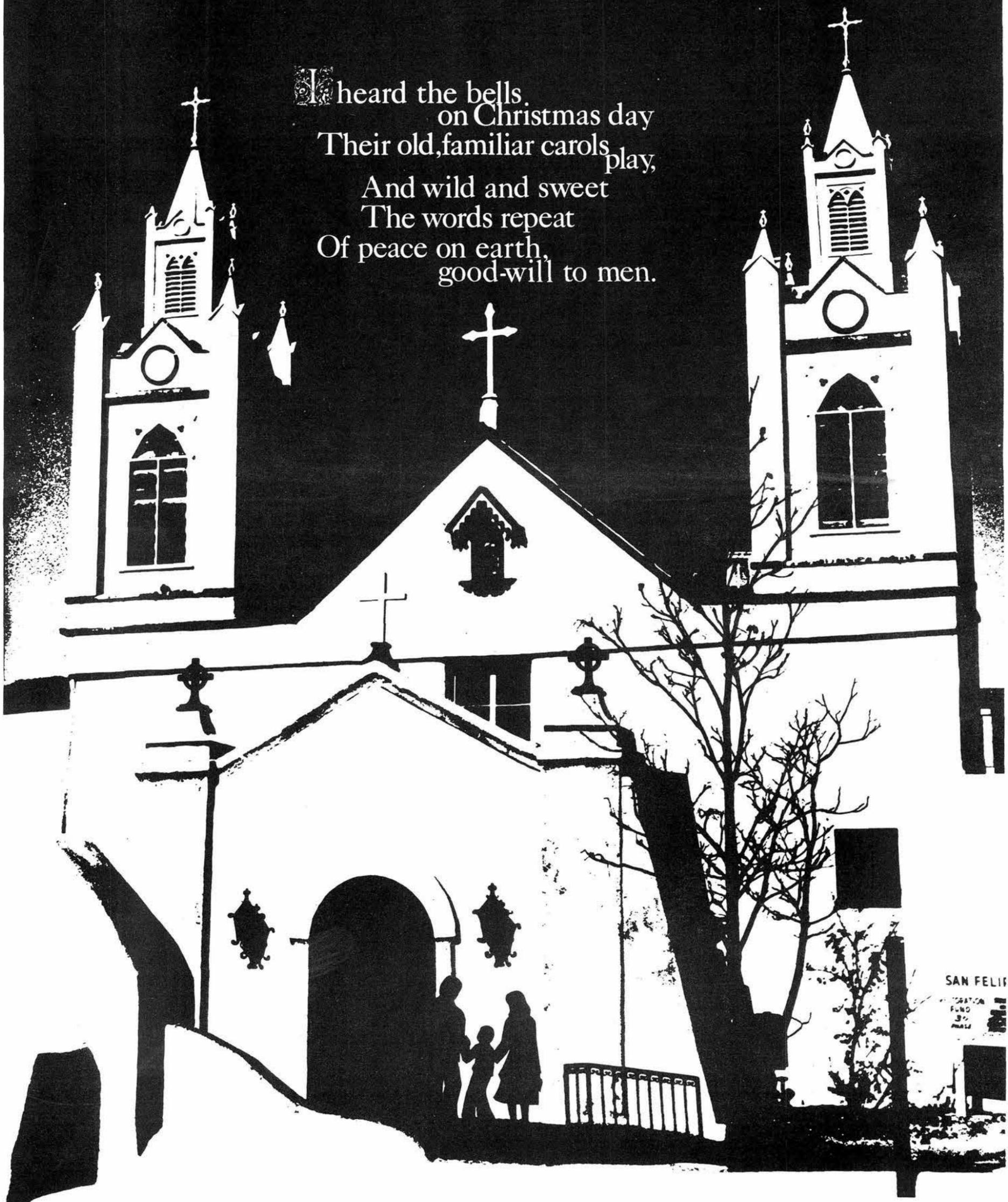


**C**hristmas 1975  
LAB NEWS

I heard the bells  
on Christmas day  
Their old, familiar carols play,  
And wild and sweet  
The words repeat  
Of peace on earth,  
good-will to men.



# Afterthoughts

Railroads--A while back we railed about the absence of progress on our railroads and noted that the Japanese were light-years ahead in RR technology. A reader sends us a clipping that indicates the situation may not be quite so dismal. Here's the lead paragraph: "Trains that haul passengers and ferry their automobiles too may begin appearing throughout the nation as a result of an agreement. Amtrak... reached agreement with the private auto-ferrying company, Auto-Train, to allow joint venture operations on Amtrak rails." The auto-ferry concept is patently desirable; fuel savings alone justify its introduction throughout the country.

\* \* \*

The Big Apple--We spent a few days in New York over the Thanksgiving holidays and made a point of observing that city and its people in the light of its highly publicized difficulties. After all those TV accounts of the place going down the tubes, we half expected a scene reminiscent of that we used to see whenever a French or Italian government fell--people milling around in the streets, shaking their fists at the cameraman, here and there dabbing a tear away with a handkerchief. Well, they're milling around just as they always have, in commercial pursuits; and an occasional taxi driver shakes a fist, usually at the archenemy--a truck blocking his way; and we dabbed away a few tears--New Mexico eyes aren't ready for New York's smog. The Big Apple's problems seem to be as remote to its own inhabitants as they are to us.

\* \* \*

Christmas recipes--First graders at the elementary school in Aztec, N.M., were asked to prepare a book of special recipes. Here's a few that will get you through the holidays:

#### Sopapillas

A little bit of dough  
2 eggs  
add some flour and cook it.  
Put in oven and cook. Not too hot.

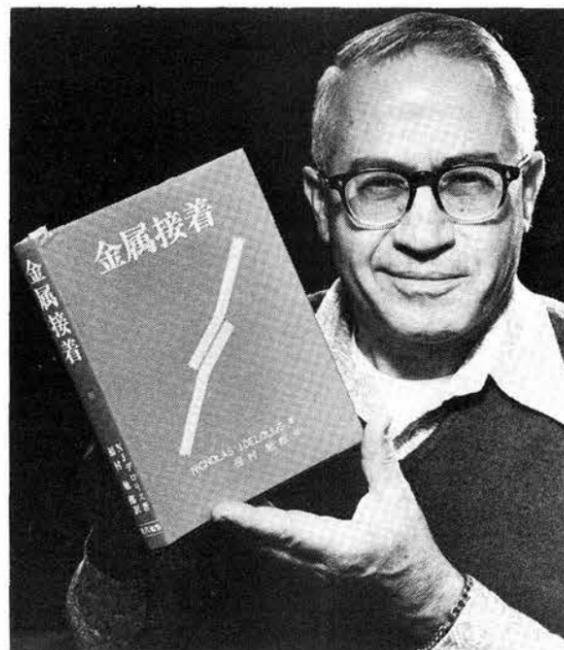
#### Cherry Pie

Use a different kind of flour.  
One box of cheeze. Put it in a crust. Put that cheeze stuff in. Then put cherries in. Put the lid on it and put it in the freezer.

#### Beans

Take the rotten one out.  
Cook them on stove in big pan for just a little while.

\*js



NICK DELOLLIS (5813) is calling this version of his opus "Zen & The Art of Adhesives," but for those of you whose Japanese is a little rusty there is the English-language version: "Adhesives for Metals — Theory and Technology."



"KISS ME KATE" is both Gene Ives' (4360) command and the title of the Civic Light Opera musical comedy opening Friday and running weekends through Jan. 3 at Popejoy. Gene plays a writer-producer-actor who specializes in *The Taming of (his very own) Shrew*, hence the command — and the whip.

## Deaths

### LAB NEWS

Published every other Friday

#### SANDIA LABORATORIES

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Editorial offices in Albuquerque, N.M.  
Area 505 264-1053  
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In Livermore Area 415 455-2111

john shunny is editor  
&  
don graham ass't. editor

bruce hawkinson & norma taylor write  
bill laskar does picture work  
gerse martinez lends a hand  
&

lorena schneider reports on livermore



Percy Doucett, secretary to Redistribution and Marketing Division 3283, died Dec. 6 after a long illness. She was 60. She had worked at the Laboratories since June 1959.

Survivors include four sons.



Richard Clarke of Heat Transfer and Fluid Mechanics Division 1343 died Dec. 12. He was 30. He had worked at the Labs since February 1969. He is survived by his father in Rockford, Ill.

## LABS SHUTDOWN

**Attention non-Sandians:** To conserve energy Sandia Labs will again close down for the entire Christmas week, from Friday the 19th at 4:30 pm to Monday, Dec. 29 at 8 am.

## Recreation Notes

### FUN & GAMES

*Note to an unrecognized athlete* — In our recent readership survey, some respondents observed that we haven't given coverage to all the sports pursued by Sandians. That's right, and we herewith reveal the magic formula for gaining such coverage: tell us, please. Our deadline is the Friday before the Friday LAB NEWS comes out. We prefer to get the info in writing and it doesn't have to be pretty — just correct.



Joan Brune



Karen Pashman



Juanita Mansfield



Pat Leary



Paula Neighbors

## SLL's Women of Science View International Women's Year

During 1975, the "International Women's Year," much attention has been focused on women's rights and responsibilities. At Sandia, women in scientific work — all members of the technical staff — pursue professions in mathematics, chemistry, and engineering.

We discussed with several of the women their career choices and how they view Women's Year.

JUANITA MANSFIELD, a computer programmer in Numerical Applications Division 8322, originally gained a BA in liberal arts, then had a family and, when her children started in school, went back to college. "Through self-motivation, I completed a master's degree in mathematics and took my present job. Being self-supporting adds a great deal to a person's self-esteem, especially in our society where the value of what one does is judged very strongly in terms of money. I'm rather disappointed in the International Women's Year and also that the Equal Rights Amendment is not very likely to pass. At this point, it appears that women's consciousness raising has made strides, but there's a large number of women who want to stick to the traditional pattern — and that's perfectly all right. Choices should be available and perhaps Women's Year has brought these to more women's attention."

KAREN PASHMAN, who holds a PhD from the University of Arkansas, is a chemist in Metallurgy and Electroplating Division 8312. "As early as grammar school, science was my goal. I settled on chemistry, partly because there weren't many women in the field. I also enjoy learning and finding new things, and this aspect of science caught my imagination. Some of Women's Year has been meaningful, some not. The Mexico City meeting sounded partly like fantasies, partly like one group trying to impose their views upon others, which doesn't get anyone anywhere. But the publicity probably pointed up the need for concern."

A computer programmer in Numerical Applications Division 8322, PAT LEARY is an avid bridge player and ranks among the top women duplicate players in the country. "Because I was good in science, I majored in it and then went on for my master's in mathematics," she says. "I worked at Bell Labs in Whippany, doing essentially what I'm doing now — scientific programming — while my husband finished graduate school. Now he's in the same type of work, although a different specialty, so that makes for a lot of compatibility. I'm not all that aware of International Women's Year, so I really don't have a meaningful comment."

JOAN BRUNE, a systems analyst in Systems Studies Division, got her MS degree in engineering from Stanford University this year. Joan also serves as mentor for a student attending Stanford under Sandia's

Work/Study Program. "I did well in science and math in school, so went in that direction with a bit of coercion from home, especially from my brother who is a geophysicist. The world of science intrigued me. I couldn't understand why the softer sciences supposedly were so hard — now I understand why. But at the time I thought those people were just reading and hashing things over, whereas I wanted to get into some real, clear-cut problems. Here I am, working with undefined problems in a multi-discipline area. But I really enjoy problem solving. International Women's Year appears to be nothing more than a name, although some professional women's groups have been emphasizing it. Seems the whole women's movement has been dampened. Until you get everyone enthusiastic and make some real demonstration of women's goals, people aren't likely to give much thought to the subject."

With an interest in science since childhood, PAULA NEIGHBORS is a computer programmer also in Numerical Applications Division. "I played with erector sets, trains and chemistry — never dolls. Math was always my love and I wasn't stifled at home, in fact, my father encouraged me. I finally found my niche and completed my master's in math this year. As far as Women's Year and the women's movement are concerned, I'm personally independent and liberated, so I don't pay that much attention. I do feel there should be equal pay for equal work and that women need to assert themselves more. If there's been failure, it's because people were trying to convince people to be something they didn't want to be. The important thing is that women have a choice, and hopefully, the Equal Rights Amendment doesn't lose more for women than it gains."

# LIVERMORE NEWS

VOL. 27, NO. 25

LIVERMORE LABORATORIES

DECEMBER 19, 1975

## Authors

Rudy Johnson and Jack Dini (both 8312), "Fabricating Closed Channels by Electroforming," PLATING AND SURFACE FINISHING, Vol. 62, p. 456

Ken Dolan (8344), "X-Ray Induced Electron Emission from Metals," JOURNAL OF APPLIED PHYSICS, Vol. 46

Dan Tichenor (8344) and Prof. J. W. Goodman (Stanford University), "Restored Impulse Response of Finite-Range Image Deblurring Filter," APPLIED OPTICS, Vol. 14, No. 5

Jack Dini (8312), "Chemical Milling," INTERNATIONAL METALLURGICAL REVIEWS, Vol. 20, pp. 29-56

Larry Weirick (8312), "Oxide Stresses Effect on the Oxidation of Thorium," STRESS EFFECTS AND THE OXIDATION OF METALS, Monograph of 1974 Fall Meeting, Metallurgical Society of AIME.

Jack Dini and Rudy Johnson (both 8312), "Corrosion and Thermal Stressing Studies of an Electroplated Joint," MATERIALS PERFORMANCE, Vol. 14, No. 19

## Sympathy

Pat Gildea (8335) on the death of his mother-in-law in Walnut Creek, Nov. 19.

Clyde Taylor (8413) on the death of his mother in Pleasanton, Dec. 2.

## Congratulations

Mr. and Mrs. Garry Brown (8324), a son, Christopher Ryan, Nov. 10.

Kit Maynard (8433) and James Swingle (LLL), married in Livermore, Nov. 1.

## Take Note

The Meritorious Service Medal was awarded recently to Jim Struve (8324) who completed 14 years of military service before joining SLL in September. One of the first officers of the U.S. Army Nuclear Agency to be so honored, Jim was cited for his contributions to the Staff Officers Field Manual, a document which has considerable influence on U.S. Army nuclear weapons employment concepts.

\* \* \*

Marlin Pound (8214) has been re-elected to a three-year term on the Board Commissioners Branch of the National Parks and Recreation Association. In addition, Marlin will continue to represent the California Association of Parks and Recreation at the national level.

## Death

Bill Biergiel, an engineering design assistant in Design Definition Division 8431, died Nov. 29 after a short illness. He was 61.

Bill had worked at Sandia since April 1962.

Survivors include his widow, two sons and a daughter.



## Computer 'Drop Tests' Weapon Shapes

On the screen the outline of the F-4D levels off and a series of numbers flash the time. An aircraft-delivered vehicle drops slightly away from the aircraft, but then the nose of the vehicle flips up, striking the aircraft. Disaster.

"This never happened," Harold Spahr (1331) says. "It's only a computer simulation of what could happen under certain release conditions and forward fin control system failures. Designers were able to eliminate this problem early in the design stage. By computer, this weapon was released from an aircraft dozens of times before any hardware was built.

"About three years ago," Harold says, "a dramatic store separation problem occurred when a Navy F-14A ejected a Sparrow missile. The missile flew back up into the aircraft which caught fire and was destroyed. To help avoid such problems, the Air Force and Navy usually require theoretical store separation analyses or store separation wind tunnel tests before approving a drop test of a new shape."

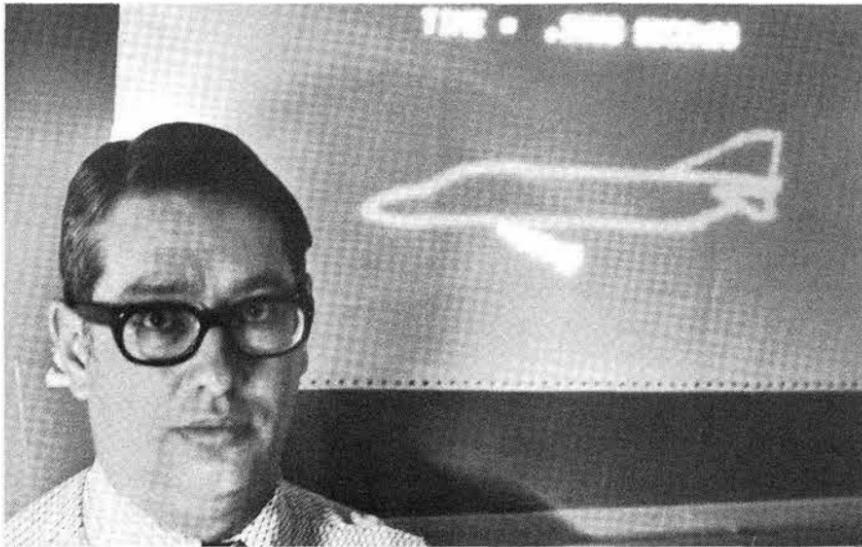
Harold has been specializing in the aerodynamics of store separation from aircraft for about five years, with a significant part of that time spent in developing a useful computer program to show the separation of experimental weapon shapes from aircraft. The program is called MOVIE II. End product is a color movie, color slides, or drawings, graphically displaying the critical moments after release.

On several occasions, actual flight test movies of a release event were superimposed upon the computer movie images frame by frame, with good agreement being shown.

This kind of success rests upon the detail incorporated into the analysis. All of the factors — the complex nonuniform flow field around the aircraft, the weapon shape and mass properties, and the ejection velocity and angular rate — must be considered. This is accomplished using Sandia's CDC 6600 computers and a modified DatagraphiX 4020 plotter, out of which — ultimately — comes the completed motion picture film. The original program for subsonic store separation, extensively modified by Harold, was prepared by Nielsen Engineering and Research Inc. for the Air Force Flight Dynamics Laboratory at a cost of \$1 million.

"The computer analysis and movie," Harold says, "provide valuable data early in the design stages. Designers become aware of potential problems and solve them early. Different modifications to a design can be tried before fabrication. We can do things — such as run a series of failure models — that could never be attempted in reality. Also, the cost of computer analysis is a small fraction of the cost of wind tunnel testing or full scale drop tests. The computer does not replace actual testing, just reduces the number of tests required."

The MOVIE II program is flexible. It has been used to show the motion of clustered parachutes behind test units, motion of reactor core components during an earthquake, and a nose cap separating from a



HAROLD SPAHR (1331) describes computer program MOVIE II. It depicts on film the "flight" of experimental weapon shapes during critical moments of release from air craft.

solid rocket booster used for NASA's space shuttle.

"We are continually working on improvements to the store separation program," Harold says, "such as developing theoretical models for more aircraft and adding the capability to look at rocket boosted weapons. Also, the MOVIE II program is continually being updated to provide more realistic reproduction of the images as seen in actual movies." •dg

**Page Four  
Lab News  
December 19, 1975**



## Events Calendar

- Dec. 19** — Basketball: UNM vs Portland State, 7:30 p.m., UNM Arena.
- Dec. 20** — Albuquerque Symphony Ensemble and Choral Ensemble, Main Library Auditorium, 5th & Copper, 3 p.m.
- Dec. 20** — NM Mt. Club, Bear Canyon in the Sandias, 8 a.m., Eastdale.
- Dec. 21-22** — Hockey: Albuquerque vs Billings, 7:30 p.m., Tingley Coliseum.
- Dec. 22** — Basketball: UNM vs U.S. International, 7:30 p.m., UNM Arena.
- Dec. 24** — Albuquerque Symphony Ensemble and Choral Ensemble, Senior Citizens Center, 5221 Palo Duro NE, 1:15 p.m., Free.
- Dec. 26-28, 31, and Jan. 1-3** — Albuquerque Civic Light Opera: "Kiss Me Kate," 8:15 p.m. (2:15 Dec. 28), Popjoy.
- Dec. 27** — NM Mt. Club, Foothill Trail, hike 4 miles, 9 a.m., Eastdale.
- Dec. 28** — Patio Festival of the Arts: Barbara Navratil; Indoor Garden Patio, 9 a.m., Four Seasons Inn.
- Jan. 1** — KHFM Request Day, benefit for Albuquerque Symphony Orchestra.
- Jan. 4** — NM Mt. Club, Jemez Mountains, hike 4-7 miles, 8 a.m., Gulf Mart.
- Jan. 6** — Club Culturale Italiano — movies on Italy, Reception Center, 146 Quincy NE, 7:30 p.m.
- Jan. 9-10** — Albuquerque Symphony — Florence Quivar, mezzo soprano, music by Mahler & Falla, 8:15 p.m., Popejoy.

## Les Harris Builds Grandfather Clock

Les Harris (1731) has this thing about grandfather clocks. He always wanted one. "Can't explain it," he says, "but ever since I was a little kid I've wanted a grandfather clock. But I backed away from the \$1000 price tag. Other things were more important."

About a year ago Les read an ad in a magazine for a do-it-yourself kit, sent for it, and now, after 200 hours of highly concentrated meticulous work, a richly-polished grandfather clock stands tall in his living room.

"It's sort of a build-your-own family heirloom," Les says, "and I must admit that all the work was worth it. As it chimes the quarter hours I get a nice feeling of satisfaction."

The kit contained the mechanical "works" of the clock and all of the pieces for the cabinet in rough cut black walnut. Not difficult to assemble, Les says, but it required concentration on detail. The mitred corners were tricky, but the hard part was the hours and hours of hand sanding followed by the hours and hours of hand rubbing the several coats of stain and varnish.

The remarkable thing is that Les did it without enjoying it. As a teenager he had worked with his father in house construction and did not enjoy finishing wood. "I had to push myself evenings and weekends to get started. Once into it I could manage to stay with it for several hours. Not only did I learn to build clocks, I learned a few things about myself — maybe self discipline."



LES HARRIS (1731) displays the grandfather clock he built during evenings and weekends over a 10-month period.



INTERIOR of San Felipe Church has been refurbished many times since 1706, but the basic structure and much of the carving are original.

**Vista New Mexico**

# Old Town Church Predates Revolution

The Church of San Felipe De Neri — our Christmas cover — was one of the first structures in historic Albuquerque. Erected on the north side of the plaza in 1706, the building has undergone only minor changes since then; new bell towers and a facade were added during the 1880's, and more recently, brick floors replaced the splintered and sagging original wood. For nearly 300 years the church has been a landmark and it has compiled a singular record: Sunday services have been held without missing a single Sunday since Father Manuel Moreño opened it in 1706.

Father Moreño, 30 families, and a few soldiers accompanied Don Francisco Cuervo y Valdés when he set out from Bernalillo to establish a new villa. Don Francisco was the 28th colonial governor and captain-general of

New Mexico. In a letter to the Spanish Viceroy-Duke of Albuquerque, dated April 24, 1706, Governor Cuervo states that he had founded the villa "on the margins and meadows of the Rio del Norte in a goodly place of fields, waters, pasturage and timber." He added that 252 persons resided in the villa, a church had been built and other public buildings were being constructed.

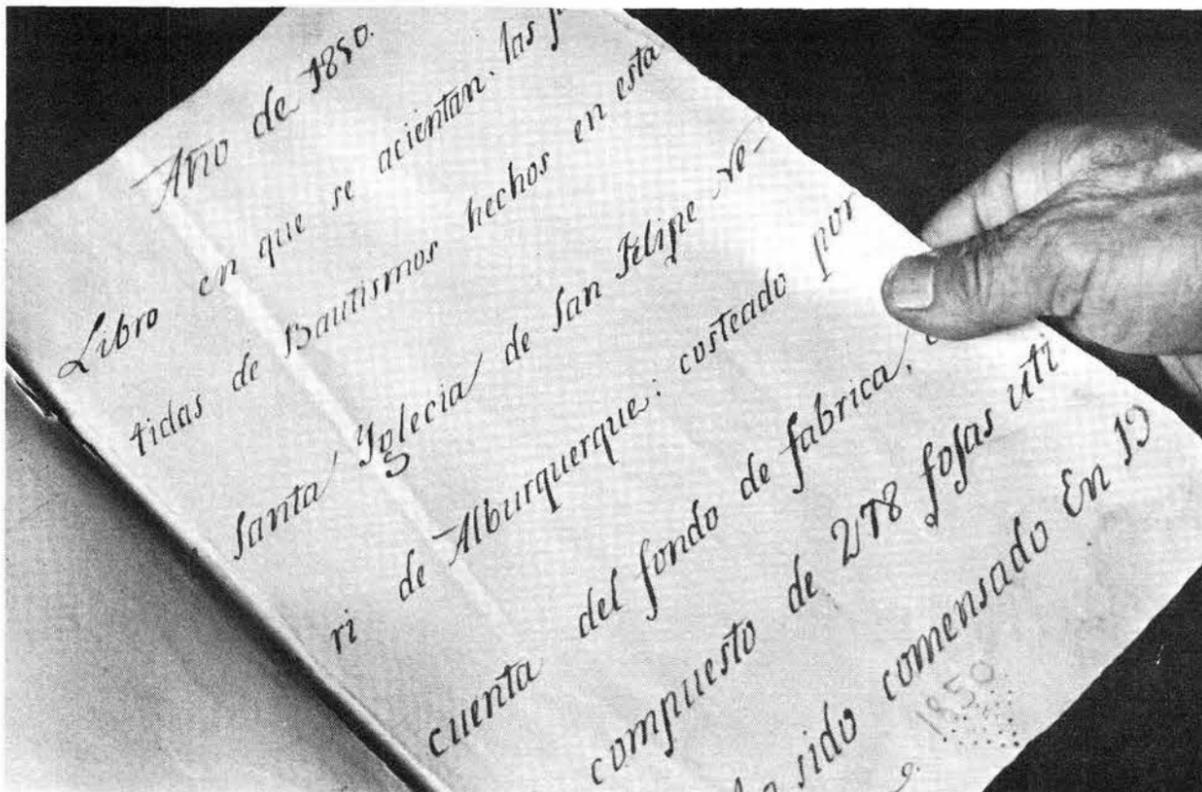
Father Moreño and his helpers built well; all the villas were subject to occasional raids from marauding Indians. During the Pueblo Revolt of 1680, the Indians had used a particularly successful form of attack — firebrands and battering rams. To withstand such an assault, windows of the church were placed 20 feet above the ground and the adobe walls are more than four feet thick.

At one stage during early construction, the

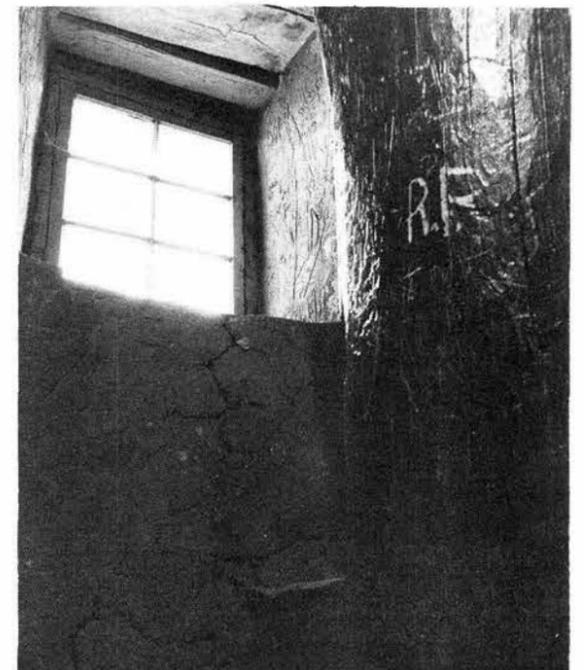
builders were confronted with a problem — a live spruce tree, about 14 inches in diameter, stood in the way of a proposed stairway leading to the choir loft. The solution was simply to trim and top the tree and build a tightly spiraling staircase up and around the tree. The staircase is still there but is no longer in use because of unsafe flooring in the choir loft.

Parish registers have been saved and so the church has an almost complete record of activities since its inception. As you look upward at the original, hand-carved, arched ceiling supports or examine the ornate pulpit, the hand-carved confessionals, altars, and numerous images and statues, the sense of age is strong.

The church still dominates the plaza, the pigeons still fly in and out of its bell towers, the old timers still doze in the sunshine on the benches around the plaza, and Old Town looks forward to three centuries of existence. (Cover photo by LAB NEWS' Don Graham) • nt



CHURCH archives contain an almost complete record from 1706; this page is the frontispiece of the baptismal record for the year 1850.



TINY staircase circles a spruce tree trunk; the graffiti are of a later age.

## Take Note

Move fast and you can get your Christmas Eve Luminaria-Tour-By-Bus tickets at the Credit Union (open today, Monday and Tuesday). Each costs a buck, and each gives you a seat on an hour-and-15-minute bus ride through the Country Club, Old Town, and Los Altos areas. Pick up tickets for the departure time you prefer (every 15 minutes from 6:15 through 8:15), and be at the Civic Auditorium 15 minutes before departure time.

\* \* \*

Your children interested in theatre? Albuquerque Little Theatre plans workshops in drama (acting, diction, mime, etc.) especially for 8-18 year old children of Sandians/ERDAns. Workshops (1½ hours each) will be held at the Theatre on nine Saturdays beginning Jan. 10. The fee is \$25. Hillary Maveety is the instructor. She has a degree in Children's Theatre as well as acting experience in New Mexico, California, and New York. Application blanks are available in the LAB NEWS office.

\* \* \*

It's too late to make your own luminarias now. So let some Boy Scouts do you a good deed tomorrow. Troop #165, under the leadership of Fred York (2131), is selling luminarias at \$1.25 a dozen at St. Paul's Methodist Church, 9500 Constitution NE, from 9 to 4 on Dec. 20. Or you can call Fred at 299-4906 and order three dozen or more delivered to your door for \$1.50 a dozen.

\* \* \*

The Albuquerque Civic Chorus will present a concert of Christmas music at the new Albuquerque High School Auditorium tomorrow (Saturday) evening at 8:15. Admission is free; however, seating is limited. The concert will include a variety of works ranging from the Saint-Saens Christmas Oratorio to "Twas the Night Before Christmas."

\* \* \*

Earl Gresswell, ERDA's records management official in the Management Information Systems Division, was honored recently with the presentation of an Award of Excellence from the Association of Records Managers and Administrators (AMRA). The award recognized his significant contributions in simplifying federal paperwork and reducing costs.



FILLING OUT an Employment Application form in Bldg. 832 lobby last week was one S. Claus. "I need off-season work beginning next month," he explained to Frances Morris (4256). His specialty, approaching targets while eluding radar surveillance, is expected to contribute significantly to the country's defense posture. Personnel, however, predicts some problems with his security clearance based on his notorious contempt for passport regulations.

## Bonnie Vigil on ESA/EDA Career Path

When Bonnie Vigil (1223) graduated from St. Pius High School in June 1969, she was "tired of school."

"I was eager to go to work," she says.

Two months later, she was attending classes at Sandia Labs as part of a secretarial training program for new hires.

"School again," she says, "but I enjoyed improving typing and shorthand skills. After a few months I was assigned a permanent secretary position and it was great. I enjoyed the work and the associations. And, for a couple of years I felt satisfied with this type of work."

"A friend," she continues, "kept urging me to go to college — so finally I signed up for a couple of courses at UNM."

"Surprisingly, I enjoyed it and did well. I had not been an outstanding student in high school. Now, after four years of it, going to school and studying are a way of life."

In the meantime, the Labs announced a new personnel program, the "Graded to ESA/EDA Career Path," which provides a formal progression for selected employees to move to staff assistant level provided (1) that a line organization makes a spot available, (2) the employee meets selection criteria, and (3) the employee successfully completes a course of study equivalent to the earning of a Technical Institute certificate.

The program was born in bad times. Sandia's budget was under tremendous pressure. In a time of reduced manpower, only seven organizations could sponsor a trainee. Five years is the projected time for program completion.

Through regular bidding procedures and interviews Bonnie was chosen to fill one of the original ESA trainee openings. Her academic record at UNM and demonstrated interest in becoming a computer programmer were the deciding factors. This was in September 1974.

Now, just over a year later, Bonnie has completed the study modules necessary to make her a third-year level trainee. Division 1223 and Sandia's training organization worked out the course of study. Most of the classes were taken in Sandia's out-of-hours training program; others were completed on a self-study, work-at-your-own-pace basis with proficiency tests at the completion of each study module. As she progressed, Bonnie was assigned more demanding tasks on the job. The work and the study are complementary.



BONNIE VIGIL (1223): "... become highly motivated."

Currently, Bonnie is taking statistical methodology at UNM and working on FORTRAN and time sharing techniques in the out-of-hours courses. She has completed several math, English and physics courses. If things go well, Bonnie figures she can complete the ESA required courses in another year and a half. She averages 20 hours of homework per week, which leaves little time for other activities.

This past September, 15 more openings were announced in the program, and selection of participants was made. Announcements of openings are usually posted in August.

If you are interested in the program, be sure to discuss it with your personnel representative. Best way to qualify is through completion of courses in the out-of-hours program, at TVI or at UNM. Then, as Bonnie says, "become highly motivated."

## \$455,664 Final ECP Tabulation

Final tabulation of the results of the 1976 ECP drive shows a total of \$455,664 pledged by employees, an increase of 10% over last year, according to Joe Laval (3163), ECP Committee secretary.

"This is a remarkable achievement," Joe says, "in light of the 9% decrease in the number of employees contributing to ECP."

Minimum contribution to ECP was raised this year from \$1 per month to \$2, which is believed to account for the decrease in participation.

Participation in ECP dropped from 86% to 77% of employees.

Average gift, however, increased 8% from last year's at \$74.66 to the current \$80.75. Some 50% of employees contribute at the Fair Share level.

"We lost 500 participants who were contributing at the minimum level," Joe says. "Still, the total dollars increased and so did the amount of the average employee gift. The majority of Sandians responded generously to the needs of the community."

# feed back

*Q. The signs in the Tech Area I giving speed limits in kph are a good addition, but don't they miss the spirit of the SI conversion effort? People won't be able to control their vehicle's speeds to 24 kph, but to 25 kph. It appears to be the same type of mistake as saying that an item is "about 25.4 mm long."*

A. Your comments have stimulated some additional thought about future use of metric units in safety applications. The signs you referred to came about as a result of frequent calls concerning vehicles exceeding the 15-mph speed limit in Area I. Safety Engineering Division conducted some checks of vehicle speeds in the Tech Area, using a Doppler Radar "Speedgun." Results indicated frequent speeds in excess of the 15 mph. To help focus attention upon the 15-mph limit, a decision was made to place a sign, of a different color and utilizing the SI units corresponding to 15 mph to the SI equivalence. Whenever vehicle speedometer dials are standardized to read in kph, we will undoubtedly re-establish the posted speed limits. For example, the posted figures might then be 25 kph (15.53 mph). We feel that this would conform with the spirit of the conversion effort.

L.J. Heilman, 9500

## Advice to the Poolorn

by Otto Miles Shorter, Exp.

When people travel together, some guidelines for acceptable behavior are usually necessary. The rules below, posted in each Wells Fargo stagecoach in 1871, may serve car poolers as a starting point, but not (it is hoped) as an end result:

- If ladies are present, gentlemen are urged to forego smoking cigars and pipe as the odor of same is repugnant to the Gentle Sex. Chewing tobacco is permitted.
- Gentlemen must refrain from the use of rough language in the presence of ladies and children.
- Don't snore loudly while sleeping or use your fellow passenger's shoulder for a pillow as friction may result.
- Abstinence from liquor is requested, but if you must drink, share a bottle. To do otherwise makes you appear selfish and unneighborly.
- Firearms may be kept on your person for use in emergencies. Do not fire them for pleasure or shoot at wild animals as the sound riles the horses.
- In the event of runaway horses, remain calm. Leaping from the coach in panic will leave you injured, and at the mercy of the elements, hostile Indians and hungry coyotes.
- Gents guilty of unchivalrous behavior toward lady passengers will be put off the stage. It's a long walk back. A word to the wise is sufficient.

Those with ride-sharing problems are invited to write Otto Miles Shorter in care of this newspaper.



PROGRAM GRADUATES and Sandians Claudia Johnson (9651), Peter Simon (9622), George Torrez (9742), George Hart (9654), Luis Apodaca (9742), and Nash Chavez (9743). Not shown, Ray Gallegos, Jesse Valdez.

## Unique TVI-SLA Program

Raising people in one year from the ranks of the unemployed to full-time, high-skill jobs is the considerable accomplishment of teachers and students in a unique training program.

It began last year when ERDA (then AEC) suggested that Sandia and a local school cooperate in a high intensity work-study program. Aim: student success in the labor market. The suggestion was pursued by TVI's Richard Herrera, coordinator of their drafting program, and Wayne Trump (4231) of Sandia's Education and Training department, who jointly developed a unique cooperative school-and-industry drafting education program.

Twenty-three young people with menial or no jobs (and with few prospects of anything better) were chosen on the basis of some interest in drafting, some math skill, and motivation.

A ten-week preparatory phase at TVI introduced the students to communications, math, and drafting. Then came a trimester (15 weeks) of theory and practice at TVI, followed by a trimester of work-study — work halftime at Sandia in either the Drafting or Plant Engineering group, and study halftime at TVI. The program ended with 15 weeks of fulltime work at Sandia.

Eight of the 14 students who graduated were offered jobs by Sandia; all accepted.

"We accomplished what we set out to do," says Chuck Arning (9651) who served as instructor for the students assigned to electro-mechanical drafting. "We found that complementing TVI's classroom and lab training with our real-life industrial experience works well."

The students assigned to Plant Engineering were trained by several members of the 9740 staff with special attention from the design engineers. Says Don Knott (9742), "Both Ken Harper (9743) and I were pleased with the results of the program. We felt that the students were definitely prepared for employment in the architect-engineer field."

"Our biggest job," says Richard Herrera, coordinator of the drafting department at TVI, "was to motivate the group — primarily

by exposing them to the opportunities available in drafting. Once they realized the need for, say, mathematics, they were able to go from barely-able-to-add to algebra in a few weeks. Working with them was a gratifying experience."

Art Eiffert (9650) served as manager for the program: "It's a worthwhile one for several reasons. For one, the combination of advanced education and on-the-job experience gives trainees a salable occupation and a

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**LAB NEWS talked with the eight Sandia employees who made it through the TVI-Sandia drafting program. To a man/woman, they agree that:**

—the program was stiff but it could have been stiffer ("I expected to work harder," "we learned a lot but we could have done more homework")

—the experience at Sandia was "real-world" as opposed to the "just-school" experience at TVI ("but you've got to have that stuff before you can make it out here")

—the program is a great opportunity to acquire a skill ("sure beats plastering . . . leatherwork . . . being unemployed!")

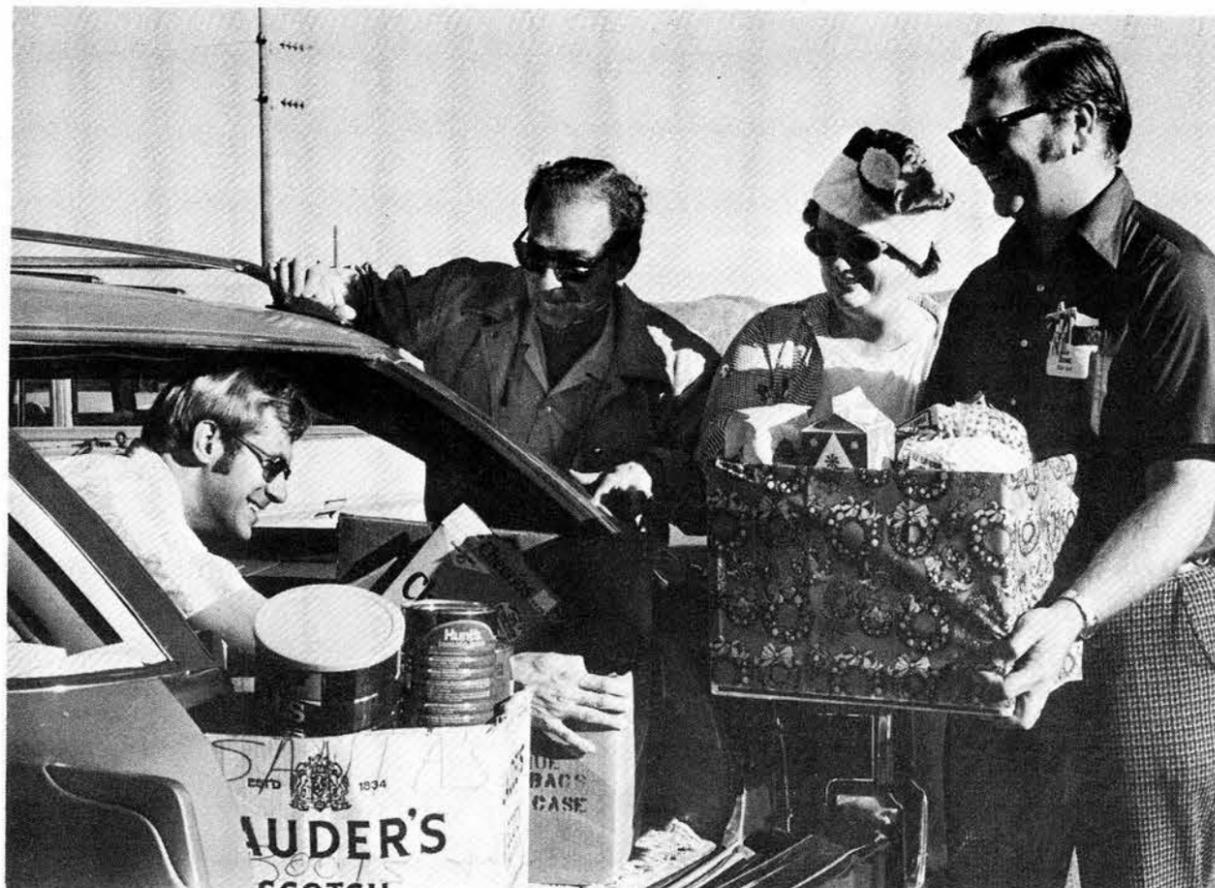
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sense of accomplishment. Those who end up employed, by Sandia or by another company, eventually repay the money it cost for their training — they are off the unemployment rolls and, like the rest of us, are paying taxes."

The program continues this academic year with five students in construction drafting, ten in electro-mechanical. Another indication of the program's success: it's being used as a model for similar ERDA-sponsored programs around the country.

As Wayne Trump puts it, with some pride, "They're a damn sight more employable now, thanks to major contributions by Sandia organizations and fine support by TVI."





9600'ers load up Christmas gift basket in preparation for delivery to families suggested by the Salvation Army. From left, Wayne Shirley (9654), Charlie Duvall (9622), Mary Ward (9622) and Earnest Roberts (9634). Project is now in its 18th year.

## Christmas Projects Around the Labs

Eighteen years ago, draftsmen at Sandia started a tradition — instead of sending Christmas cards to each other, they decided to help those who would find the Christmas season very slim. It started out very small in funds but large in feelings.

Today that tradition is being continued by the people in org. 9600. It has grown so large that now they obtain the names of 24 large families from the Salvation Army. Some of these families are on welfare, some on pensions, and others are working.

After generous donations and some diligent shopping, the 24 gift baskets, each containing a week's supply of food, are personally delivered by members of the committee.

The committee is headed this year by Co-chairmen Wayne Shirley (9654) and Earnest Roberts (9634). Committee members are: George Sinos (9621), Charlie Duvall (9622), Mary Ward (9622), Don Bliss (9623), Wade Adkins (9624), Alice Rodriguez (9631), Mary Lafrenz (9633), Johnny Baca (9634), Stephen Babicz (9651), Al Eno (9652), Richard Shaum (9653), Robert Arnot (9654), and Jose Pacheco (9655).

\* \* \*

Almost as old as the 9600 Christmas project is the South Highway 14 Village Project, which Sandians will associate with book stand sales in Bldgs. 802, 892 and 880. The Project helps poor people in the villages of Escabosa, Chilili, Tajique, Torreon, Manzano and Punta. People from throughout the Labs help in the Project, which operates usually out of the LAB NEWS office.

This Christmas some 25 families have been selected for assistance, out of the 100 on whom the Project has information. The remaining 75 are equally needy, but Project funds will only stretch so far. Besides food, families receive clothing and shoes that have been donated, plus any other donated items such as furniture and appliances. The Project



PINTO BEANS, 500 pounds worth, are one part of the food package being delivered to families in villages on South Highway 10. Ruth Bontrager (4252) pours while Abbie Williams (3152) and Gerse Martinez of LAB NEWS do bag holding. Project money is chiefly raised by book, bake, and trash bag sales.

also buys items such as towels, sheets, blankets and cleaning supplies; these have universal applicability.

A number of the "families" consist of one or two old people whom the Project makes a special effort to identify and to help. Most young people leave these villages for greener pastures and, as a result, the villages have a disproportionate number of old people.

Project people are making their deliveries to the villagers this weekend.

## Biography

# Six ERDA AA's Now Named

The recent swearing in of Austin Heller as ERDA's Assistant Administrator for Conservation completes ERDA's initial complement of six Presidentially appointed Assistant Administrators. The other five chief executives for ERDA's program areas are: James Liverman, AA For Environment and Safety; Richard Roberts, AA for Nuclear Energy; A. D. Starbird, AA for National Security; John Teem, AA for Solar, Geothermal, and Advanced Energy Systems; and Philip White, AA for Fossil Energy.

LAB NEWS plans to carry short biographies of these officials in this and succeeding issues, starting with those of Mr. Heller and retired Lt. Gen. Starbird — a familiar figure at the Labs.

\* \* \*



Austin Heller was formerly executive director of the New York State Council of Environmental Advisers. He also served as secretary of the Department of Natural Resources and Environmental Control in Dover, Del.; as Commissioner, New York City Department of Air Resources; Deputy Chief of the Technical Assistance Branch, Division of Air Pollution Control of the U.S. Public Health Service; adjunct associate professor, environmental health, Columbia University School of Public Health, and adjunct professor for environmental engineering at the Cooper Union School of Engineering Science.

He received his AB degree from Johns Hopkins University in 1939, his MS from Iowa State University in sanitary bacteriology-chemical engineering in 1941.

At ERDA Mr. Heller is responsible for the activities of the divisions of Electric Energy Systems, Interprogram Applications, Transportation Energy Conservation, Buildings and Industry, and Conservation Research and Development.

\* \* \*



A. D. Starbird, "Dodd" to his friends, was confirmed by the Senate as Assistant Administrator for National Security on May 1, 1975. From June 7, 1971 until his ERDA appointment he directed the Office of Test and Evaluation, DDR&E, in the Office of Secretary of Defense.

He was born in Fort Sill, Okla., and graduated from the U.S. Military Academy in 1933. In 1942 he served with the 1st Division during landings in North Africa and with the Fifth Corps during landings in Normandy. He served on an early atomic weapons task force at Eniwetok Atoll and, in 1955, was named Director of Military Application for the AEC. In 1961 he organized Joint Task Force 8 and commanded it during Operation Dominic, the 1962 nuclear test series.

He was named Director, Defense Communications Agency in 1962. In 1967 he became Sentinel (later Safeguard) ABM System Manager. Gen. Starbird retired from active military duty in March 1971.

# A Visit to a Solar Heated Home

Frank Zanner (5833) has built a new home in the Sandias. It *looks* different — not long, low, and rambling but rather one which juts sharply from the surrounding piñon and cedar.

And it *is* different — its form follows its function: to tap the sun's energy, store it, and use it to heat its 3000 square feet of living space (three floors, three bedrooms, three baths, magnificent living room, etc.) So the south roof is more than a roof; it's also a thousand square feet of solar collector with its steep pitch (55°) dictated by the need to trap a maximum amount of insolation when the winter sun is at its lowest point.

The roof is made of blackened aluminum collector panels each of which contains many small tubes. Through these, water flows and is heated before returning to the 3000 gallon heat storage tank under the house. A pump can move the water from tank to rooftop whenever collector temperature is higher than storage temperature. When the pump is off, the system drains completely so the tubes can't freeze.

Air warmed by the hot water in the storage tank passes through conventional furnace ducts to heat the house. Domestic hot water comes from smaller tanks immersed in the large heat storage tank.

Water for heat storage can also be heated by pumping it through pipes embedded in the fireplace. A conventional gas furnace serves as back-up to the two systems.

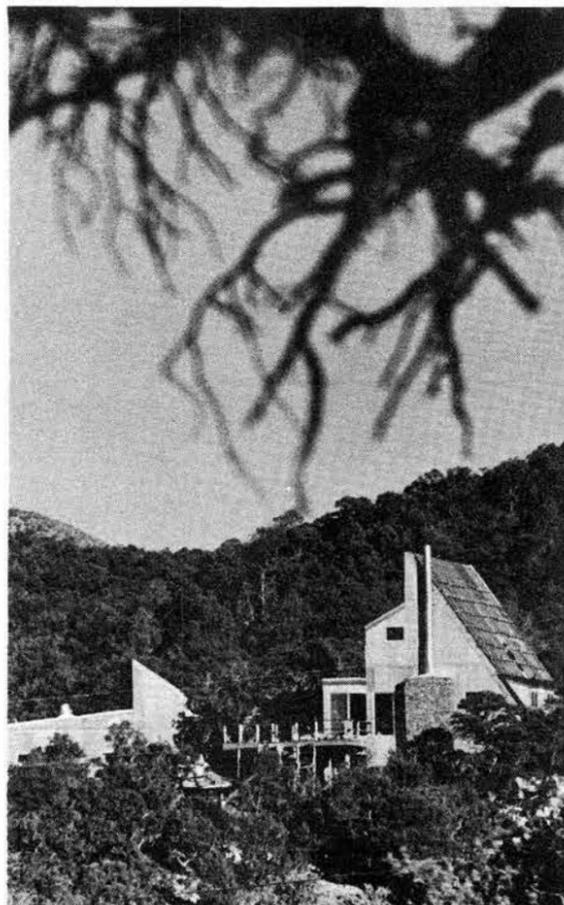
"The house is well built and well insulated," says Frank. "Special doors and windows and good walls mean we'll lose a minimum amount of heat (like 40,000 BTU's an hour) at 0° F. At the same time the system will be delivering 80,000 BTU's per hour.

The garage system is similar but uses air, heated in the roof panels and stored in large rocks, instead of water. Both roofs will be covered by Filon panels with high transmissivity to prevent winds from dissipating the collected heat.

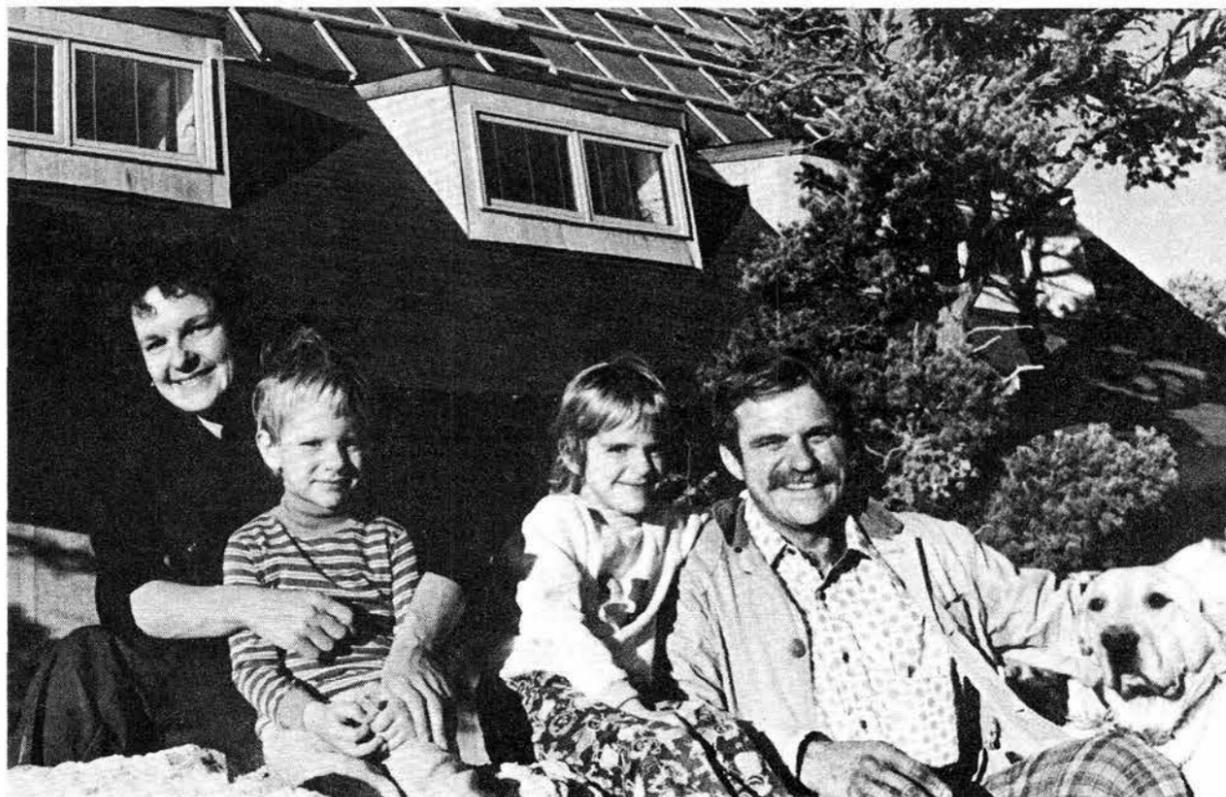
Frank designed the heating systems and did much of the work on the house. But he credits Don Schlagel, the architect, and Chuck Van Gelder, the general contractor, with making the home an attractive — and fuel saving — place to live. • bh



HOUSE LOOKS ACROSS VALLEY to Sandias rising in the distance. The horizontal braces on the roof will be removed as transparent sheets are installed.



UNORTHODOX ROOF ANGLES permit unorthodox heating systems.



THE ZANNERS — Med, Matthew, Jennifer, Frank, and Sam.

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G.W. Arnold (5112), "Near-Surface Nucleation and Crystallization of an Ion-Implanted Lithia-Alumina-Silica Glass," Vol. 46, No. 10, JOURNAL OF APPLIED PHYSICS.

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R.R. Rye (5114), "Crystallographic Dependence in the Surface Chemistry of Tungsten," Vol. 8, No. 10, ACCOUNTS OF CHEMICAL RESEARCH.

W.H. Smryl (5831), "Stress Corrosion Cracking of Ti-8Al-1Mo-IV in Molten Salts," Vol. 31, No. 10, CORROSION.

D.W. Swain, S.A. Goldstein, J.G. Kelly (all 5242), and G.R. Hadley (5241), "Observation of Anode Ions Associated with Pinching in a Relativistic Electron Beam Diode," Vol. 46, No. 10, JOURNAL OF APPLIED PHYSICS.

M.A. Sweeney and M.J. Clauser (both 5241), "Low-Z Ablator Targets for Electron Beam Fusion," Vol. 27, No. 9, APPLIED PHYSICS LETTERS.

G.C. Tisone (5212), A.K. Hays (5215), and J.M. Hoffman (5212), "100 MW, 248.4 nm, KrF Laser Excited by an Electron Beam," Vol. 15, No. 2, OPTICS COMMUNICATIONS.

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J.E. Houston (5114), "Core Hole, Plasmon Coupling in the Soft X-Ray Appearance Potential Spectrum of Graphite," Vol. 17, No. 9, SOLID STATE COMMUNICATIONS.

B.L. Hulme (5122) and R.B. Worrell (1741), "A Prime Implicant Algorithm with Factoring," Vol. 24, No. 11, IEEE TRANSACTIONS ON COMPUTERS.

P.S. Percy (5132), "Measurement of the 'Soft' Mode and Coupled Modes in the Paraelectric and Ferroelectric Phases of  $\text{KH}_2\text{PO}_4$  at High Pressure," Vol. 12, No. 7, PHYSICAL REVIEW B.

R.M. Biefeld (5154), "The KBr-CuBr and NaBr-CuBr Phase Diagrams," Vol. 10, No. 11, MATERIALS RESEARCH BULLETIN.

R.T. Johnson (5155), B. Morosin (5154), M.L. Knotek (5155), and R.M. Biefled (5154), "Ionic Conductivity in  $\text{LiAlSiO}_4$ ," Vol. 54, No. 5, PHYSICS LETTERS A.

D.A. McArthur (5225) and J.W. Poukey (5241), "Theory of the Nitrogen Laser Excited by a Relativistic Electron Beam," Vol. 11, No. 11, IEEE JOURNAL OF QUANTUM ELECTRONICS.



THE MILITARY LIAISON COMMITTEE is the principal link between the Dept. of Defense and ERDA on matters relating to the military application of atomic energy. The Committee visited Sandia last week along with the Director of ERDA's Division of Military Application. MLC Chairman Don Cotter, a former Sandian, had planned to make the visit but a touch of flu intervened. Standing, from left, Brig. Gen. L. B. Lennon, R. Adm. R. A. Paddock, Pres. Sparks, and Maj. Gen. J. K. Bratton, Director, DMA. Seated are Brig. Gen. H. Dickinson and Maj. Gen. W. C. Burrows. Sandia's Exec. VP Jack Howard was MLC Chairman from 1963 to 1966.



"Wish someone had told me before about these non-technical courses . . ."

# U ≠ UNM

(where U = University; UNM = University of New Mexico; and  $\neq$  = "does not necessarily equal")

Used to be that if you were working on a degree under Sandia's EAP (the Educational Aids Program, which pays 50% of the tuition if time off the job is required, 100% otherwise), you were probably male and almost certainly attending UNM. No more.

The last couple of years have seen some changes in EAP students. For example, more students now attend the University of Albuquerque. In the fall '73 semester, nearly all of the 167 students went to UNM. Now 45% of all participants attend U of A. "That's primarily because U of A has an adult education program with lots of evening classes," says Hazlet Edmonds (4231). "And

they offer business administration and accounting degrees, which are popular educational paths for many of our graded employees, especially women."

Another example: In fall '73, 16% of the enrollment was female. Now it's 34%.

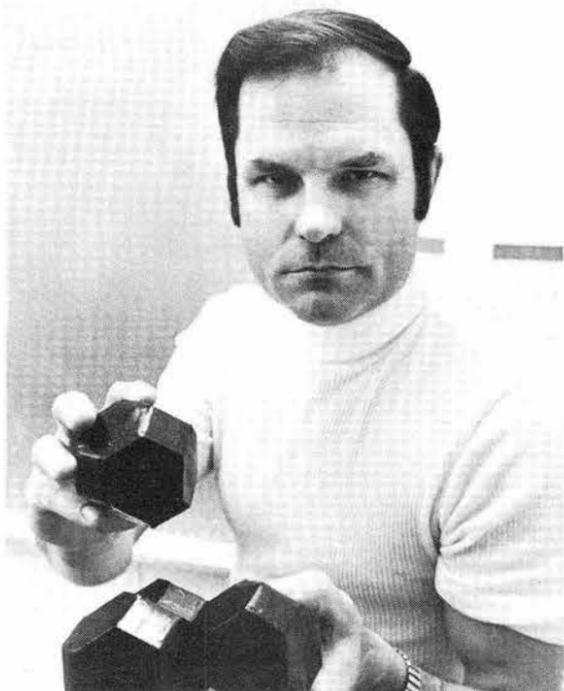
Says Jack Hueter "We expect the proportion of attendance at each of the two universities to remain as it is now — roughly half and half."

UNM has more technical courses, U of A more non-technical. And U of A courses are offered here at KAFB-East, at St. Pius High School, and at the campus on North Coors.

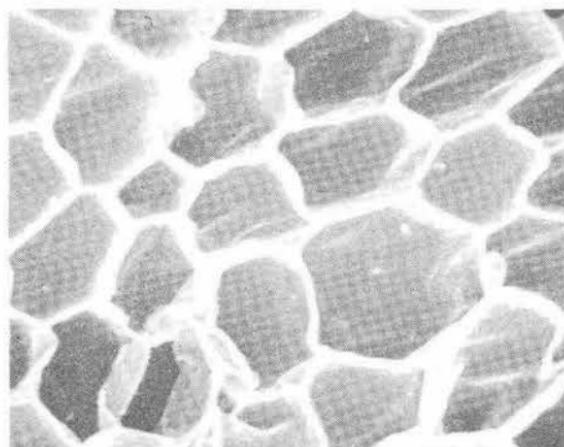
More information on education programs leading to a college degree is available from Mary Quigley's Education and Training Division I 4231.



## New Insulation Material Works At 2000°C



BOB KLETT (5742) displays a model which shows how the enclosed cells of a new insulating material interlock. Below, structure is revealed in photograph taken with a scanning electron microscope. Cell diameter is about 23 microns.



ERDA was awarded a patent recently for a new high-temperature insulating material and manufacturing process invented by Bob Klett of Systems Analysis Division II 5742.

The natural cell structure of cork — enclosed 14-sided cells averaging 23 microns in diameter with wall structures about one micron thick — is the key to the new insulating material.

In the manufacturing process, natural cork is reduced to granules, formed into a homogeneous composite in a heat mold, run through a series of temperature cycles, and then carbonized or graphitized. It can be carbonized in a 900°C cycle or graphitized at 1200°C.

The resulting material with its enclosed cells and uniform wall thickness blocks heat radiation so efficiently that heat transfer through the insulation is negligible at temperatures in excess of 2000°C (5000°F).

A layer of the material 2.45 mm thick underneath an ablation shield is sufficient to protect a space vehicle during reentry. Designed for space applications, the material could be used in any situation requiring high temperature insulation. Density and strength of the material can be varied over a wide range with the addition of microscopic rayon fibers to reinforce the cell structures.

Bob joined Sandia in July 1959 and has worked primarily in systems engineering.

## Our Town: Planned Parenthood

Nobody talks much about the population explosion anymore. In the 60's it was a subject as much discussed as the energy crisis of today.

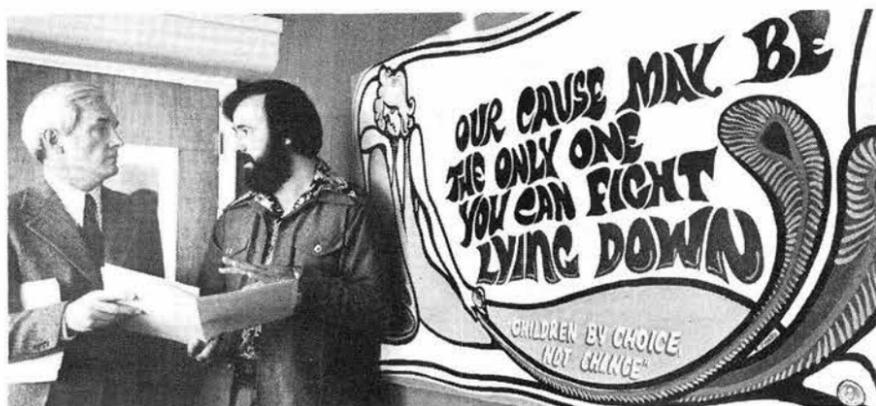
It was the time of the counter culture, of college riots, and of the emergence of concern about pollution and the environment. The SST died, women's lib took off and the power of the pill began to be recognized.

The expectations of young women changed.

Today, many want only two children at most, maybe just one. And many young fathers of two opt for vasectomy, a word that's entered the vocabulary this past decade.

Still, the population of the U.S. will increase. It won't double in the next 30 years as had been predicted, but it will still increase. There is a very real need in every community for an organization such as the Bernalillo County Planned Parenthood Association, Inc.

"Limiting population growth is not the goal of the agency," says Dick Claassen (5800), who has been a volunteer at the agency for a number of years serving as vice president, fund raiser, and member of the board. "We believe that every child has the right to be wanted. We want to make effective means of family planning available and fully accessible to all. Planned Parenthood provides programs of education and training in family planning, family life, human



DICK CLAASSEN (5800) discusses information dissemination with Planned Parenthood's Steve Schott, education director.

sexuality, and population trends. The family must decide how many children are right for them."

To achieve its goals, Planned Parenthood operates four clinics in the community, located at 113 Montclair SE, 7704 2nd NW, 1700 Stanford SW and 2119 Broadway SE. The clinics provide comprehensive physical examinations including screening for VD, anemia, diabetes and hypertension as well as pregnancy confirmation. The clinics provide contraceptive services, counseling and referrals.

The work (some 43,000 medical, counseling or educational contacts in 1974) is handled by 22 employees and a core staff of 40 volunteers. The agency's budget is \$320,000, about 85 percent provided by federal funds under HEW Title X.

For information, call Pat Bensen, executive director, 265-3722.

## Quick — What Rhymes With FOLNPRM?

LAB NEWS is guilty of discrimination.

Through the year we've tried to maintain an objective viewpoint while reporting newsworthy events occurring in the Sandia community. Along the way we've discussed cowboys, Indians, wrestlers, runners, earthworm growers, builders, batters, bikers, bakers, maybe even a candlemaker. We've prided ourselves on our open mindedness.

Never, however, have we encouraged poets. In its 27 years of publication the LAB NEWS may have printed six lines of poetry. No one wants to check the files to find out. And we don't intend to set a precedent, but we will take a little affirmative action and herewith announce the First & Only LAB NEWS Poetry Reading Marathon (FOLNPRM).

FOLNPRM takes place Saturday, Jan. 24, at 10 a.m. It's being staged in the Coronado Club ballroom to accommodate the swarms anticipated for the event. All Sandia employees are hereby cordially invited to attend, either as participant or spectator. Poets must declare an intent to read at

FOLNPRM by completing the entry blank below, and must provide LAB NEWS with a copy of the poem. Poets may read as many original titles as they wish under a time limit of 15 minutes.

LAB NEWS guarantees a panel of judges who will remain to the bitter end.

There will be two categories of entries — poetry and doggerel — and LAB NEWS will decide which is which. Graffiti parading as poetry will be sternly dispatched to the john.

Winners in both categories may or may not be published. Absolutely no prizes will be awarded.

### First & Only LAB NEWS Poetry Reading Marathon

Name of Poet \_\_\_\_\_

Org. \_\_\_\_\_

Title of Poems \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

No. of yrs., mos., days I have been writing poetry \_\_\_\_\_

Are you a professional poet?  yes  no



RECEIVED AN AWARD?  
CALL US LAB NEWS  
X-1053

## We Knew She'd Go Far

When writer Cherry Burns quit LAB NEWS a couple of years ago, she did what a lot of us daydream about but never do. Cherry sold the house and a few other things, pulled up stakes, and has been world traveling ever since. She's skied in the Colombian Andes, been detained by the police in Chile, rode with the chickens and livestock on a Peruvian bus, lived in Capetown, South Africa, spent an idyll on the Seychelles, hiked in the savannahs of Kenya, been hassled by Ethiopian insurgents, and, most recently, left Khartoum in the Sudan on a train heading for Egypt. Her letter describes the trip:

"The train *seemed* OK — 7 women and 10 kids in a first class compartment for 8 adults. Women are segregated in Muslim countries. I had on my usual travel costume (levis, boots and denim safari jacket). Conductor to me." You can't sit in there! "Why not?" "Because the compartment is for women only." "Well?"

"Actually, the women were nice once they accepted me. They were admiring each other's gold bracelets, and so they wouldn't think I was a deprived American, I pulled out grandma's gold necklace. They passed it around, each *smelling* it, finally pronounced it the real thing. I was 'in'.

"The train began a series of breakdowns. The fans were turned off, for the duration — in the middle of the Nubian Desert, not a blade of grass or sign of a shrub. We spent 30 hours at one station when the 1920 vintage steam engine died (they sent a Hitachi diesel to the rescue). What does one do? Read, sleep. I had many male visitors. Two Muslims arrived hand-in-hand with a bottle of scotch (they don't drink). We played whist and I taught them an ancient American game — pitching pebbles . . . In the morning I discovered a drip in the water tank and had myself a bath — since I was watched constantly, it involved some gymnastics . . . At 1 p.m. the engine arrived.

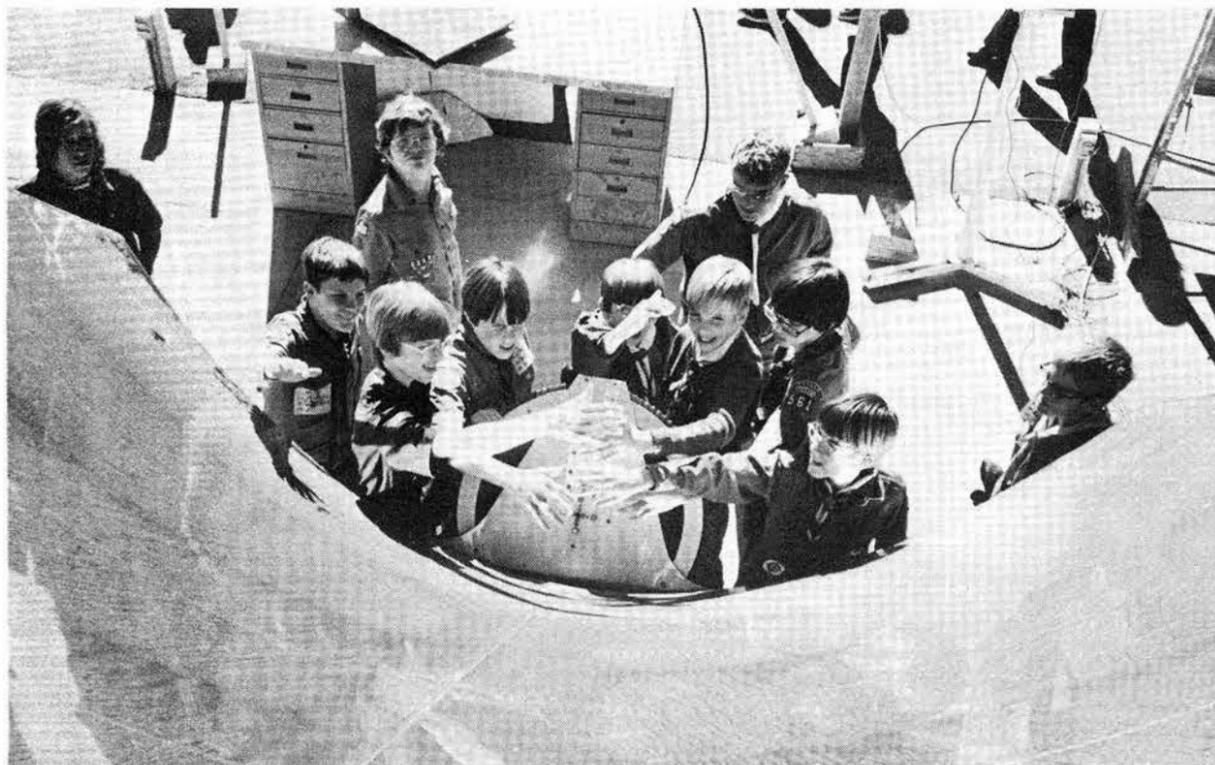
"At Wadi Halfa, through a friend, I got the last bed at the caravanserai — 10 rooms surrounding a patio with 30



Cherry Burns

beds in the open. My open air bedroom was in the European corner where a Rhodesian slept with an axe for protection. My friend, an engineer whose father owned the hotel, and a customs officer invited me out for the evening. What a kick! We borrowed a government truck, took off across the sand to the end of the lake, spread our oriental rug, drank Egyptian sherry and danced to short wave radio American music by full moon."

Later, Cherry took the boat up Lake Nasser to the Aswan Dam and had a run-in with immigration officials. It seems she couldn't get a visa to enter Egypt because she couldn't pay for it in Egyptian currency — which foreigners are forbidden to take into or out of the country. Finally, a German friend came up with enough Egyptian currency hidden in his toothpaste box to get Cherry in. Next stop, Cairo and Alexandria.



BOY SCOUTS & GIRL SCOUTS, 350 of them from towns in West Texas, came to Sandia last week in quest of an atomic energy merit badge. They visited several Labs facilities, and here a portion of the group warms hands in front of a solar reflector.

## Speakers

C.C. Carson (1313), "Computational Methods for Single Server Queues with Interarrival and Service Time Distributions of Phase Type," Joint ORSA/TIMS National Meeting, Nov. 17-19, Las Vegas, Nev.

J.G. Yost (2151), "Solder Alloy Design for Microelectronic Applications," University of Connecticut — Institute of Materials Science Symposium, Nov. 19, Storrs, Conn.

S.R. Dolce (1114), "Reading Dielectric Track Detectors Using Transmitted Alpha Particles"; C.E. Barnes (5112) and K. Zanio (HRL), "Thermally Stimulated Current Measurement of Traps in Detector-Grade CdTe"; R.P. Reed (1116), "Diagnostic Measurements for Field Research on In Situ Energy Conversion"; J.M. Freedman (1814), "Spent and Fresh Fuel Shipping Cask Considerations"; G. Yonas (5240), "Application of Electron Beams to Inertial Confinement Fusion"; C.A. Trauth (5441) and W.J. Whitfield (5442), "A Program for the Beneficial Use of Radioisotopic Waste"; L.D. Tyler (1111) and W.C. Vollendorf (1133), "Mine-Back Mapping of Hydraulic Fractures"; R.S. Blewer (2413), "Depth Distribution of Implanted Helium and Surface Blistering in Erbium and Erbium Deuteride"; J.A. Halbleib (5223), "Fuel Motion Detection Via X-Radiography using High-Current Field Emission Diodes"; D.F. Cowgill (2413), "Diffusivity Probing in Deuterium-Implanted Materials with the  $H^2(d,n)He^3$  Reaction"; L.A. Suber (1741), "Adversary Characterization for Security System Evaluation"; R.G. Dosch (5824), "Ceramics From Ion Exchangers: An Approach to Nuclear Waste Solidification"; J.K. Johnstone (5846) and R.T. Meyer (formerly 5824), "Consolidation & Characterization of Ion Exchange Derived Nuclear Waste Ceramics," Nuclear Science Symposium and American Nuclear Society Fall Meeting, Nov. 17-21, San Francisco.

D.L. Wesenberg, W.K. Tucker, E.C. Cnare (all 5233) and M. Cown (5230), "PULSAR — A Field Compression Generator for Pulsed Power," and "PULSAR — The Experimental Program," 6th Symposium on Engineering Problems in Fusion Research, Nov. 18-21, San Diego.

R.L. Fox (5641), "Analysis of Fluid Turbulence Using Multipoint Distribution Functions," University of Illinois, Nov. 21, Urbana.

J.M. Alcone (4734), "Low Cost Solar Augmented Heat Pump System for Heating and Cooling Residences"; W.A. Von Riesemann (1544), "Comments on Nonlinear Transient Structural Analysis"; M.W. Edenburn (5717), "A Solar Heating System for a Northern New Mexico Adobe House"; W.P. Schimmel (1343) and A.B. Donaldson (2515), "Effective Thermal Diffusivity for a Multi-Material Composite Laminate"; ASME Winter Annual Meeting, Nov. 30-Dec. 5, Houston, Texas.

J.E. Houston (5114), "Auger Electron Spectroscopy: Recent Progress," Symposium on Chemistry of Electrode Surfaces, Nov. 30-Dec. 5, Mexico City, Mexico.

J.G. Fossum (2141), "Numerical Analysis of Back-Surface-Field Silicon Solar Cells"; G.F. Derbenwick and J.G. Fossum (both 2141), "CMOS Optimization for Radiation Hardness"; W.D. Brown (2141), "Properties of Metal-Titanium Dioxide-Silicon Capacitors"; W.R. Dawes and G.F. Derbenwick (both 2141), "Preventing CMOS Latch-Up"; G.W. Brown (2142), et al., "Analysis of Low Emitter Concentration Transistor Operation," 1975 IEEE International Electron Devices Meeting, Dec. 1-3, Washington, D.C.

W.K. Tucker, W.B. Leisher (both 5233) and M. Cown (5230), "Flux Compression in Coal Fired Power Plants," Engineering for Energy Conservation Symposium-Workshop, Dec. 1-3, Fort Lauderdale, Fla.

P.S. Peercy (5132), "Raman Scattering Near the Tricritical Point in Ferroelectric SbSI," and G.A. Samara (5130), "Soft Modes and Related Properties in Cubic PbF<sub>2</sub>," International Conference on Low Lying Lattice Vibrational Modes and Their Relationship to Superconductivity and Ferroelectricity, University of Puerto Rico, Dec. 1-4, San Juan, PR.

B. Stiefeld (9351), "Automated Image Analysis: New NDE Technique"; J.H. Gieske (9352), "Computerized Ultrasonic Characterization and NDT/DT Correlation of Graphite Composites," ASM Conference on Nondestructive Evaluation in the Nuclear Industry, Dec. 3-5, Denver, Colo.

G.H. Miller (5423), J.M. Hoffman (5212) and G.J. Lockwood (5232), "Charge-Transfer Excitation of the N<sub>2</sub><sup>+</sup> - 3914 Å Band by Various Ions"; D.P. Aeschliman and R.A. Hill (both 5642), "Self-Broadening and Shift Parameters for Neutral Argon Spectral Lines," APS Meeting of Division of Electron and Atomic Physics, Dec. 3-5, Tucson, Ariz.

G.L. Hulme (5122), "Graph Theoretic Models of Theft Problems"; L.F. Shampine and M.K. Gordon (both 5122), "QN — A Root Solving Code," SIAM-SIGNUM 1975 Fall Meeting, Dec. 3-5, San Francisco.

R.L. Schwoebel (5820), "Waste Management and Materials," Materials Science Colloquium, Cornell University, Nov. 19, Ithaca, N.Y.

G. W. Kuswa, J. Chang (both 5242), M. M. Widner and M. J. Clauser (both 5241), "Nanosecond Pulse Radiography for E-Beam Target Interactions," APS Meeting, Oct. 28-31, Albuquerque.

R. H. Marion (5847) and J. K. Johnstone (5846), "A Parametric Study of the Diametral Compression Test for Ceramics," ACS Pacific Coast Regional Meeting, Oct. 29-31, Seattle, Wash.

I. Auerbach (5628), K. E. Lawson (5833) and M. L. Lieberman (5825), "Effect of Porosity and Structure of Graphitic Materials on Ablation in Arc Generated Plasmas," American Chemical Society Southeastern/Southwestern Regional Meeting, Oct. 29-31, Memphis, Tenn.

E.P. EerNisse (5114), "Ion Beams as Solid-State Physics Tools," American Physical Society Visiting Physicist Lecture, Oct. 23, Purdue University, W. Lafayette, Ind.

C. E. Hackett (5642), "Application of Virtual Multibeam Laser Velocimetry Systems to Gas Flow Measurements," Minnesota Symposium on Laser Anemometry, Oct. 22-24, Minneapolis, Minn.

A. D. Smailer (9710), "Rotation of Work Experiences in Apprentice Training," 6th Annual Rocky Mountain Apprenticeship Conference, Sept. 18-20, Jackson Hole, Wyo.

B. W. Marshall (5711), "Solar Energy Research," American Defense Preparedness Association, Oct. 1, Albuquerque.

C. S. Johnson (9421), "Science or Engineering — Your Bag?" Eisenhower Middle School class, Oct. 2, Albuquerque.

R. C. Reuter (5715), "Wind Energy," Rio Grande Lions Club, Oct. 10, Albuquerque.

H. H. Patterson (1730), "Mexico and the Sea of Cortez," American Association of Retired Persons, Oct. 22, Albuquerque.

A. W. Cronenberg (UNM) and R. L. Coats (5422), "A Comparison of Solidification Phenomena for UO<sub>2</sub>, UC, and UN, Relative to Quenching in Sodium Coolant," ANS meeting, Sept. 17-21, San Francisco.

J. K. Linn (1245), "Distributed Parameter Sensitivity: O'Shea, Wyndrum and a new DP Synthesis Method," Allerton Conference, Oct. 1-3, Urbana, Ill.

H. M. Bivens (2355), "Pulsed Neutron Uranium Borehole Logging with Epithermal Neutron Die-away," Invited presentation to Albuquerque Geological Society Meeting, Oct. 21, Albuquerque.

P. D. Wilcox (2521), "Electrooptic Ceramics," BTL seminar, Oct. 29-30, BTL, Allentown and Murray Hill, N.J.

J. E. Kennedy and J. W. Nunziato (both 5131), "Singular Surface Analysis Applied to Shock Initiation of Explosives," Invited presentation to B-Division Seminar Series on High Explosives, Oct. 30, LLL.

G. P. Steck (5411), "How Should A Loss of Coolant Accident Be Studied?" and "Lower Bounds for the Multivariate Normal Mills' Ratio," First ERDA Statistical Symposium, Nov. 2-5, LASL.

J. P. Brainard (2412), "Local Fields at the Cathode-Insulator Junction as a Cause of Breakdown of Shaped Insulators in Vacuum"; R. A. Anderson (5814), "Time-Resolved Measurements of Surface Flashover of Conical Insulators"; D. H. Loescher and G. E. Gumley (both 2433), "Surface Arcover in DC Capacitors," Conference on Electrical Insulation and Dielectric Phenomena, Nov. 3-6, Gaithersburg, Md.

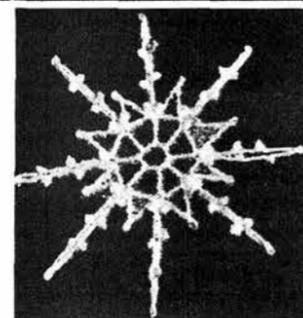
D. W. Bushmire (2151), "Au-Al Intermetallics in Solid Phase Bonding," Collins Radio Group Workshop, Nov. 4, Lake Texoma.

T. R. Guess (5847) and W. R. Hoover (5844), "Development of Boron Reinforced Aluminum Fins," 3rd Conference on Fibrous Composites in Flight Vehicle Design, Nov. 4-6, Williamsburg, Va.

M. A. Sweeney and M. J. Clauser (both 5241), "Electron-Beam Fusion Targets"; J. W. Poukey, J. R. Freeman, M. J. Clauser (all 5241), and G. Yonas (5240), "Ion Currents and Electron Focusing in Hemispherical Diodes"; F. C. Perry (5242) and M. M. Widner (5241), "Implosion Dynamics, Energy Deposition and Symmetry of a Hemispherical Target Irradiated by an Intense Relativistic Electron Beam"; J. Chang (5242), M. M. Widner (5241) and L. P. Mix (5242), "The Experimental Observation of Spherical Pellet Implosion Driven by an Intense REB"; J. E. Boers (2414), "Analysis of the Operation of a Controlatron Neutron Source Tube with Computer Simulation"; D. H. McDaniel (5245), P. A. Miller (5242), K. R. Prestwich (5245) and J. W. Poukey, (5241), "Proto-I Diode Experiments"; J. S. Pearlman and J. P. Anthes (both 5214), "Interaction of High-Power Laser Radiation with Thin Polystyrene Films"; D. W. Swain, S. A. Goldstein and L. P. Mix (all 5242), "Ion Generation and Effects in Pinched Relativistic Electron Beam Diodes"; J. P. VanDevender (5245), "Resistance of Arcs in Water Discharges"; M. J. Clauser (5241), "Inertial-Confinement Fusion Using Charged Particle Beams"; T. P. Wright, A. V. Farnsworth and G. R. Hadley (all 5241), "Minimum Pinch Scaling of High Current Diodes"; J. R. Freeman, J. W. Poukey (both 5241), J. J. Ramirez and K. R. Prestwich (both 5245), "Modeling of an Annular Relativistic Electron Beam for Laser Excitation"; M. M. Widner (5241) and J. A. Habbleib (5223), "Relativistic Electron Beam-Target Interaction Studies"; C. L. Olson (5241), "Inverse Coherent Bohr-Bethe Stopping as a Collective Acceleration Mechanism"; C. L. Olson (5241), "Heavy Ion Pulsed Fusion"; C. W. Mendel (5242), "Microwave Technique for Plasma Density Measurement at Electrode Surfaces"; A. V. Farnsworth, G. R. Hadley and T. P. Wright (all 5241), "REB Pinch and Current



*YOU MAY WONDER if Virginia Glass (3254-2) has discovered a way to preserve the fragile beauty of a snowflake. She may not be able to save a snowflake but she can duplicate one. Virginia crochets her snowflakes, beginning with a basic pattern plus her own innovation; no two designs are alike. Each takes about a half hour to crochet, and they range in size from two to four inches in diameter. Virginia dips them in a heavy starch solution, carefully blocks each snowflake and, while still damp, sprinkles them with "diamond dust" glitter. Virginia plans to decorate her Christmas tree with the snowflakes and red Christmas balls.*



Density Limits from Finite Temperature Fluid Equations"; K. D. Bergeron (5241), "Ion Emission in 1-D Relativistic Diodes Near the Insulating Magnetic Field: Theory"; G. R. Hadley (5241), "Role of Adsorbed Gases in Anode Plasma Production," Plasma Physics Meeting of the APS, Nov. 10-13, St. Petersburg, Fla.

C. E. Hackett (5642), "Laser Spectrophone Systems for Detection of Trace Methane Gas in the Atmosphere," 3rd Joint Conference on Sensing of Environmental Pollutants, Nov. 10-13, Las Vegas, Nev.

R. H. Marion (5847), "Uniaxial Strain Measurement at High Temperature"; J. C. Swearingen (5847) and R. W. Rohde (5832), "On the Mechanical Equation of State"; M. Moss and F. P. Gerstle (both 5844), "High Performance Composite Flywheels"; R. H. Erickson (5844), "A Kevlar 49-Epoxy Composite Antenna Insulator," AIME meeting, Nov. 13-15, Cincinnati, Ohio.

T. H. Martin (5245), "High Power Electron Beam Accelerators for Gas Laser Excitation"; K. R. Hessel and K. T. Stalker (both 2441), "Optical Performance of Graded-Index Fibers for Electro-Optics and Laser Applications"; K. R. Prestwich (5245), "Pulse Power Technology Application to Lasers," Electro-Optics '75 International Laser Exposition, Nov. 11-13, Anaheim, Calif.

P. J. Konnick (2434), "High-Voltage Connector for Aluminum Conductor Cable," Eighth Annual Connector Symposium, Oct. 22-23, Cherry Hill, N.J.

P. J. Chen (5131), invited paper, "The Mechanical and Electrical Responses of Dynamically Loaded Ferroelectric Materials," Special Seminar, Univ. of Houston, Oct. 23, Houston.

C. E. Albright (3623), "Solid State Bonding," SME/ERDA Welding & Joining Workshop, Oct. 27-29, Argonne National Laboratories.

H. M. Willis (3130), "Continuing Education of Professional Engineers in Relation to Work to Be Done"; J. L. Jellison (5833), "Statistical Interpretation of Meniscograph Solderability Tests"; D. W. Bushmire (2431) and P. H. Holloway (5825), "The Correlation Between Bond Reliability and Solid Phase Bonding Techniques for Contaminated Bonding Surfaces"; D. R. Johnson (2432), "Factors Effecting the Flexure Resistance and Pell Strength of Lead Frame Bonds"; D. R. Johnson and R. E. Knutson (both 2432), "Parallel Gap Welding to Thick Film Metallization"; H. E. Olson (2432), "Thermal and Mechanical 'Limit' Testing of Thin-Film Hybrid Microcircuits," 1975 International Microelectronics Symposium, Oct. 27-29, Orlando, Fla.

R. R. Rye (5114), "Reaction of Atomic Hydrogen with Chemisorbed Species"; S. J. Niemczyk (5151), "SCF-Xa-SW Ionization Energies for Chemisorbed Chalcogens on Ni(001)"; P.H. Holloway (5825), D.E. Amos (5122) and G. C. Nelson (5825), "Analysis of Grain Boundary Diffusion in Thin Films: Chromium in Gold"; G. C. Nelson, "Determination of the Surface Versus Bulk Composition of Silver-Gold Alloys by Low Energy Ion Scattering Spectroscopy"; H. H. Madden (5114), "Electron-Stimulated Processes at Solid

Surfaces"; R. S. Berg and G. J. Kominiak (both 5834), "Surface Texturing by Sputter Etching"; D. M. Mattox (5834), "Thin Films and Coatings for Solar Energy Applications"; G. J. Kominiak and J. E. Uhl (5114), "An In Situ Investigation of Substrate Surface Recontamination During Glow Discharge Sputter Cleaning," National American Vacuum Symposium, Oct. 28-31, Philadelphia, Pa.

S.D. Stearns (1111), "Exact Digital Models of Continuous Linear Systems," Ninth Annual Asilomar Conference on Circuits, Systems and Computers, Nov. 3-5, Pacific Grove, Calif.

D.B. Hayes (2513), "Unsteady Detonation Wave Propagation Calculations and Shock Initiation Studies in High Explosives," B-Division Seminar Series on High Explosives, Nov. 4, LLL.

F.P. Gerstle, Jr. (5844) and F. Biggs (5231), "On Effective Use of Filamentary Composites in Flywheels"; M. Moss (5842) and F.P. Gerstle, Jr. (5844), "Kevlar/Epoxy Flywheels: An Experimental Study," 1975 Flywheel Technology Symposium, Nov. 10-12, Lawrence Hall of Science, Berkeley, Calif.

F. Biggs and J.H. Renken (both 5231), "Analysis of In-Core Fuel Motion Detection"; S.A. Dupree (5231), "Accuracy of Fuel Motion Measurement in SAREF Using In-Core Detectors"; P.W. Cooper, S.R. Kurovski (both 2514), and J.M. McKenzie (5433), "LMFBR Fuel Motion Simulation with Pyrotechnics," Reactor Fuel and Clad Motion Diagnostics Conference, Nov. 11-12, SLA.

G.F. Derbenwick (2141), "Design and Fabrication of Radiation-Hardened CMOS," Special Seminar, Nov. 12, Stanford University, Calif.

G.S. Snow (2521), "Processing of PLZT for Electrooptical Applications," New Mexico Chapter of SAMPE, Nov. 12, Albuquerque.

E.P. EerNisse (5112), "Technological Forecasting for R&D: A New Ion Accelerator Facility for Sandia Laboratories," Nov. 13, NMSU, Las Cruces.

J.B. Rivard (5422), "Status of Sandia Laboratories Debris Bed Studies Program," Post-Accident Heat Removal "Information Exchange," Nov. 13-14, Albuquerque.

E.D. Jones (5214), "Subnanosecond High-Pressure Iodine Photodissociation Laser Oscillator," Univ. of Michigan Physics Dept. Special Seminar Nov. 17, Ann Arbor.

A.W. Mullendore (5825), J. E. Houston (5114) and M.L. Lieberman (5825), "A Multi-Parameter Characterization of Deactivation in a Flame-Sprayed Raney Nickel Methanation Catalyst," Interfacial Phenomena in Catalysis Session, AICE annual meeting, Nov. 16-20, Los Angeles.

I.J. Hall (1223), "A Statistical Problem in the Energy Field," Seminar at Iowa State Univ., Nov. 12, Ames.

B.W. Marshall (5717), "Solar Energy Research," Alpha Delta Kappa, Nov. 1, Albuquerque.

H.C. Monteith (5413), "Flying Saucers," Grant Jr. High science class, Nov. 7, Albuquerque.

# MILEPOSTS

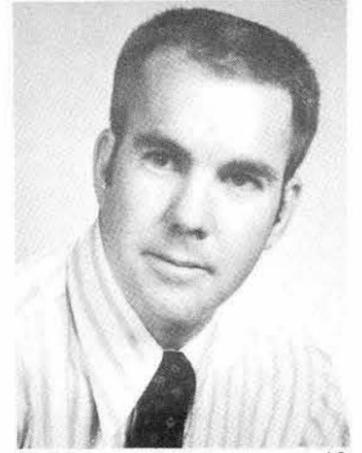
## LAB NEWS

December 1975



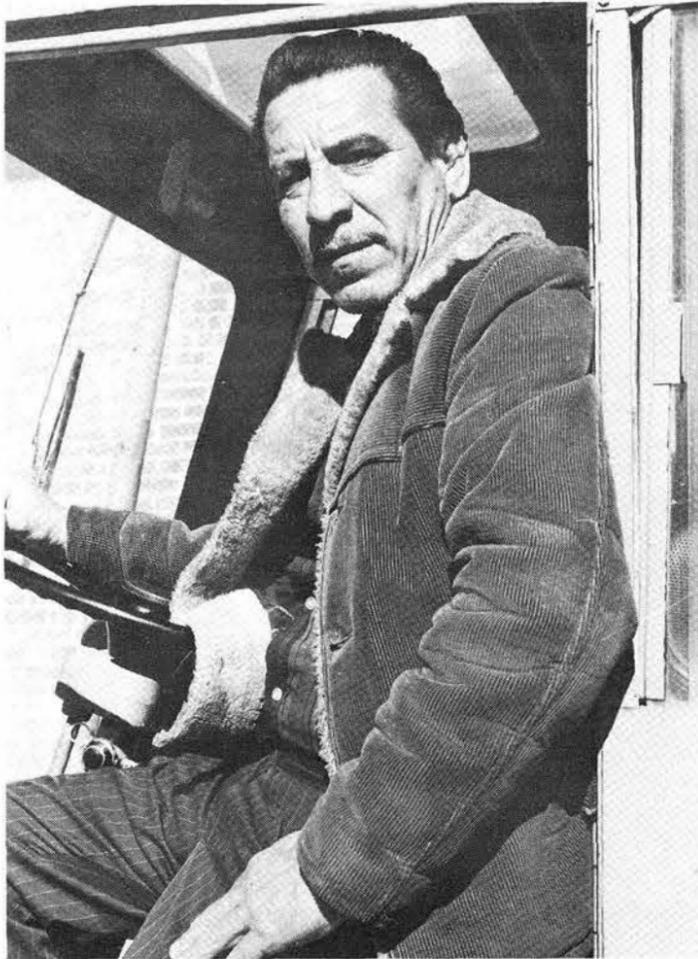
Buford Eagan - 2531

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Al Baker - 8111

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Jose Gallegos - 3647

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Bill Ormond - 8261

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Charles Appel - 1810

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Bob Coates - 8412

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L.F. Estabrook - 2324

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Kenneth Smith - 3733

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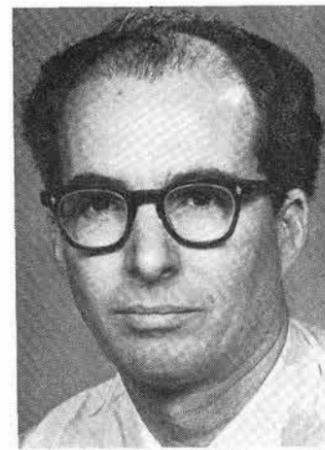
Ed Kuroski - 8257

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William Lace - 3616

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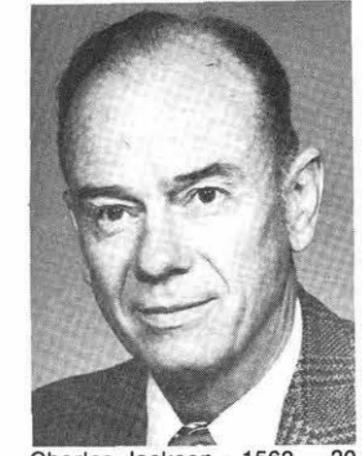
Alvin Farmer - 2117

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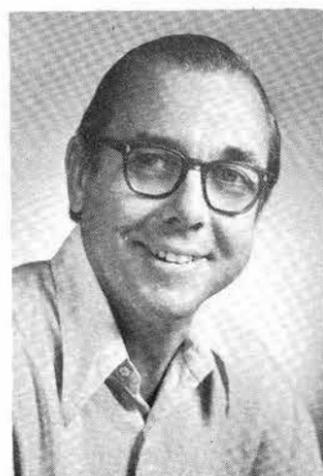
Ross Yingst - 2317

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Charles Jackson - 1562

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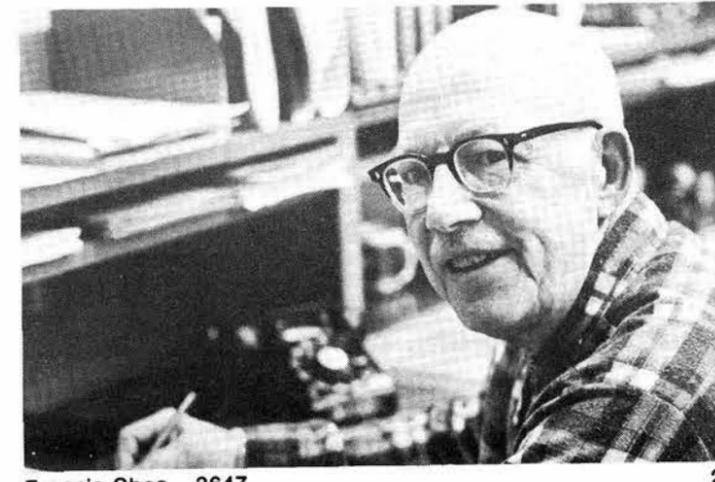
Bob Schultz - 8412

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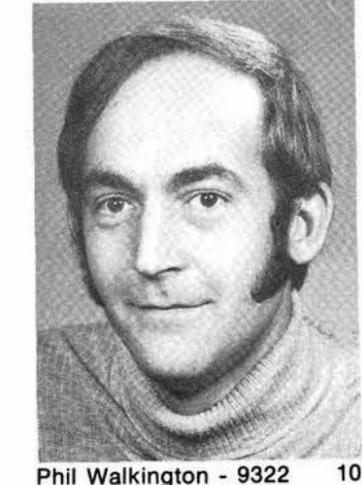
Robert Adams - 2341

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Francis Shea - 3647

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Phil Walkington - 9322

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### Congratulations

Mr. and Mrs. Daniel Baca (3614), a daughter, Lynda Elaine, Nov. 25.

PAGE FIFTEEN  
LAB NEWS  
DECEMBER 19, 1975



LAB NEWS photographer Bill Laskar caught a Sandian boarding this Ford Trimotor, vintage 1930. We're told it's part of traffic's "no frills" economy wave.

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

CLASSIFIED ADVERTISING  
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### RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Must be submitted in writing.
4. Use home telephone numbers.
5. For Sandia Laboratories and ERDA 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.

### TRANSPORTATION

- 10-SPD. French bike, Liberia, alloy components, 25 lbs., cost \$210, sell for \$160, unused by offspring. Shunny, 265-1620.
- GIRL'S 10-spd. bike, \$65. Traver, 294-2138.
- '62 JEEP, hubs, softtop, good tires, new overhaul. Warrick, 898-4307 or 344-5057.
- '71 YAMAHA Enduro, low mileage, many extras, \$325. Gabaldon, 268-8679.
- '69 MERCURY Montego, 2 dr. HT, R/H, 6-cyl., 18-25 miles/gal., gold, \$925. Reynolds, 299-5157.
- '66 OLDS Cutlass, PS, PB, AT, power seat & tilt steering wheel, \$650. Opperman, 281-5765.
- '73 PENTON dirt bike, 125cc, \$500. Baca, 266-1629 after 6.
- '74 PONTIAC Grand Prix, AM/FM, radials, all power, low mileage, white w/black vinyl top. Hall, 296-9531.
- '60 FORD, 4-dr., small V8, AT, PS, radio, \$175. Luikens, 881-1382.
- '69 DODGE pickup, 4-spd., swb, new tires, rebuilt engine, \$1050. White, 293-2219.
- '73 FORD LTD, 2-dr., low mileage, new steel belted radials, vinyl top, AC, PS, PB. Boling, 298-8141.
- '69 CHRYSLER station wagon, radials, AH, PS, PB. Ganzerla, 266-1340.
- '68 VOLKSWAGEN Squareback, battery, front brake linings, spare tire & engine new during past 6 mos., \$1050. Moffat, 293-4526.
- '73 FORD Courier pickup, shell, 4 new belted tires, 2 mounted snow tires, heavy duty rear bumper, heavy duty mirrors, AM/FM stereo. Gregory, 292-0871.

- SCHWINN bicycle, ladies' 26", 3-spd., \$50. Sullivan, 298-0148.
- '75 YAMAHA RD350 w/windshield, fairing, crash bars, saddlebags, backrest, rack, helmet box and air horns. Campbell, 293-3115.
- '69 YAMAHA 350 YR2, \$225. Wilkinson, 299-8327.
- BIKE, Campania Sport, 10-spd. deluxe touring bike, Suntour derailleur, low mileage, lock included. Forsythe, 299-2785.
- '69 FORD Econoline Van converted to camper, 55,000 miles. Miller, 281-3189 after 7.
- '74 VEGA, hatchback, 25,000 miles, below book, \$2325; '66 Corvair, good body and tires, engine needs work, \$150. Trujillo, 293-3029.
- BICYCLE, girl's 24" Schwinn, blue, 1 yr. old, thorn proof tubes, basket, \$35. Toepfer, 296-6758.
- 20" SCHWINN girl's bicycle, Fair Lady model, basket & speedometer. Causey, 881-7534.
- WOMAN'S 3-spd. Schwinn bicycle, \$30. Copeland, 344-1133.
- SCHWINN bicycle, ladies 26", 3-spd., \$50. Sullivan, 298-0148.
- MAN'S bicycle, 3-spd., good tires, approx. 4 yrs. old, \$35 or best offer. Smith, 299-2462 after 5.

### MISCELLANEOUS

- '74 12 x 51 mobile home, fully furnished, low down, take over payments. Williams, 298-2768.
- HAIG-ULTRA Professional golf clubs, 2-9 irons, sw; stereo, blonde cabinet, 2 speakers, Webcor changer. Dale, 299-6604.
- GREAT BOOKS set, extras; portable dishwasher; telescope, 60 mm refractor, zoom lens, extras; make offer. Plein, 293-5041.
- TWIN beds: gold plastic headboards, metal frames, clean box spring, mattress, w/linens, \$40. Ussery, 296-0175.
- 5-PIECE dinette set, walnut finish, 42" round table & 10" leaf, \$125 or best offer. Howard, 700 California SE.
- GOOD used electric motors, single & 2-speed, \$12.50. Grant, 405 Palomas NE.
- PORTABLE typewriter, Ward's

- Signature 440, script type, carrying case included, \$60. Nelson, 865-9516 evenings.
- PIANO, Baldwin Acrosonic, well maintained by owner, \$800. Guerin, 299-4677.
- RUGER, .357, Security Six, w/accessories; Eico tube tester, model 635, new; color picture tube tester. Johnson, 255-1469.
- SEARS pool table, 3'x5', woodgrain finish, wall hanging cue rack. Kaiser, 296-5215.
- 3 SUPER-8 movie cameras, 8 to 1 zoom Nizo, 4 to 1 Honeywell, 4 to 1 Synchronex sound, Minolta 101 body. Berman, 296-5640.
- TYPEWRITER, Hermes, model 3000, \$95. Miller, 268-5992.
- DINNERWARE, Franciscan Desert Rose, 93 odd pieces, all for \$65; silverplated turkey or serving platter, 18 1/2", \$10. Collis, 255-0470.
- FRIGIDAIRE refrigerator, 14 cu. ft.; Kenmore gas range. Marchi, 299-3653.
- FREE: peek-a-poo puppies. Gleicher, 294-8777 after 1.
- ENGLISH Springer Spaniel puppies, purebred, AKC registered, hunters & family companions, liver & white color, show quality. Barth, 345-0172.
- OSCILLOSCOPE, dual-beam, DC, Dumont model 322, working condition, w/manual, make offer. Roeske, 296-3946.
- CROSSMAN 760 Power-Master pump air rifle, pellets or BB's, scope, very little use, \$25. Dyckes, 299-7280.
- SOFA, \$50; dinette set, 6 chairs, \$30; sBerkliner, \$15; baby items, rollaway bed, chairs. Varnado, 294-2783.
- MEN'S shoes, 7 1/2 D, men's clothing old & new, cuff links. Miller, 255-1838.
- THREE G70-15 Goodyear polyglass snow tires w/tubes, sound tires & tubes, \$10 ea. or \$25 all 3. Camp, 281-5020.
- SNOW thrower for yard tractor, \$35; 17" TV & cart, \$25; snow tire & Ford wheel, 7.35-14, \$20. Wagoner, 869-6791.
- AKC Cairn Terriers, champion blood lines, 10 wks. old, friendly & affectionate. Walkington, 881-4027 after 6.
- 120 BASS accordion; portable sewing machine; old Eicor

- tape recorder plus tapes. Johnson, 344-9369.
- FLUTE, Artley Wilkins model; open hole, plugs, solid silver, \$500. Dalby, 262-0364.
- HOT-WHEELS outfit, 50 cars, 100 ft. of track, speedometer, brakes, loops, etc. \$35 or best offer. Jackson, 299-5107.
- ELECTRIC BASS GUITAR w/case, 2 pickups, 4 controls, matching 15 watt amplifier w/3 inputs, tremolo, foot switch, \$125. Bassett, 898-1840.
- HP 400 DR AC voltmeter, GR capacitance bridge, military signal generators, more; all checked, calibrated. Howard, 281-5279 weekdays after 7.
- EARLY AMERICAN maple dining room set, round table, extensions, mates chairs; modern walnut dbl. dresser, dbl. bed, chest. Atkins, 293-9731.
- SLIDE, child's indoor, wood, w/storage space or tunnel, similar to \$40 commercial model, \$10. Beard, 821-0309.
- PUPPIES, Collie-cross, \$5 to good home, mother exceptional pet; Early American bar, built-in appearance, \$250. Rigali, 255-1554.
- CLASSICAL GUITAR and case, \$75. Brown, 293-6195.
- SANYO 2/4 channel AM/FM quad receiver w/4 speakers, \$79. Champe, 299-0066.
- CAMERA, Nikkorex Zoom 35, f/3.5 Nikkor lens 43 - 86 mm. Bircher, 268-0726.
- GREENHOUSE, Lord & Burnham, glass, aluminum frame, 5'x9', lean-to, fan, thermostat, benches, instructions, \$225. Moss, 298-2643.
- SNOW CHAINS, \$15, fit 8:50-14 through 7:00-16 tires, including most popular sizes, used once; green rug, 9x12, \$10. Schubeck, 294-5666.
- REAL ESTATE**
- 3-BDR. HOUSE, 1 yr. old, 2 1/2 baths, LR, DR, FR, completely landscaped, sprinklers, dbl. garage. Forsythe, 299-2785.
- WANTED**
- TRADE: 13" Dart/Valiant wheels for 14", will trade 2 for 1. West, 281-3460.
- WASHER & dryer, need not be twins, must be in good condition. Duvall, 255-3326.
- BOOKCASE w/upright glass

- doors; small old desk, will pay cash. Smitha, 293-1177.
- CHEST of drawers, suitable for small boy's room. Gerstle, 298-7854.
- 2-SPEED motor, 1/4 or 1/3 hp, 115 volts. Baxter, 344-7601.
- BASKETBALL goalpost, 3 1/2" dia. pipe, 14-15 ft. long. O'Bryant, 268-9049.
- BACK issues, Colorado or New Mexico magazine for Art classes. Rakoczy, 881-1372.
- WHEEL for pickup truck, 7:50-16, split-rim. Barr, 298-3718.
- CONCORD DBA-9 Dolby noise reduction unit. Garrison, 881-1851.
- WORKSHOP MANUAL, preferably Ford, which covers the 1960 F-100 4x4 Ford pickup w/292 engine. Camp, 281-5020.
- OLD MODEL airplane gasoline engine w/breaker points, coil, etc., any size. Bassett, 898-1840.
- CHEAP: GM infant loveseat, Swingomatic wind-up swing, infant seat, changing table. Harrigan, 266-4143.
- SET OF WORLD BOOK, up to \$75; service manual for '68 Plymouth. Barnaby, 265-4353.

### LOST AND FOUND

- LOST — Green glove; ladies ring w/2 turquoise stones; safety glasses w/gray frames & black case; silver ring w/lg. black stone; glasses w/gold ear piece, black rims & case; belt loop.
- FOUND — Two silver & turquoise rings, earring w/silver & turquoise. LOST AND FOUND, Bldg. 832, 4-3441.

**Jan. 9 Next  
LAB NEWS  
Publication Date  
Deadline: Jan. 2**



MERRY CHRISTMAS AND HAPPY NEW YEAR, also known as Santa Claus and Margie Marquez (2643), with Wayne Young's (9482) 1951 MG TD.

**THE** — Happy Hour tonight will be a festive one despite lack of a buffet and a Charlie Brown. For it's not only TGIF, it's AWOL (A Week Off at the Labs) time. Bring some favorite friends and spouses and relax and enjoy the spirit of the season.

**COST** — of some Happy Hour Buffets just dropped. (Don't look now, but so did your jaw.) True, it's hard to believe. But check

one of the new Budget Buffets on Jan. 2: chicken-fried chicken, mashed potatoes with country (well, suburban) gravy, peas (but no cues), tossed salad (absolutely no kin to tossed cookies), relishes, rolls, butter, beverage — all for \$2.80. Then dance or listen to a new band, the Sundown Three (they'll do more than set there). Or join Tom McCahon; he'll Lounge about from about 9:30 to about 12:30. The evening is guaranteed to flush all thoughts of a depression from your head.

**OF** — course your sub-twelve-year-olds will have a great time from 10 to 12 tomorrow. That's if they're at the Club fraternizing (or sororizing) with the dummies there — the ones Ron and Mary Kay Day will bring. Cartoons, treats, perhaps even Mr. Claus, too.

**LIVING** — 200 years ago, you'd likely have been caught up in the excitement of America in the making. Catch some of that excitement Jan. 3 when Judy Davis gives us a "you are there" version of the Revolution with her storytelling. Then Walt Disney gives us *Johnny Tremain*, the very first All-American Boy. That kid saw more history made than did Attila the Hun. Nicer guy too. Good stuff to eat available.

**HASN'T** — a group called the Electric Fox got enough problems without coming into the Club on the 27th and competing with all the "What I Got For Christmas" conversations? Yes. But, nevertheless, they'll be there for the Teen Dance 7:30 to 10:30.

**AFFECTED** — by next week's vacation, the Club schedule changes. The Office is

FRIDAY	SATURDAY
19 — HAPPY HOUR AWOL Time	20 — KIDS CHRISTMAS PARTY 10 - 12 <i>Day's Puppets</i> <i>Cartoons</i> Members Only
2 — HAPPY HOUR BUDGET BUFFET Adults \$2.80 Under 12 1.75 SUNDOWN THREE <i>Tom McCahon In Lounge</i>	3 — VARIETY NIGHT Judy Davis, Storyteller <i>Johnny Tremain</i> Food @ 6 Show @ 7

closed. The Lounge is open: 4 to 10 on Monday; 4 to 10 on Tuesday with Happy Hour from 4:30 to 7:30; 2 to 6 on Wednesday with Four Happy Hours; 4 to 10 on Friday; and from 11 on on Saturday.

**ITS** — convenience, its sociability, its economy: those are the major reasons the Lobo Buses deserve your patronage. Pick up a season bus ticket or a game bus ticket, but do it early so we'll know how many buses to charter. Pre-game and post-game Happy Hours too. Try a bus tonight or Monday night.

**POPULARITY** — poise, and savoir faire. Ah, it's great to be a ballroom dancer. You're not? Then fill that cavity in your skill repertoire; it doesn't take much gold — \$20 (or \$35 a couple) for six Thursday lessons beginning next month.

**MORE INFO** — 265-6791. And a Merry Christmas and a Happy New Year from the Board and the Staff of the C-Club!

