another two hundred or so miles to Chihuahua. Here they boarded the Chihuahua al Pacifico, a railroad of fairly recent vintage that crosses the Sierra Madre to Los Mochis on Mexico's west coast. The group left the train where it passes closest to the Rio Urique, high on the ridges above the river, and, after a long day's hike, finally arrived at river's edge. The adventure part of the adventure was about to begin.

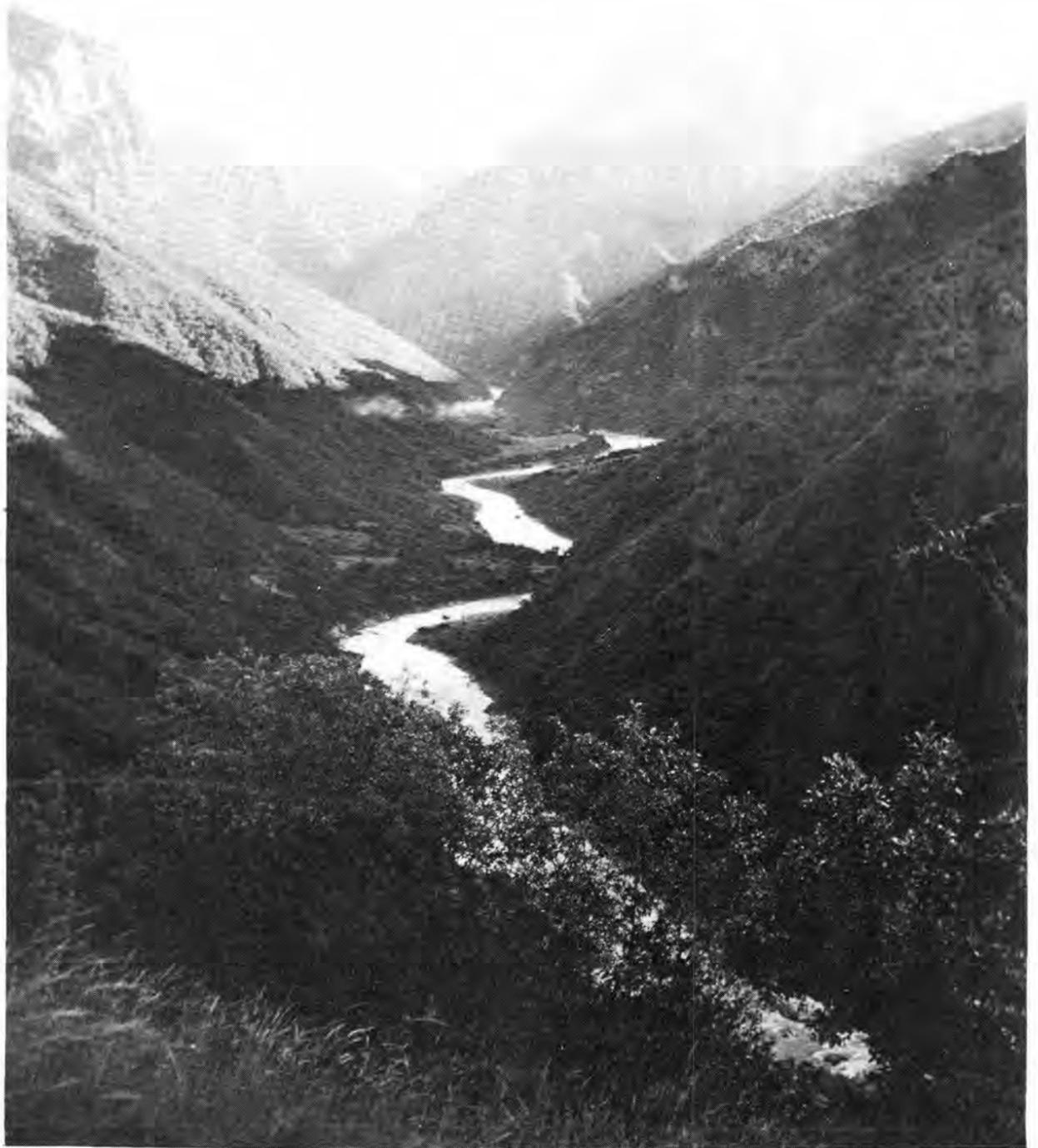
Don's scheme for rafting the river was a marriage of portability and flotation. Each member toted a 1-man life raft in his pack. Inflated, the raft carried its owner, now in swim suit, plus all his gear, suitably protected by waterproof bags and lashed down. The master of the vessel navigated, lying face down on the raft, by flailing arms and legs this way and that and hoping that Mexican rocks were friendly. When larger rapids were encountered, the rafter paddled to shore, shouldered both pack and raft, and simply walked downstream beyond the rapids.

It seemed an admirable mode of conveyance and indeed was for the first day. Then the rains came, the river rose six feet—nearly washing away the group's campsite and gear—and the resulting high turbulence quickly dispelled notions of further rafting on the Rio Urique.

With rafting no longer possible, the group decided to hike downstream along the sometimes precipitous banks and succeeded in reaching one goal—the San Miguel mine, located some 200 feet above the river. This is an active mine, operated by three Americans using native labor. The ore contains silver, gold, and lead and is sufficiently rich to justify its being carried out by burros. Here the group spent a few days exploring, having been dissuaded by the mine manager from further river travel.

The locale is tropical, and flora and fauna are exotic. Wild orchids and many flowering plants are abundant, as are fruit bearing trees—banana, orange and peach. Wild life is scarce, however, except for the crawling variety; all expedition members were well bitten.

Indians in Barranca Urique are members of the fabled Tarahumaras to whom has been attributed fantastic prowess in running. The early Spaniards first noted the Tarahumaras and reported foot races over distances



CANYON of the Barranca Urique in northern Mexico is nearly one mile deep. Expedition of Sandians planned to raft down the Rio Urique on one-man boats, but high water caused change of plans. After scrambling along river banks for several days, group emerged on canyon rim near railroad stop.



equivalent to a hundred miles. The group saw no runners, but did observe two Indians each toting a large pine pole some 15 feet long. It turned out that the Indians had climbed to the rim of the canyon that morning, felled the two trees, and were now returning to the canyon bottom, bearing their load, all this in the space of seven or eight hours.

The hike out of the canyon, about 12 miles, was hot, arduous, and uphill. But an ice cold Carta Blanca was awaiting at the small train station of Posada de la Barranca, and now Mattox & Co. expeditions are talking about a return to the Barranca Urique early in '75, when the waters of the Rio Urique are as smooth as a millpond—maybe. • js



Volunteer Fireman Saves Life

"It was just part of the job," is the way Charlie Byrne (3622) describes events of the early morning hours Sunday, Nov. 10. "Volunteer firemen answer all kinds of emergency calls."

It was about 1:30 a.m. when the radio in Charlie's bedroom crackled on — a call from the State Police reporting an accident on South 14. Charlie lives in Ponderosa Pines. He's chief of Volunteer Fire Department No. 11. The fire house is right across the road from his home.

While his wife Bonnie contacted other volunteers, Charlie dressed, hurried to the fire house and started the "mini-pumper" emergency vehicle.

A few minutes later he was at the scene of the accident. Messy. The car had missed a turn on the sinuous road and smashed into a solid rock cliff. A 17-year-old girl had been thrown through the windshield on impact and then rebounded back through the jagged glass. She suffered severe injuries. By the time Charlie arrived, she was drowning in her own blood from both external and internal cuts in her mouth, nose and throat.

Quickly Charlie applied the resuscitator/inhaler/aspirator equipment carried in the mini-pumper. He applied compresses

attempting to stop the bleeding. By the time the ambulance arrived, the girl was breathing adequately with the aid of the resuscitator.

Charlie kept the machine operating and attended the girl in the ambulance until arrival at an Albuquerque hospital. The doctor on duty credits Charlie with saving the girl's life. She has since undergone extensive plastic surgery and is recovering.

"I'm happy that Sandia has provided out-of-hours first aid courses through the years," Charlie says. "I've taken many of them including advanced first aid. This training has proved extremely valuable."

The volunteer firemen from Department No. 11 are responsible for about 130 square miles, which includes many of the small villages on South 14. They are called for house fires, forest fires, serious auto accidents, medical emergencies, searches for lost hikers or campers and even for rescue work in inclement weather. During a recent storm, the volunteers assisted stranded vehicles on South 14 and housed seven persons overnight in the fire station. There is no "average" emergency. Each situation is different.

"We might go for a month without a single call," Charlie says, "and then — pow! — a couple of weeks ago we answered 13 calls in a two-week period."



Charlie Byrne

Charlie has been an active volunteer fireman in the Ponderosa Pines area for 25 years. Other Sandians in Department No. 11 include Bob Foster (9531), Bill Jacoby (5716), Cliff Condit (3617), Ron Hamilton (3313), Bob Davis (9322), Ray Opperman (2414), Jack Bullock and Jim Hockett (both retired).

Next LAB NEWS Issue

Next issue of LAB NEWS is three weeks off — Jan. 10. Deadline for ads for that issue is noon, Jan. 3.

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.
A maximum of 125 ads will be accepted for each issue.

RULES

1. Limit 20 words
2. One ad per issue per person
3. Must be submitted in writing
4. Use home telephone numbers
5. For Sandia Laboratories and AEC employees only
6. No commercial ads, please
7. Include name and organization
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color or national origin

MISCELLANEOUS

GARAGE DOOR, 12' x 8' w/tracks, \$50 or best offer. Adent, 293-3715 or 345-9393.

PUPPIES, just in time for Xmas, Springer Spaniels, AKC registered. Westman, 881-0471.

CHECKMATE 12-string guitar, \$65; 4 bar stools, \$20. Goen, 268-7521.

SKI boots, buckle type, size 6 & size 9-1/2, \$20 ea. Navratil, 293-5527.

PUREBRED German shepherd puppies, male & female, no papers, 6 weeks old, \$10 ea. Johnson, 255-0262.

38" ELECTRIC Hotpoint stove, 2 ovens, \$30 or best offer. Goolsby, 255-1174.

BRAND NEW king-size headboard, still in carton, Mediterranean style, \$50 value, \$30. Spatz, 299-0410.

BABY CRIB w/Simmons foam mattress, dark wood, \$20. Ottinger, 242-7935.

THREE 2-spd. electric heaters, 1 Shermadon, 2 Sears, one-half cost. Miller, 255-1324.

MICHELIN tire tubes, 700-750 x 15; girl's 26" bike; bowling shoes, size 6; World Book Ciclo-Teacher; typewriter, Royal electric (pica). Geck, 299-5095.

FREE: Shasta daisies, you dig them. Slesinger, 299-4626.

SEWING machine, Fleetwood (Pfaff), \$20; bicycle, Schwinn

Stingray, 24", \$40; irrigation gates, 15", galvanized, \$25 ea. Harley, 898-0594.

LARSON snowmobile, used approximately 50 hrs., 14 hp, \$225. Draper, 881-9183.

ZENITH solid state stereo console, AM/FM, contemporary mahogany cabinet, record changer, 8-speaker sound system, radio needs work. Smith, 292-1568.

CAGE, bird or animal, 6'H x 7'L x 2' deep, walk-in doors, metal, \$25. Stevens, 299-6086.

2-HORSE trailer, Appaloosa gelding, saddle & tack, \$650 takes all. Lujan, 831-2210.

AQUARIUMS, pumps, covers w/lamps, filters, etc. Barth, 345-0172.

TWO ea. vented gas heaters, 35,000 & 45,000 BTU, \$50; 2-dr. refrigerator-freezer, \$110. Patterson, 877-3158.

HAMMOND organ L-101, new condition, bench to match, \$1000. Fisher, 247-4816 after 5.

STEREO portable phonograph, G.E. Wildcat. Blotner, 298-9459 after 5.

SILVER HISHI necklace, 10-strands, 24" long, \$50. Loomis, 255-9470.

AUTO WASHER, 1 yr. old; electric clothes dryer, utility sink, dbl/bed, tables, other household items. Schwoebel, 298-4295.

SERVICE MANUAL for '72 Volvo 4-cyl. vehicles; '59 edition Encyclopedia Britannica, yearbooks through '65. Hock, 881-1318.

FREE: 8-week old pups; 20-year old Lionel train, best offer. Eisenhour, 298-0188 after 6.

6x9 OVAL orchid rug, \$30; child's Suzie Home-baker oven, \$8. Berglund, 344-8344.

FOUR mag wheels, F-78-14, 7-1/2" wide w/chrome lug nuts, fit any GM product, \$175. Babich, 265-9238.

MAN'S Garmish buckle boots,

size 8-1/2 w/boot trees, \$20 or make offer. Barton, 265-8607.

GUNS, 8mm Mauser w/scope, \$75; 6.5 x 55 Kragg, \$50; accordion, 120 bass Scandall, \$100. Long, 296-2590.

FREE: baby gerbils. Veneruso, 292-0372.

ICE SKATES: girl's, new, size 2, \$15; roller skates, man's, indoor, size 9, \$10. Jemison, 881-7230.

BAR-REINFORCED light-truck tire chains, fit 7.00-15, 7.50-15, 7.00-16, 7-17.5, & 8-17.5 tires, nearly new, \$25. Jones, 299-6542.

16" TRIKE, like new, \$8; 6' toboggan, \$10; alum. screen door, 36 x 80, \$5. Brown, 296-9009.

24" WONDER Pony, \$8; playpen, \$10; rocking horse, \$8. Oliveira, 298-0657.

TOW-BAR, universal type to fit most cars, \$35; golf clubs, \$30. Wolcott, 293-5934.

BIKE, 3-spd., woman's; Persian cat; Teddybear hamsters; Angora registered bunnies; ski boots, size 12 & 2, hold for Xmas. Hickman, 298-3804.

DIAMOND ring, lady's, 14K yellow gold, 3 diamonds, large diamond .42 carat, appraised \$525, sell for \$300. Gregory, 268-2022.

SKI boots, lady's, size 6-1/2N, size 10 ski pants; also, twin size mattress, stroller, high chair. Kennedy, 298-0704.

SCM portable adding machine, cost \$60, \$35; Airquipt slide projector, screen, 40 trays w/case, \$200 value, \$85. Glaser, 293-8110.

PUPPIES, will be 6 wks. old Xmas day, Lab cross & Husky, free. Postenrieder, 299-8388.

14" WHEELS from '65 Mustang, 5-holes, \$4 ea. or 4 for \$15; 8mm Keystone movie camera, \$35; 21" color TV, \$85. Chandler, 296-3323.

LAFAYETTE Comstat radio, 23 channels, complete w/35 ft.

antenna, includes power supply, amplifier, power mike, \$150. Brooks, 881-4319.

TRANSPORTATION

10-SPD. ITALIA bike, Simplex gears, center-pull brakes, new pedals, large chain & lock, new \$140, \$70. McMaster, 345-4993.

'72 SUZUKI 750, liquid cooled, \$995. Jordan, 255-7000.

'72 DATSUN 1200, 2-dr. sedan, light blue, AT, radio, \$2000, could use an older model pickup as partial payment. Salazar, 877-0998 after 6.

'70 YAMAHA 250 Enduro, set up for dirt, but have all street equipment, \$295. Allen, 255-4370.

'72 HONDA 350-CB, very low mileage, \$600 firm. Montoya, 881-6898 or 881-6536.

BICYCLE, Raleigh Sprite, 27", man's touring, 23" frame, \$70; Phillips lady's 5-spd. touring, 21" frame, \$40. Van Den Avyle, 898-6474.

'70 HONDA SL-100, 2800 miles, \$225. Hawn, 299-7835.

AIRCRAFT, 1/5 share Mooney MK20A, IFR equipped, ELT EGT, transponder, dual nav-com, 3-LT 500 hrs/chrome/prop. Trudo, 299-6449.

'66 VW Fastback, 1 owner, radials, 52,000 miles, make offer. Stump, 898-2546.

'74 YAMAHA DT-360A Enduro, green. King, 281-3186.

'66 CHEV. Imp., 4-dr., AT, PS, 283-V8, \$550. Garcia, 293-1589.

BICYCLE, Sears, 5-spd. w/thorn resistant tubes, \$45. Herther, 298-4823.

'69 VW Bus, rebuilt engine, new tires, paint, AM-FM, sunroof, extras, \$1550; 3 antique National cash registers. Nunez, 268-3605.

'64 FORD 1/2-ton pickup, SWB, 4-spd., no trades, \$625. Davidson, 256-7212 after 5:30.

'35 CHEV. std., 2-dr. sedan, restoration begun, many new parts, \$400 firm or trade for guns. Ridlon, 298-4729.

'63 CHEV. Impala, 4-dr., runs, \$150 or best offer. Jones, 881-1918.

'73 BONANZA dirt-trail bike, 100cc, Hodaka engine, street licensed, \$250. Snyder, 298-2693.

LOST AND FOUND

LOST — Pair of brown suede gloves; carving knife; brown leather key ring w/5 keys. LOST & FOUND, Bldg. 832, Tel. 264-3441.

FOUND — Man's black leather gloves; small round gold earring. LOST & FOUND, Bldg. 832, Tel. 264-3441.

WORK WANTED

TENNIS LESSON: Flexible, private, semi-private schedules during Xmas Holidays, early January, experienced instructor, Indiana Varsity. Larry Lindsay, 299-7454.

FOR RENT

LARGE 2-bdr. furnished apt., carpet, yard, extra storage, \$140 including water & gas, no pets. 431A Texas NE. Aragon, 294-0225.

2-BDR. unfurn. apt., all appliances, dishwasher, laundry hookups, carpet, drapes, near San Mateo & Kathryn, \$150 plus utilities, deposit. Elder, 265-2386.

WANTED

PHOTOGRAPHIC enlarger & related equipment & materials. Swain, 265-0098.

SHOP manual for '67 Pontiac Catalina or other full sized Pontiac. Karnes, 299-9033.

SEWING cabinet w/drawers to accommodate 730 Bernina. Trump, 299-5162.

• CONFETTI • C-CLUB •

FRIDAY	SATURDAY
20 — HAPPY HOUR <i>Barbara in Lounge</i>	21 — PRIVATE COMPUTERISTS PARTY
27 — HAPPY HOUR <i>Yolanda in Lounge</i> 2 - 11 TEEN DANCE 7:30 - 10:30	28 — OFFICE and BAR OPEN Noon - 10
3 — HAPPY HOUR VEAL CORDON BLEU Adults \$2.95 Under 12 1.95 <i>Denny on Stage</i> ERNIE & THE SAINTS	4 — FAMILY VAUDEVILLE <i>Ballet de Jovencitos</i> <i>Littlest Outlaw</i> 6 - Food; 7 - Show Free to Members

PEACE — and beauty, fun and relaxation. Great foods and wines, sparkling blue waters, cultural and historic landmarks. Five nights in Athens, seven nights aboard the S.S. Atlas (with three gourmet meals plus a midnight buffet each day). All this and more on the Grecian Holiday Apr. 23-May 6. Members and guests, from \$815. *Deadline* for sign-up Jan. 15.

ON — Feb. 28 through March 2 it's a Las Vegas Whirl. \$120 (dbl. occ.) gets you air fare, two nights at the Castaways, tips, and a slot machine package (build your own?). Sign up soon.

EARTH — revolves one more time around the sun; it's a new year. Celebrate the revolution at the New Year's Eve Maxi-Bash, 8 to 1. Hats, noisemakers, confetti (confetti is good for the soul), champagne breakfast — and 2 (two) bands. Pick up tickets (\$9 member couple, \$12 guest couple) *today or tomorrow*.

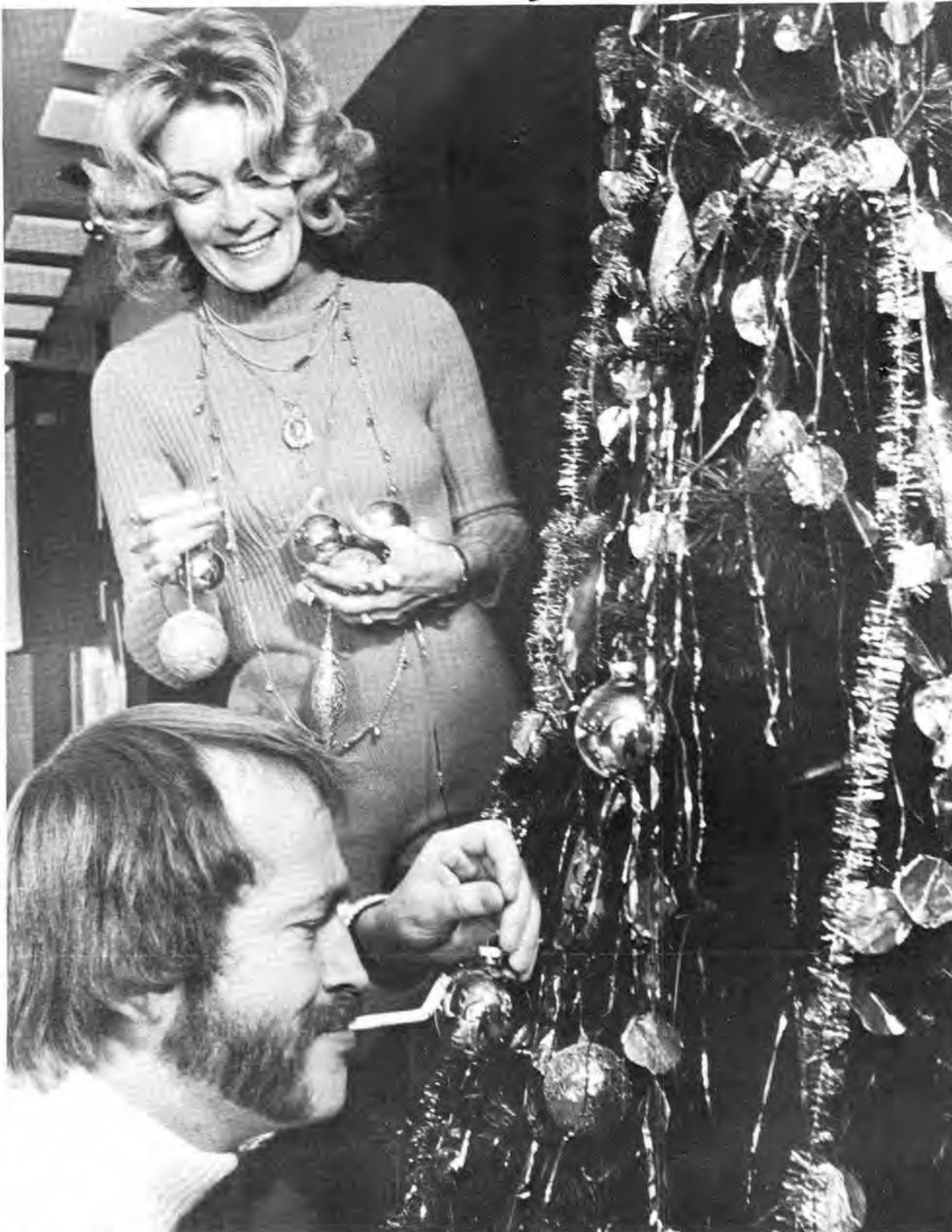
GOOD — news for teen-types: *Marsh Lung* is back for the Teen Dance on Friday, the 27th. Tickets by parents, please.

WILL — a Family Vaudeville kick off 1975 right? Indubitably. Native Spanish dances by the *Ballet de Jovencitos*, *The Littlest Outlaw* by Walt Disney, and serialized suspense by *The Three Musketeers*.

TO — find good fellowship on the 24th, try the Special Happy Hour, noon to 6. Dec. 20 and 27 Happy Hours in Lounge only. Club closed Dec. 25 and Jan. 1.

ALL — who miss summer swimming, try winter under the big bubble. Family season ticket for only \$2.50 (with continuous

Holiday
AMERICA'S FAVORITE ~~CIGARETTE~~ BREAK



New Year's Eve at the C-Club. (Posed by quasi-professional models Bill (9424) and Cherry Swartz.)

membership). Family swimming 11:30 to 1 Mon-Fri; 5 to 6 Tues & Thurs; 12 to 4:30 Sat. (Closed Dec. 25 and Jan. 1) Or rent the whole pool for a midwinter swim party — just \$35 for two hours — any Friday evening or weekend.

AND — the Philip Whitecloud family is Sanado's attraction for January (the 14th). Authentic dances, including war and eagle, in

full costume plus explanation of the symbolism of each dance. Reservations by Jan. 10 with Ann Tapp, 7433 El Morro NE.

SUNDRY — Sandians have appealed for a Peel, Shrimp-type. Jumbo Texas Gulf shrimp — all you can peel eat on the 18th. \$5 members, \$6 guests, tickets by Jan. 11, but *don't wait till then* if you're a serious shrimper.

MORE INFO — 265-6791.

Advice to the Poolorn

By Otto Miles Shorter, Exp.

Dear Otto:

Settle this one for our car pool. Is it a good idea to let the heater warm up the car before picking up the riders?

JUAN DRING

Dear Juan:

Socially, it's a great idea — nothing nicer than a warm car on a frosty morning. But economically and ecologically, it's lousy. We experts recommend no warm-up at all: start the engine and start driving — but don't race the motor. It doesn't hurt the engine as much as a fast idle warm-up and it saves a bunch of gasoline.

Dear Otto:

Is it too late to get computer-matched with other Sandians from my area who want to car pool to work? I didn't sign up last spring because I was riding my bike.

SHIVERING CYCLIST

Dear S. C.:

It is getting a bit brisk (and dark) for bike-riding, isn't it? No, it's not too late. Call 4-RIDE and ask for a car pool registration form. Fill it out, return it, and shortly thereafter you'll get a list of the car poolers nearest you.

