

NEW TARGET POSITIONER, here with a model C135 mounted, is put through its paces in the "bubble building" 9970 by George Revels (3612). Pete Komen's Antenna Development Division 2123 uses the positioner in developing more sophisticated antennas by interpretation of signal returned from model.

### At Livermore Labs

## **Radiation Damage In Fiber Optics Subject of Study**

In July, Sandia will complete the major portion of a study of radiation damage in fiber optics that has been funded by the Air Force Weapons Laboratory on Kirtland Air Force Base.

Ed Barsis, supervisor of Device Studies Division 8342, who is responsible for the work, reports that the three-year study will be about 85 percent complete in July. The remainder of the effort this year and next will concentrate on completing investigations of transient phenomena caused by irradiation of optical fibers.

Fiber optics came into fairly wide use in the early '60s. The bundles of flexible glass or plastic fibers that transmit light from one end to the other are now used in many military and industrial applications as substitutes for hard wire transmission links. In general, fiber optic systems offer advantages such as reduced EMR noise, greater isolation between data lines, and, in some cases, reduction of cost, volume and weight.

Radiation affects fiber optics in several ways. Most important, the intensity of a transmitted signal may be reduced, and luminescence which appears as a false signal may be generated. In general, these effects vary according to the type, energy and duration of the radiation and the optical wavelengths used for transmission in the fiber.

"Determining the magnitude of these effects and understanding the physics of damage mechanisms have been our main activities," Ed says. "We have looked at all the commercially available fiber optic materials as well as some materials not generally available. We have identified a number of radiation-tolerant materials and understand the major effects of dopants, impurities and irradiation temperature on radiation resistance."

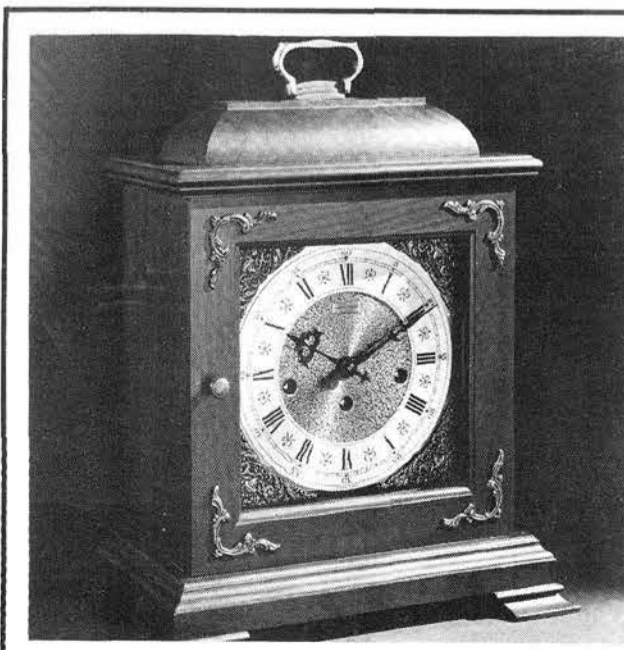
Enough data and understanding have been obtained to enable Air Force designers to make decisions about materials and fiber lengths, and about maximum doses and dose-rates for fiber optics in aircraft, satellites,

(Continued on Page Three)

# LAB NEWS

VOL. 27, NO. 6

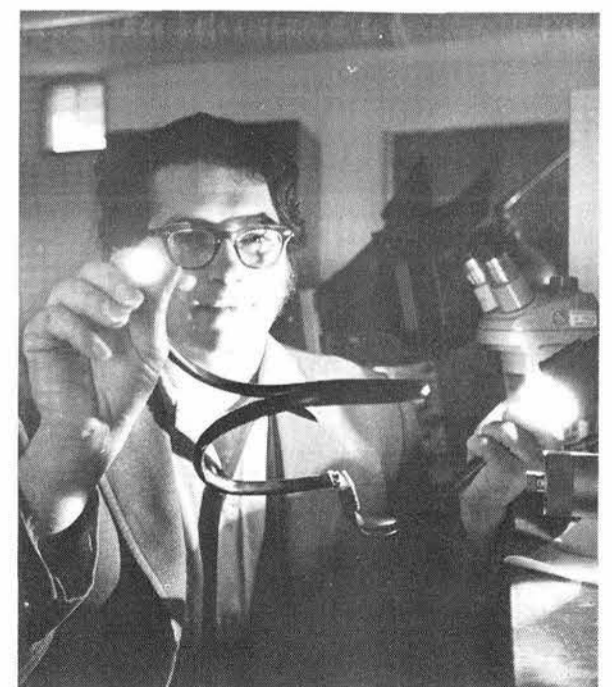
MARCH 21, 1975



## **Additional Service Awards Available**

**See Page Four**

HAMILTON 8-day mantel clock, a 25-year award, chimes every quarter hour.



LIGHT BENDING and transmitting qualities of fiber optics are demonstrated by Ed Barsis, supervisor of SLL's Device Studies Division 8342. The group is completing a three year study of radiation damage in fiber optic materials for the Air Force.





SENATOR MONTOYA and Morgan Sparks view photos of Sandia's hydra accelerator as Al Narath (5000) and Gerry Yonas (5240) look on. A larger print of this photo will be hung in the Joint Committee on Atomic Energy hearing room. The Sandians were in Washington attending hearings conducted by Sen. Montoya as chairman of the JCAE Subcommittee on Legislation.

### Recreation Notes

## FUN & GAMES

**Coronado Ski Club** — New officers for the coming year were elected at the Club's meeting earlier this week. They are: President - Jack Hanna (9000), VP - Don Schroeder (2442), Secretary - Don Lundergan (4010), Treasurer - Ray Dunaway (4275), Membership - Joyce Sanchez (4735), Trips - Frank Biggs (5223) and Area Rep - Walt Westman (ret'd.).

**And a first:** a stolen bus. The Ski Club members on the Utah trip finished breakfast at Brighton Lodge and headed for the buses to Snowbird. One was gone. It turned up sans thief two miles down the canyon in a snowbank hanging over a cliff edge. No real damage. Thief yet unapprehended.

**Playsuits** — Les Baumann (9550) reports that he is now able to fill orders for sexy sweatsuits. They're nylon, double-knit, and available for both men and women in just about any color. You can see Les in the gym after five any day.

**Sandia Runners Ass'n.** — How do you start running? People who already run are

asked that question by would-be runners/joggers, and perhaps the answer isn't obvious. Assuming your doctor says "go," you begin by jogging-a-bit, walking-a-bit, jogging-a-bit. The distance you cover in each mode depends upon your fatigue — if you tire after jogging a few blocks, then walk for a while until you recover and resume jogging. At the outset, joggers/walkers should probably aim at one-half to one mile. And expect some aches and pains — tender feet, "shin splints" (pain in the lower leg), and muscular stiffness. These are rarely severe and generally go away with repeated outings. How often? Five or six times weekly says Dr. Cooper, the aerobics man. If you stick with the regimen, invest in some running shoes. They're much lighter than tennis shoes and besides, someone may take you for Frank Shorter.

# This Is Quality Week

The Albuquerque Section of the American Society for Quality Control has designated March 16 to 22 as Quality Week, and Chairman Bob White (9513) has announced a number of events:

- Dennis Murphy (9522), Bill Wing (9535), Jack Wiesen (4750) and Bob appeared on radio KZIA to describe Quality Week and the ASQC Community Service Program
- John Ellefson (9525) testified on HB148 on Environmental Quality
- The Governor, the Bernalillo County Commission, and Mayor Harry Kinney have proclaimed Quality Week
- "Quality of Living" was the subject of the KGGM/TV program "Forum 13"
- Quality Week Luncheon, set up by Mary Pasko (9535), is being held today at noon at the Kirtland West O-Club. Guest speaker is Cliff Barrows, Billy Graham's associate
- Al Swain (1642) conducts a seminar tomorrow, March 22, "Motivation - the Key to Improved Quality"

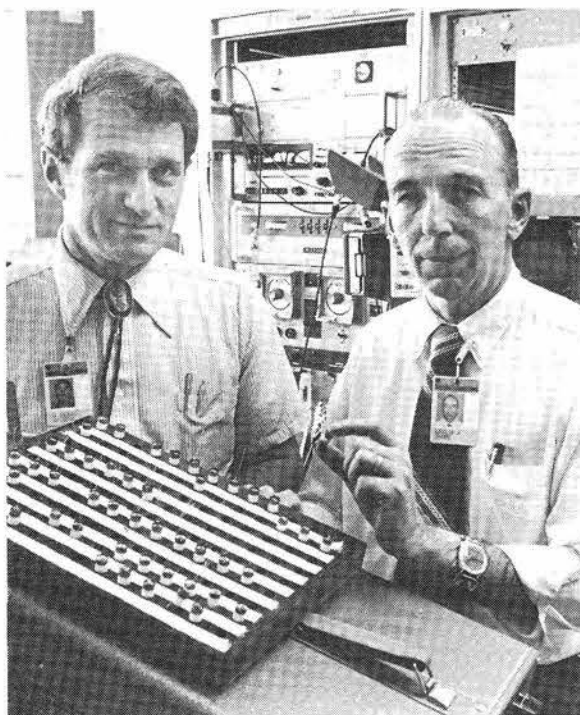
In addition, extensive promotion of Quality Week has been done throughout the state with newspapers, municipalities, and industry.

### ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973  
CURRENT REPORTING PERIOD ENDING FEB'75

ELECTRICITY	BASE PERIOD 63551 MWH 1975 49051 MWH	22.8% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 154038 BBLs 1975 132569 BBLs	13.9% SAVED
VEHICLE MILES	BASE PERIOD 1682000 MI. 1975 1243000 MI.	26.1% SAVED

## Patent Awarded For New Switch



INVENTORS Tom Grissom (2432) and Les Shope (2414) display a tray full of a new type of switch recently patented by ERDA.

ERDA was recently awarded a patent for a vacuum-type triggered discharge tube with cup shaped anode. Inventors are Tom Grissom (2432) and Les Shope (2414).

The new switch is designed to trigger the discharge of a moderate-sized (kilovolt/kiloamp range) capacitor bank. It maintains small size and weight while being radiation tolerant and impermeable to hydrogen and helium gas. Among the unique features of the switch is the sealing of the vacuum tube with the gold bonding process. In addition, the switch has a rapid and consistently repeatable recovery time.

Les has worked at Sandia almost 20 years, primarily in component development. He holds an MS degree in EE from Case Institute earned in 1955.

Tom has been at the Labs five years. He holds four other patents — for an electronic watch, random number generator, a medical thermometer and nuclear spectrometer — invented while employed at Redstone Arsenal at Huntsville.

## LAB NEWS

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### SANDIA LABORATORIES

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In Livermore Area 415 455-2111

john shunny is editor

&

don graham ass't. editor

bruce hawkinson & norma taylor write

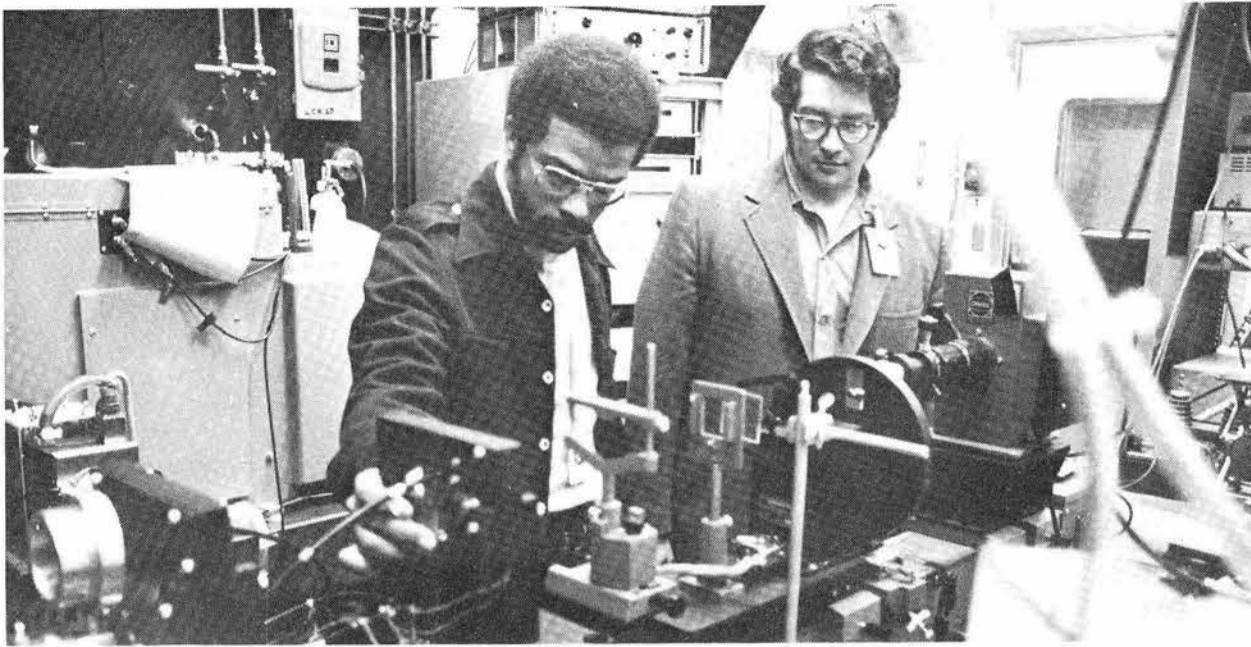
bill laskar does picture work

gerse martinez lends a hand

&

loreana schneider reports on livermore





SPECIALLY-DESIGNED SPECTROMETER is automated to test light transmission in optical fibers over various wavelengths. The machine also makes background counts with its photomultiplier tube. Larry Watkins and Ed Barsis (both 8342) ready the apparatus for another series of tests, part of survey of radiation damage in fiber optics.

*Continued From Page One*

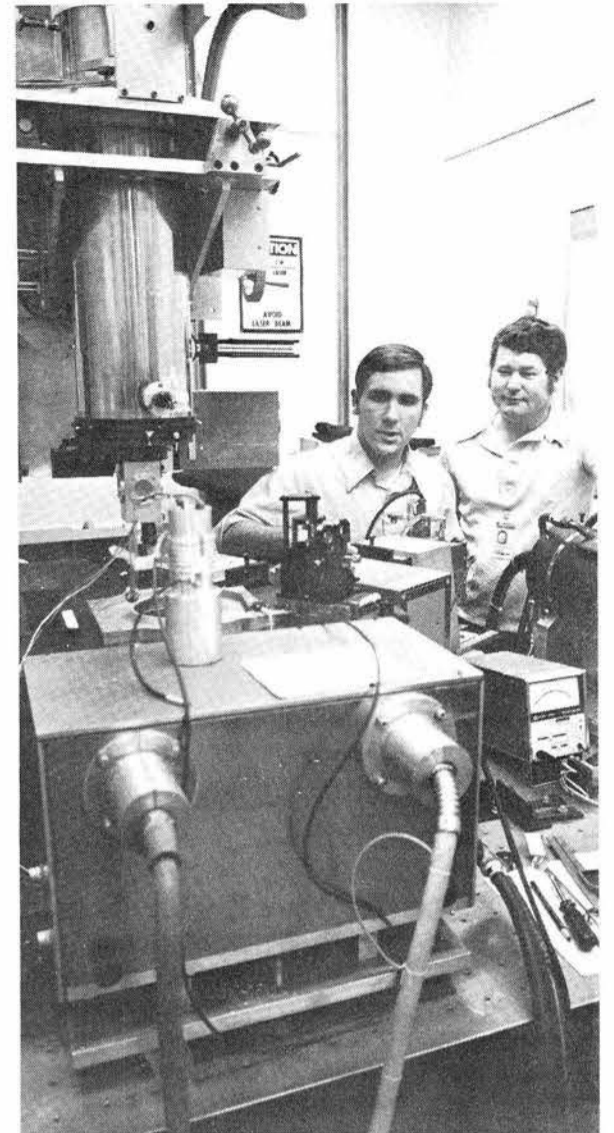
## FIBER OPTICS STUDY

missiles and reentry vehicles. The work also represents a significant contribution to the physics of radiation interactions with glasses and plastics.

A unique aspect of this effort is the study of transient absorption and luminescence which was performed using a variety of pulsed electron and x-ray sources. The transient work is particularly important because of

restrictions placed on fiber system recovery times and because of the information about defect states and kinetics that can be obtained. Cobalt 60 and neutron sources are also used to study permanent damage effects and slow recovery phenomena.

Principal investigators in the study, besides Ed, are Pete Mattern, Larry Warkins, Cliff Skoog and Jerry Brandon.



LOW LEVEL absorption and luminescence measurements in fiber optics are taken with this unique in-situ spectrometer. A pulsed, variable-duration x-ray source is used here by Pete Mattern (8334) and Cliff Skoog (8342), but it can be interchanged with neutron and electron sources.

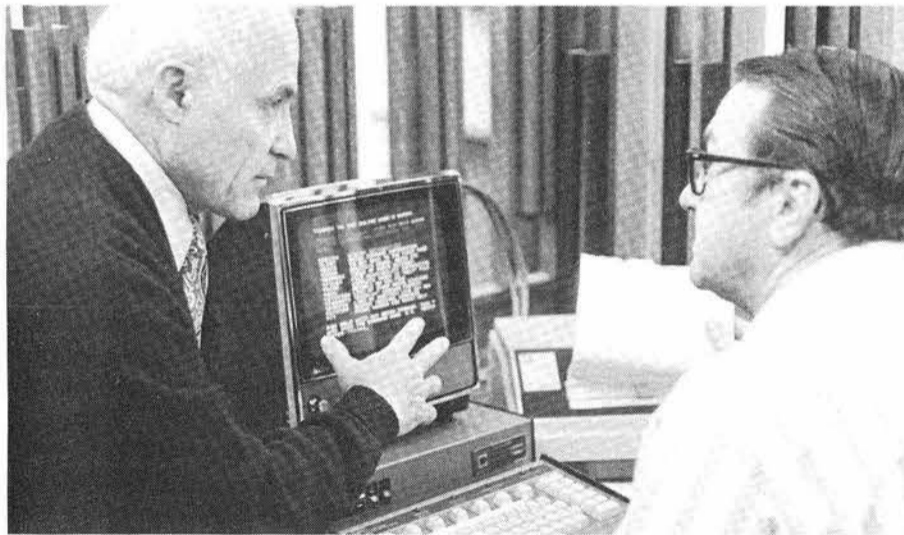
# LIVERMORE NEWS

VOL. 27, NO. 6

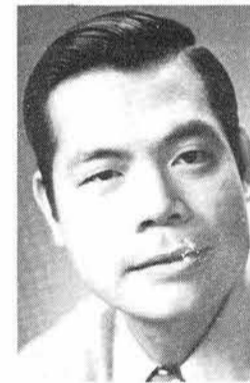
LIVERMORE LABORATORIES

MARCH 21, 1975

REFERENCE LIBRARIAN Earle Paxton (8266), left, explains RECON (Remote Console) information retrieval capabilities to Wes Estill of Material Characterization Division 8312. Hard copy print-out of the display appears at the right of the keyboard.



## Supervisory Appointment



Roy Lee to supervisor of Numerical Applications Division 8322, effective March 1.

Joining Sandia in August 1968, Roy worked for almost five years in weapon systems groups, first in Albuquerque for nine months, then in Livermore. Since April 1973 he has been involved in numerical applications, scientific programming, and consulting for mini-computer software programming.

Roy earned a BS in mathematics from Oregon State University in 1963 and MS and PhD degrees, also in mathematics, from the University of Wisconsin in 1964 and 1967. Subsequently, he did post doctorate work at the University of Minnesota under a grant from the National Research Council and the Office of Naval Research.

His favorite leisure-time activities include camping, sailing and chess. The Lees and their three sons live on Diane Lane in Livermore.

## Authors

Jim Shelby (8334), "Helium Diffusion and Solubility in  $K_2O-SiO_2$  Glasses," JOURNAL OF AMERICAN CERAMIC SOCIETY, Vol. 57, No. 6, p. 260-6.

Ron Musket (8334), "Emergency Dependence of the Sensitivity of Ionization Spectroscopy: Si on Be," SURFACE SCIENCE, Vol. 44, p. 629.

Art Van Hook (8156), "A Fast, Large Aperture, Electromechanical Shutter," REVIEW OF SCIENTIFIC INSTRUMENTS, Vol. 45, No. 10, p. 1242.

## New Reference Tool in SLL Tech Library

An on-line information retrieval capability called RECON (Remote Console) is now available in Sandia/Livermore's tech library for use by employees as well as the library staff.

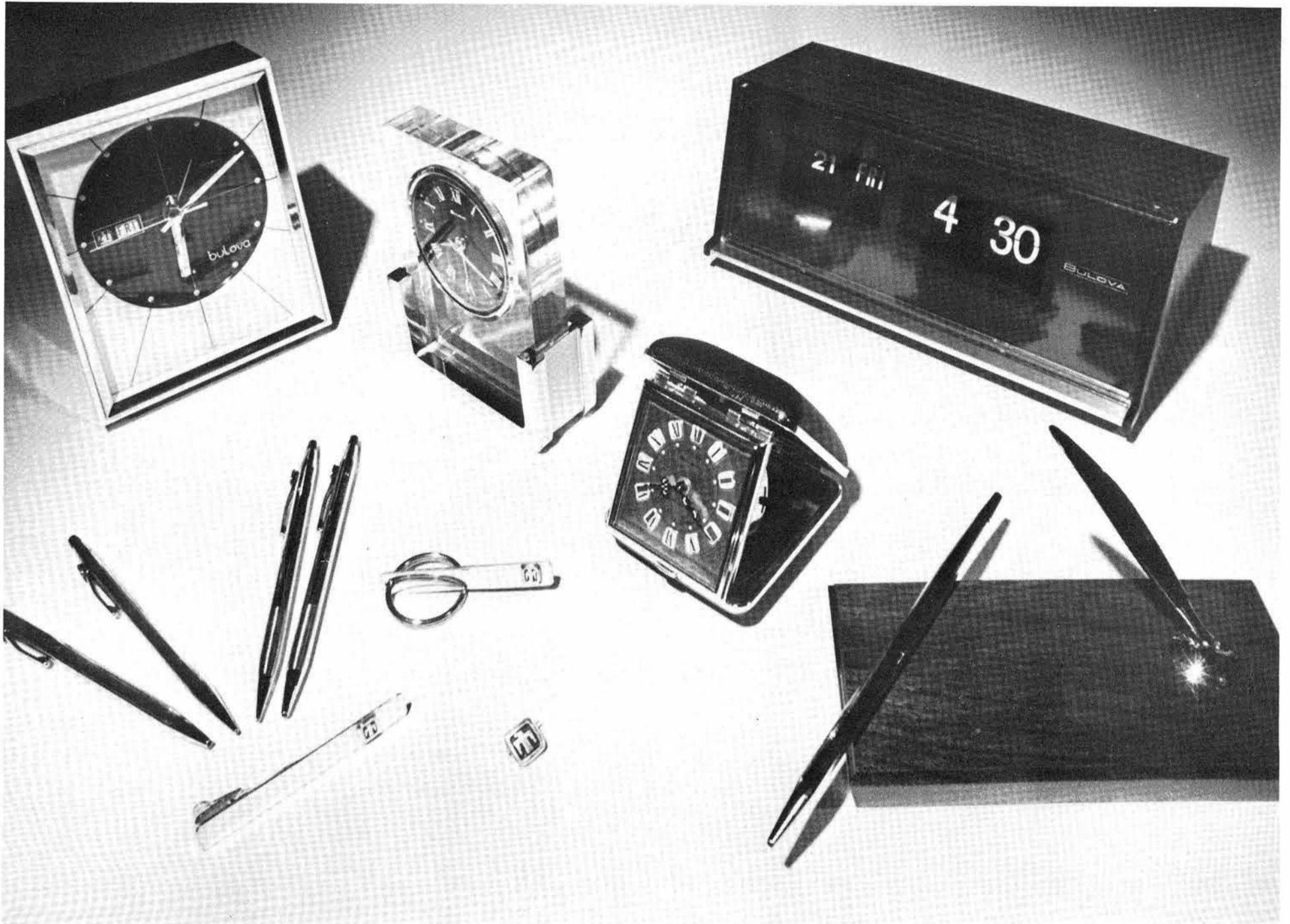
Utilizing data stored in the computer center at the Holifield National Laboratory (formerly Oak Ridge National Laboratory), the new reference tool makes it possible to search such subjects as nuclear science, energy, nuclear safety, and toxic materials. Some 35 stations are now linked to the network; these include Sandia/Albuquerque, Lawrence Livermore and Berkeley Labs, Los

Alamos, General Electric/San Jose and Sunnyvale, Battelle and Argonne.

Two additional data bases will be available as soon as a larger memory storage is installed. One of these is the National Technical Information Service, which encompasses all unclassified government reports released to the public; the other, Engineering Index, is an abstracting service covering engineering articles appearing in technical and trade journals.

If RECON might be helpful in your work and you are interested in learning its capabilities, contact Earle Paxton (8266), ext. 3032, or Michael Schalit, ext. 2951.





NEW AWARDS include clocks, pen and pencil sets. SLI 4809 (now on bulletin boards) gives detailed information on awards vs years of service.

## Additional Service Awards Made Available



WATCHES are 25-year awards. Buckles, necklaces, and other jewelry are awarded for 20 or fewer years of service.

These photos show new (as well as existing) anniversary and retirement awards. Principal additions include clocks, pen and pencil sets and, at the 25-year level, a new selection of men's and women's watches.

Not illustrated, but available to 25-year people, is Nambé ware, which may be substituted for a watch or clock.

A special, one-time sale of the new awards is scheduled for April. Tom Morgan of General Employment & Personnel Services Division 4256 explains: "The new awards may be purchased by Sandians who have the appropriate length of service. For example, a 20-year person could buy the 20-year digital clock or an award from among those offered at lower levels of service. The sale applies only to the *new* awards."

A mailing concerning the sale is scheduled for the first week in April to all eligible Sandians which will give prices and will contain an order blank. The entire selection of service awards is on display in the elevator foyer of Bldg. 802. At SLL, selections may be seen in Benefits (MO4) until a display case is placed in the lobby of Bldg. 911. A few items, such as the letter opener, have been dropped from the awards selections. Other items, such as an electronic calculator and design telephones, have been added to the list of 25-year awards.

SLI 4809, app. B, dated March 5, 1975 has been mailed to supervisors. Selections for awards should be made from that SLI rather than from the former individual brochure.



## Sandians Take Part in Searches

Sandia members of two rescue associations took part in two search operations recently. The first involved a downed aircraft near South Sandia Peak, while the second was a search for a youth who had gone hiking in the Sandias.

These Sandians from the Albuquerque Mountain Rescue Council took part:

Don Mattox - 5834	Rich Davis - 3643
Walt Herrman - 5160	Gary Tisone - 5212
Sam Beard - 5628	Bob Rieden - 2312
Ray Berg - 5839	Dale Leonard - 9614
Jim Hickerson - 5832	

The Sandia Search and Rescue Team worked with AMRC on both operations. Sandians involved:

Mac Weaver - 9743	Norm Hunter - 9332
Doug Drumheller - 5163	Phil Hargis - 2441
Sherwood Dulliere - 5822	Dave Haaland - 5824
Bruce Varnado - 9354	Sam Varnado - 4733
Leo Bressan - 9532	George Staller - 2441
Bob Wemple - 5834	Mike McLaughlin - 2340
Don Stone - 4276	John Southwick - 9532

Getting to the downed aircraft and recovering the bodies of the two victims was particularly arduous, so states Don Mattox of AMRC. The rescue teams snowshoed some four miles to the crash site and spent the entire night performing the evacuation. The operation was made more difficult by the high altitude (10,000-plus feet) and rugged terrain. (One of the victims, Charles Herndon, is a former Sandian.)

Both AMRC and SSRT are volunteer, non-profit groups who perform these missions without charge. Donations are urgently needed for purchase of the specialized equipment used in their rescue operations.

### Our Town

## Follow Up: KHFM Is 20

"What'll we name him?"

"I dunno — Elvis, Billy Jo, how about 'Rock?'"

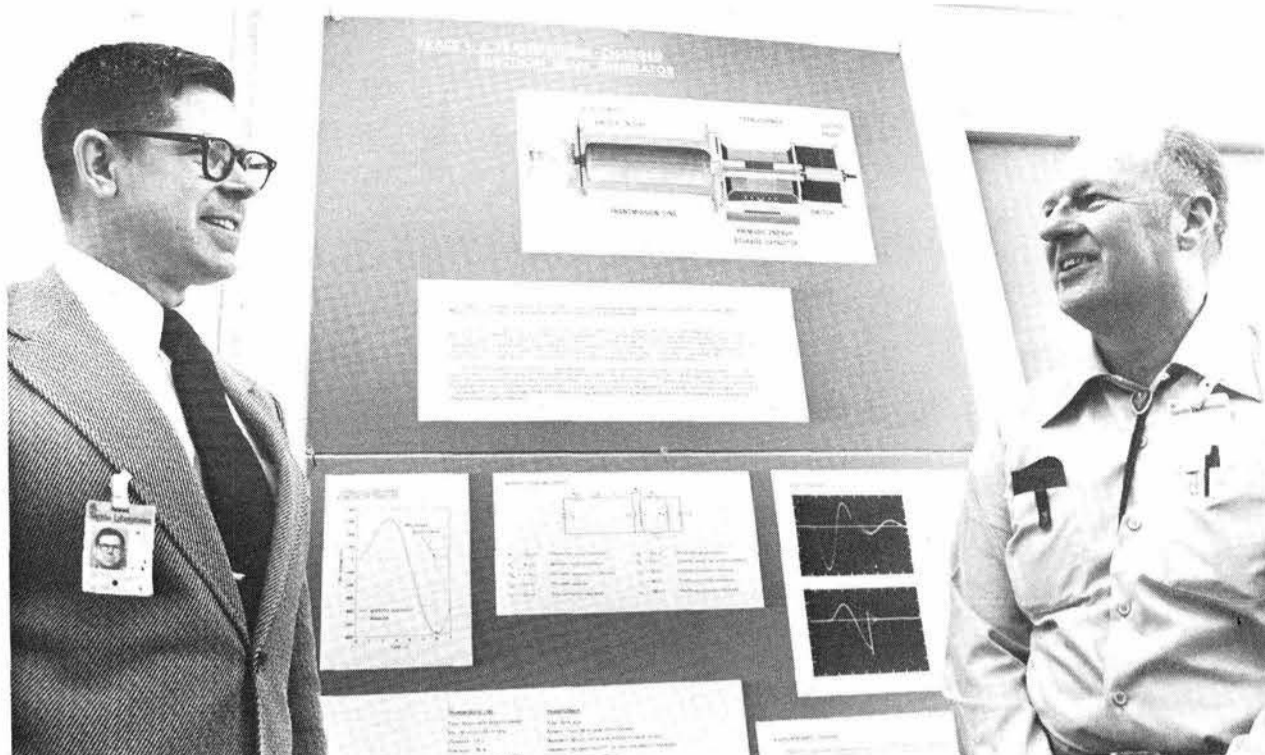
"'Rock Bach?' my mother wouldn't like it . . . how about 'Johann Sebastian?'"

And so on this day (March 21) in 1685, Mr. and Mrs. Bach named their new offspring. It's fitting that an Albuquerque institution devoted totally to the broadcasting of classical music, radio station KHFM, should also be observing a birthday, its 20th. The station rather archly calls it "A Score for the Arts."

To have survived at all is something of an achievement. Concert music is not exactly a universal passion in Albuquerque. But when the finances of the station were approaching disaster and its sale or format change was imminent, loyal listeners became contributors — giving money and, in some instances, their personal services to keep the station going. "Subscribers" now donate monthly, from \$2 to \$10, and volunteer announcers (Keith Taylor, 5625, is one) staff most of the on-the-air time.

Current high hope of KHFM is to get a transmitter on the Crest so that reception would be improved, here and through the remainder of the state. Seems reasonable enough, but other broadcast interests oppose the move.

Anyway, happy birthday KHFM. All that rock, soul, bluegrass, country and western stuff is OK, but it's nice to be able to turn to something classical.



"POSTER SESSION," a new way to present technical papers, is demonstrated by Gerry Rohwein (8416), left, and Glenn Miller (5225).

### New Presentation Technique

## 'Medicine Show' Comes to Tech Meetings

LAB NEWS would never call the formal presentation of a technical paper at a symposium dull. After all, just look at our "Speakers" column.

However, we are intrigued with a new wrinkle in presentations called "poster sessions."

Pioneered in Europe and tried in the U.S. at a Biochemistry/Biophysics meeting last June, poster sessions are making even scientists enthusiastic.

The concept is simple. The participant prepares a large display board (about 4'x8') on which he illustrates with graphs, data, drawings, photos and summary the main points of his paper. He joins with other authors in a large hall where the boards are hung. The author is available during a specified time period (about two hours) to explain his work in detail and answer questions. Conference attendees then are free to browse as in a museum or beeline to the presentation that holds their primary interest.

Glenn Miller (5225) and Gerry Rohwein (8416) are possibly the first Sandians to

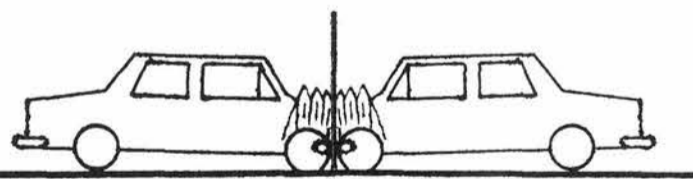
participate in a poster session. They were in Washington D.C. this week making presentations at the National Accelerator Conference. Before they left, they had a practice session in a conference room in Bldg. 806.

"This may be the way that tech meetings go," Glenn said. "There is more interaction between 'speaker' and 'listener' than in a formal session. More specific questions may be asked and answered. And, let's face it, the speaker doesn't get stage fright this way — there's no great big scary audience out there."

Of course, proceedings of the meeting will always print the entire text of the paper.

Glenn presented a paper (co-author Grant Lockwood, 5226) titled "Calorimetric Determination of Beam Energy," Gerry Rohwein discussed "TRACE I — A Transformer Charged Electron Beam Generator."

A number of Sandians presented papers in the conventional formal sessions of the conference.



### Really? Really.

## Well, Running Your Car Into a Wall at 50 Hurts a Lot

Question: What do the National Safety Council, a Volvo commercial, and LAB NEWS have in common? Give up? They all state that running your car into a wall at 50 mph causes the same damage as running two identical cars into each other at 25 mph.

Wrong!

And saying it does (in our last issue) subjected us to a barrage of potshots about our engineering expertise, or lack of it. Actually, of course, we simply wanted to learn whether or not cutlines get read.

Seems what's important in causing damage is the distance traveled from impact to the time each car stops. If running into an immovable plane (like a wall) at 50 causes, say, the front three feet to deform, then running two identical cars into each other creates the same kind of "symmetry plane" at the point of contact. Neither car can penetrate this plane, so it becomes a kind of invisible wall and causes three feet of deformation in each car.

The kinetic energy formula ( $KE = 1/2$

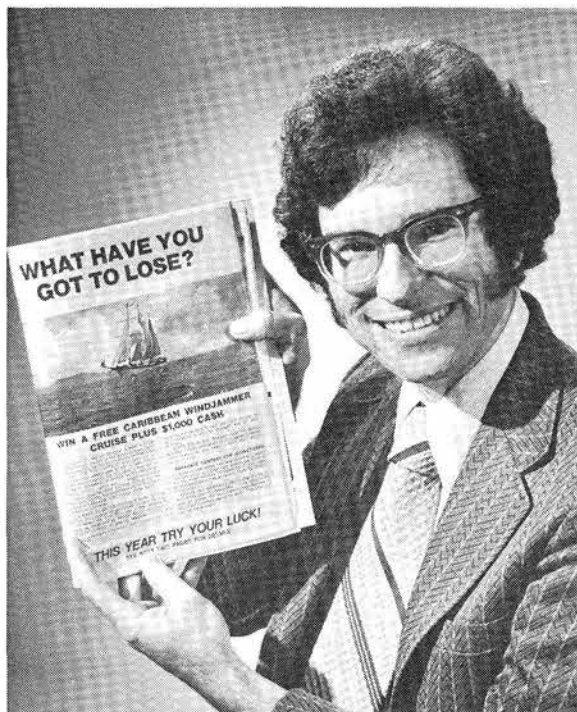
mass x velocity squared) leads to the same conclusion. And it indicates that two cars of the same weight impacting at 25 mph sustain only one-fourth as much damage as do the same cars impacting at 50, with each other or a stone wall.

It's trickier, of course, if the cars don't weigh the same or if they aren't going the same speed.

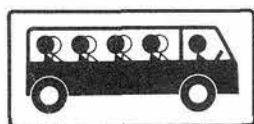
The potshooters include: Jack Cyrus (5712), Marvin Causey (1542), Bob Weaver (3622), John Hiller (2131), Fred Dippold (1100), Richard Schmidt (5163), Wayne Young (5716), George Steck (1723), Lou Feltz (5623), Frank Biggs (5223), Fred Hartman, James McKenzie (both 2115), Frank Halasz (8266), and Charles Karnes (5847) who did the sketch.

Anyway, everyone knows that heating up a metal plate that has a hole in it makes the hole get smaller as the metal expands.





ABSOLUTELY NOTHING TO LOSE, well, maybe 10 or 20 minutes of effort. To gain? A windjammer cruise for Mr. and Mrs. Tom Barger (9423). Tom won Electronic Design magazine's contest by deciding which ten ads in the Jan. 4 issue would generate most reader attention. Congrats, Tom.



## Bus Notes

The Philadelphia consultants, Simpson and Curtin, have finally finished their report on Albuquerque Transit due Dec. 15. S & C propose: a) one more Sandia Special route along Osuna north of Arroyo del Oso, then down Juan Tabo; and b) a 28% fare increase on the grounds that the Specials offer "portal-to-portal" service and tie up buses during peak hours.

The Employee Transportation Committee has counter-proposed: a) four new routes, two along Chelwood, one in the Osuna and Moon areas, one along Pennsylvania; and b) leaving the fare structure as is on the grounds that the service is not truly portal-to-portal and that the Specials "generate more passengers per revenue mile than any other special or regular service operated by SUNTRAN" (quote from S & C).

Copies of the counter-proposal went to the new Dept. of Transportation Director Ed Beck, Transit Director Tom Gore, and City Councilors Kolbert, Cohn, and Hoover. The basic problem remains the same — not enough buses unless existing routes are merged or eliminated to spring some loose. For more info: 4-RIDE.

## Speakers

R.S. Blewer (2413), "Use of Elastic Scattering Cross Section Anomalies for Depth Profiling Helium and Hydrogen Isotopes in Solids"; C.W. Frank (5811), "Observation of Relaxation Processes Near the Glass Transition by Means of Excimer Fluorescence"; R.A. Assink (5811), "Investigation of the Dual Mode Sorption of Ammonia in Polystyrene by NMR." Conference on Nuclear Cross Sections and Technology, March 3-7, Washington, D.C.

G.C. Nelson and P.H. Holloway (both 5825), "The Determination of the Low Temperature Diffusion of Chromium Through Gold Films by Ion Scattering Spectroscopy and Auger Electron Spectroscopy," ASTM Symposium on Surface Analysis Techniques for Metl. Appl., March 3-7, Cleveland, Ohio.

K.E. Lawson (5833), "Pore Volume Determination in Graphite by Quantitative Television Microscopy," 27th Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 3-7, Cleveland, Ohio.

# 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. We would like to suggest the possibility of flexible working hours. By this we mean a fixed core of working hours per day (10 AM to 3 PM) with optional hours to be chosen by the employee. The optional hours should fall within the 6:30 to 10:00 AM or 3:00 to 7:00 PM time frames. Experience of companies using this schedule have resulted in increased productivity and lower absenteeism. It can also help relieve the traffic problems at 8:00 AM and 4:30 PM, thus helping to offset the increased energy usage due to longer hours of operation. The fixed core hours insure adequate overlap of all employees' hours. Why can't we have such a system at Sandia?*

A. Your Feedback comment is similar to many which have suggested consideration of possible major changes in the work schedules of the Laboratories. This answer is being given to all these inquiries and, therefore, may contain information and comment on something which was not part of your specific question. The questions received relate to (1) a shorter workweek, i.e., a four-day work schedule or (2) flextime or variable work hours, i.e., allowing employees some freedom in selecting their daily or weekly work time.

Both the shorter workweek and flextime have received considerable publicity in the past few years as innovative measures claiming greater efficiency and higher concerns for the energy crisis and pollution problems. Sandia has been actively studying these concepts for some time. Based upon consideration of the unique commuting problems which involve flying between Las Vegas and Tonopah daily, a four-day week of ten hours a day was introduced experimentally at the Tonopah Test Range in 1972. For the Tonopah situation, it proved advantageous to both the employees and the Laboratories so that the arrangement has now been adopted as the regular schedule for that location.

While these concepts seem to offer some promise, they are still experimental. Some companies have found them to be successful, as we did at Tonopah, while others have abandoned them after a trial period. There are a number of problems and considerations for Sandia which require resolution or accommodation before any major work schedule changes could be made. Some of these are:

1. Recognizing that not all operations or activities lend themselves to either a shorter workweek or flextime, consideration must be given to employee reaction if such changes were limited to special groups or organizations.
2. Coordination with the Military and AEC at Albuquerque and with LLL at Livermore would be required since present work schedules have been established in a manner intended to alleviate major traffic congestion problems.
3. Current Federal statutes require overtime payments to certain types of employees who work more than eight hours in a day so that a shortened workweek involving more than eight hours daily or any flextime arrangement permitting the number of hours per day to exceed eight could

significantly increase our payroll costs unless these laws were changed.

4. Many employees, for legitimate personal reasons, would find a workday of more than eight hours completely unsatisfactory and, therefore, would be obligated to seek employment elsewhere.
5. Flextime presents questions of attendance control which large organizations who are experimenting with flextime have resolved through the use of elaborate, expensive time recording systems.
6. Whether these new concepts would reduce or increase the problems of the energy crisis and pollution is subject to both interpretations.

We will continue to examine the results of other companies who are experimenting with some of these concepts and to evaluate their practicality for the Laboratories.

R. J. Edelman - 4200

*Q. An expensive, heavy-duty tripod has been lying unprotected, exposed to the weather, under trailer #B57 at the corner of the 11th and K Street in Tech Area I (between Bldgs. 880 and 892) for over 2 months. The markings on the tripod are: GIBRALTAR QUICK SET S N 6321, Mod 6302 S#39859.*

*I don't believe that a piece of gear of this quality and expense should be permitted to deteriorate through neglect.*

A. We appreciate your concern for the protection of government property, and agree that equipment of this quality and expense should not be permitted to deteriorate through neglect. The owner of the equipment was contacted on the day your Feedback was received and the equipment was immediately moved to a proper storage area.

R. J. Hansen - 4800

## Take Note

Pre-registration for T-VI's summer trimester runs from March 31 to April 11, while registration itself takes place on April 28 and 29 for those accepted into classes. Sandians may enroll in evening courses on a cost-free basis provided the course is job-related or relates to a job to which the employee may logically aspire. Pre-registration forms and T-VI catalogs may be obtained from Ruth Brooks in Education and Training Division 3131. The forms as well as Sandia enrollment cards must be validated by Div. 3131 if you wish to take the T-VI course at no cost. T-VI classes start the week of May 12.

\*\*\*\*

The YWCA is offering a three-day bus tour to Carlsbad Caverns and White Sands National Monument April 19-21. The tour will leave at 8:30 a.m. Saturday and return at 7 p.m. Monday. Cost is \$71.50 for non-members, \$68.50 for members. More info at 247-8841. Reservation deadline is March 28.

\*\*\*\*

NEED A: hauler, plumber, painter, typist, carpenter, auto fixer, welder, machinist, TV repairer? The Retiree Job Reference file lists these and other skills. LAB NEWS office, Bldg, 832. No phone calls, please.



# Events Calendar



LEO DUNN (9414) and CHARLIE MONROE (9754) load ice penetrator unit onto wing rack of Sandia's Beaver aircraft for drop testing at Edgewood Test Range. Three units were dropped from 6000 ft. altitude into the frozen earth target at the range. Wayne Young (5716), project leader, reports the tests were successful. Sixteen units, which measure sea ice thickness, temperature, and other characteristics, will be dropped in April north of Point Barrow, Alaska, for the U.S. Navy. The Sandians will operate out of the Naval Arctic Research Laboratories in Point Barrow.

- March 21** — KHFM (96.3) observes Bach's birthday with the Golden Oldies, all day.
- March 21-22, 28-30** — Albq. Civic Light Opera, "Most Happy Fella," Popejoy Hall, 277-3121.
- March 21-22** — Experimental Theater, UNM: Albq. Dance Theater, "An Evening of Modern Dance," 8:30 p.m.
- March 22** — N.M. Mt. Club, Ladron Mountain, 6 miles, Carlisle & Menaul, 8:00 a.m.
- March 24** — Kenneth Clark, "The Romantic Rebellion: William Turner," KNME-TV, 9:30 p.m.; repeat March 20th, 6:30 p.m.
- March 25** — Travel Adventure Series, "Hawaii," 7:30 p.m., Popejoy Hall.
- March 25** — KNME Channel 5, Ascent of Man, "Generation Upon Generation," 8:30 p.m.
- March 27** — Audubon Film Series: Palm Springs to Lake Louise, 7:30 p.m., Popejoy Hall.
- March 28** — Concert Choir, Eastern New Mexico University, 8 p.m., Convention Center.
- March 29** — Metropolitan Opera Broadcast: Wagner's "Die Goetterdaemmerung," KZIA (1580 AM), 10:30 a.m.

## 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.

### 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.

### FOR SALE MISCELLANEOUS

- BABY scale, \$4; AM/FM stereo, needs turntable, \$10; wheelbarrow unassembled, new, \$15; baby's car seat, \$6. Harstad, 298-6551.
- GUN cabinet, large, with storage; Kenmore portable dishwasher, like new; Royal portable typewriter; Loyd's unicycle. Wolf, 298-4746.
- MOBILE home, 70'x14', 1½ bath, 2-bdr., AC, heavy duty washer/dryer, 2 months old. Perryman, 292-1120.
- LARGE wooden coffee table, 2'x4' w/black glass top. Pre-vender, 299-5253.
- TELESCOPE, 60mm refractor equatorial mount, zoom lens, times 2 Barlow lens, extras, sale or trade. Plein, 293-5041.
- GUITAR, \$15; baby's car seat, \$5; mesh playpen, \$7; wicker chair, \$11; end table, \$7; headboards, \$19; wooden skis, \$3. West, 298-6966.
- GERRY carrier, Delux, \$8; pottie chair, \$3; yellow diaper pail, \$1; ladies brown vinyl jacket, size 10, \$4. O'Bryant, 268-9049.
- TIRES, 13x5.60, less than 600 miles use, 5 at \$15 ea., wheels for same, \$5 ea. Campbell, 298-9265.
- TYPEWRITER table, \$5; standing bird cage, \$5; alum. dog house, \$7; solid-ox torch, \$20. Carter, 296-8709.
- GOLF clubs, '73 model, Wilson 1200 irons, #2 through wedge, \$135. Campbell, 255-4271.
- CAMPER, 8' slide-in, non-cab-

- over, ice box, table, 2 bunks, storage w/jacks & storage dolly, \$475. Anderson, 296-3558.
- 20" ROTARY lawnmower, Sears, 9 cubic in. gasoline engine, used 2 seasons. Randall, 821-0388.
- JAPANESE sword w/scabbard, in good original condition, \$55; Wanted: old walking canes. Smitha, 293-1177.
- CATCHER'S outfit, shin guards, chest protector, face mask; shoulder pads for mini-football player, ages 7-11. Huston, 842-1831.
- EASTER bunnies, Dutch, Angora, guinea pigs, will hold till Easter. Hickman, 298-3804.
- BIG Horn Western saddle, #405, fiberglass tree, \$125. Constant, 281-5670.
- RACK for short wide bed pickup, easy to install, reasonable. Gonzales, 265-2671 after 4:00.
- GOLF clubs, 2 woods (Walter Hagens), 6 irons plus chipper (alum. shaft), 2 putters, 100 tees, 2 doz. used balls, 1 bag, all for \$35. Garcia, 298-9186.
- LAWN MOWER, 24" reel type, self propelled, Jacobsen Estate model, \$95. Gubbels, 299-8089.
- 2 GOODYEAR polyglass 6.60x15" tires, \$80; 2 Chevy 8½x15" alum. mags, \$80; 2 10½x15" Universal alum. mags, \$100. Lujan, 265-0935.
- 15 FT. CUSTOM MADE Lugar boat, Marine plywood, glassed bottom, 35 hp. Johnson, electric start, Dilly tilt trailer, reasonable. Dishman, 296-2457.
- PUSH mower & catcher, \$19; 10'x11½' beige wool rug, \$15; Hanksraft vaporizer, \$5; bonnet-type hair dryer, \$4. Brown, 296-5772.
- HOUSE plants, airplane plants, begonias, geraniums, many succulents & cactus, many suitable for hanging baskets. Manhart, 268-3017.
- BALDWIN Orgasonic, model 73-A, complete w/Leslie. Marker, 298-3985.
- HAMP SHIRE pigs, castrated, Poland China mixed, 3 mo. old, \$30; 2 mo. old, \$20; 1 Hamp-

- shire breeding male, 3 mo. old, \$35. Butler, 873-2867.
- DANISH modern green couch w/attached end tables, \$200; coffee table, solid walnut, \$85; white patio table, \$30. Lundergan, 255-2974.
- FOUR G78-14 tires, 4-ply, nylon whitewall, worn, \$14. Lambert, 344-9012.
- CURTIS MATHES black & white TV, 19", table model, \$45. Davis, 265-3005 Sat. or Sun.
- TWO, 1/3 & ½hp 2-spd. electric motors, used, \$12.50 ea. Grant, 255-6105, 405 Palomas Dr. NE.
- 8" LORTONE double arbor, model SA-8, brand new, \$40. Zucuskie, 881-4086.

### FOR SALE TRANSPORTATION

- '70 YAMAHA 250 twin street bike, under 6,000 miles, new tires, \$370. Kerby, 266-6133.
- '71 CAMARO 350, 4-spd., duals, RH, PS, PB, gauges, air shocks, Goodyear tires, \$2200 or best offer. Ingram, 256-1928.
- '65 MUSTANG, new paint (white), AC, stick shift, 10,000 miles since overhaul, extra pair of snow tires, tape deck, \$850. Chandler, 296-3323.
- '68 ROVER TC2000, 4-cyl., 4-dr., needs tune-up and minor body work, make offer. Benson, 268-9727.
- '69 FORD, ½-ton pickup, V8, 4-spd., LWB, 67,000 miles, \$1300. Willis, 281-3314 after 6.
- '70 FORD, 4-dr., hardtop, fully equipped, SBR tires, \$850; Honda Trail 70, '71 model, 1800 miles, \$275. Hole, 255-1444.
- '71 FORD station wagon, luggage rack, PS, PB, new radial tires, green/white top, low mileage, reg. gas, \$1850. Browne, 881-3772.
- '73 CHEVY Impala, 2-dr. hardtop, 350-V8, AT, PS, front disk brakes, 20,000 miles, \$2800 firm. Silva, 255-1710 after 6.
- '72 RED PINTO station wagon, factory air, AT, 33,000 miles, 2000cc engine, \$2000.

- Schmierer, 299-2352.
- '71 WHITE GMC Window Van, ¾-ton, AT, AC, extra gas tank, 65,000 miles, \$2495. Lusk, 296-5145.
- '63 SCOUT, 4-WD, wide mud & snow tires, extra seat, 4-cyl., new trans. Livingston, 292-1941.
- '64 BUICK Riviera, \$375. Thompson, 294-5704, 11503 Manitoba NE.
- '72 KAWASAKI 100, adult ridden, Enduro, \$250. Burks, 821-0132.
- '72 TRIUMPH motorcycle, Tiger 650, been in storage, 3,500 miles, \$1000 firm. Len, 883-9866 after 4.
- '66 CORVETTE coupe & '65 Corvette racer, both 327 engines & 4-spd., best offer. Fuller, 294-3089.
- '70 FIAT 124 convertible, 45,000 miles, 24 mpg, white exterior, black interior, \$1650 (book \$1875). Syme, 298-9167.

### WANTED

- USED typewriter stand. Knoff, 344-6623.
- CAMPER winch jacks. Baca, 299-3340.
- RABBIT hutches with hardware-cloth bottoms; also, weekend work castrating livestock, appointment only, work done by signs and moon phases. Butler, 873-2867.
- VOLVO station wagon, stick shift, good condition. Bush, 281-3773.
- USED Military duffle bags, needed for Little League baseball equipment. Siska, 298-5756.
- SCUBA equipment in good condition, tanks, regulators, accessories. Brandvold, 296-4394.
- HARDTOP for '66 Sunbeam Alpine, any color; Tiger tops and other years will likely fit. Bishop, 255-5765.
- LEATHER brief case, in good condition. Ricker, 296-2191.
- FEBRUARY '74 and July '74 issues of Arizona Highways, will pay \$4 a copy. Voelker, 296-0991.
- INTERESTED in a "Bugger" bi-

- cycle trailer? Need five more people for a wholesale order (\$60-70) rather than retail (\$90). Shurtleff, 242-1815.
- STATIONARY exercise bike. Phillips, 268-0134.
- SHARE ride or join carpool from Corrales, near Elementary School. Van Den Avyle, 898-6474.
- HUNTING bow, 55-65 lb. Boes, 256-0166.

### FOR SALE REAL ESTATE

- BELLEHAVEN, near Sandia, all-brick, 3-bdr., paneled fam. room, fireplace, shade & fruit trees, garden spot, low equity, available immediately. Beezhold, 293-3699.
- TRIPLEX by owner, 2-bdr. furnished units, VA, FHA, CTL, or trade for equity in lot or home. Aragon, 294-0225 after 4:30.
- 3-BDR., Mossman, blond brick, den w/fireplace, 1¼ baths, AC, new carpet & drapes, many extras, \$45,950. Syme, 298-9167.
- 2-BDR., 1 large bath, carport, extra storage, very clean, \$20,500. Johnston, 881-1280.

### FOR RENT

- FURNISHED 2-bdr. mobile home, available during June & July, AC, washer/dryer, attractive park near base, adults only. Schubeck, 266-2780.
- EFFICIENCY, all utilities paid, big storage, ½ block to bus, 1.5 miles to gate 1, \$100/mo. White, 255-6451.

### LOST AND FOUND

- LOST — Bus ticket; car key; safety RX sunglasses; turquoise and silver drop earring; turquoise ring; ladies wire frame RX glasses. LOST AND FOUND, Bldg. 832 tel. 264-3441.
- FOUND — One Yale key; one key; two Yamaha keys; one leather button; man's brown rim sunglasses; round silver earring w ball in middle. LOST AND FOUND, Bldg. 832, tel. 264-3441.



**EGGS • C-CLUB • VEGAS • CRIBBAGE • FASHIONS • LAKE THUN • WESTERNAIRES**

FRIDAY	SATURDAY
21 — HAPPY HOUR ROAST BEEF BUFFET Adults \$2.95 Under 12 1.95 <i>Tim &amp; Paul On Stage</i> PRESS & THE 66 TRIO	22 — CRIBBAGE TOURNAMENT 10 a.m. * * * * TEEN DANCE GHOST ROSE 7:30 - 10:30
28 — HAPPY HOUR SEAFOOD BUFFET Adults \$2.95 Under 12 1.95 <i>Tom McCahon On Stage</i> WESTERNAIRES	29 — EASTER EGG ROLL Six & Under Doors Open 9:30 Hunt Begins 10:00 Free To Members

THE — music for dining tonight is by Tim and Paul, just plain folk. They're followed by Press & the 66 Trio for dancing. Press is a retired Sandian with a strong sax drive. Good traditional stuff. Next week Tom McCahon gets the during-dining spot. He sings, plays organ and piano. "Great cocktail music" is Bill Swartz's pronouncement. The

Westernaires follow with music to kick and stomp and have fun by.

EASTER — egg roll is not a Christian Oriental delicacy. It's what the Easter rabbit brings for all good mini-C-Clubbers (six years and under). Prizes for winners by age group. Be a good egg — bring your kids (and egg containers) a week from tomorrow.

BUNNY — midst the wolves? Even if you're only a novice sports fan, come on out for the Wolfpack Annual Meeting on April 1. The Pack has had a great year (even if the Lobos haven't) and welcomes old and prospective members to help kick off their second year. Doorprize (a football season ticket), Bill Mondt and a film, Happy Hour prices, election of officers — all this plus a year's membership for only \$5.

IS — your teen-type ready for *Ghost Rose*? Then pick up a ticket quick — it's tomorrow night at the Teen Dance.

REALLY — getting close to the deadline for the Switzerland trip. But don't decide till

you've seen, heard, enjoyed the film featuring trip destination Lake Thun. Refreshments, door prizes, a drawing, a chance to ask questions and begin planning. At 7 on March 25.

A — bonus for lunchers at the Club on March 26 is a Fashion Show. Catch the noontime bus for to-and-fro service; catch the latest outfits from The Image; Catch Rosario Ayres coordinating.

WILD — cheering spectators are invited to the 3rd Annual Cribbage Tournament tomorrow. And, of course, so are players. Even if you're a closet cribbager and not even a Club member, bring a partner (or get one there) and \$2; challenge current champ Bill Weinbecker. Have a memorable Saturday.

HARE — (genus, March) is what you'll be madder than if you forget to sign up for the Las Vegas Bus Bash. They need reservations now, the money (only \$99) by mid-April. If you sign up now, you can help Chet Fornero do a banner for the coach (Bussed to Vegas; Bust to Albuquerque? Of course not).

**IMAGE • MONDT • GHOST ROSE • SEAFOOD • WOLFPACK • McCAHON • PRESS**

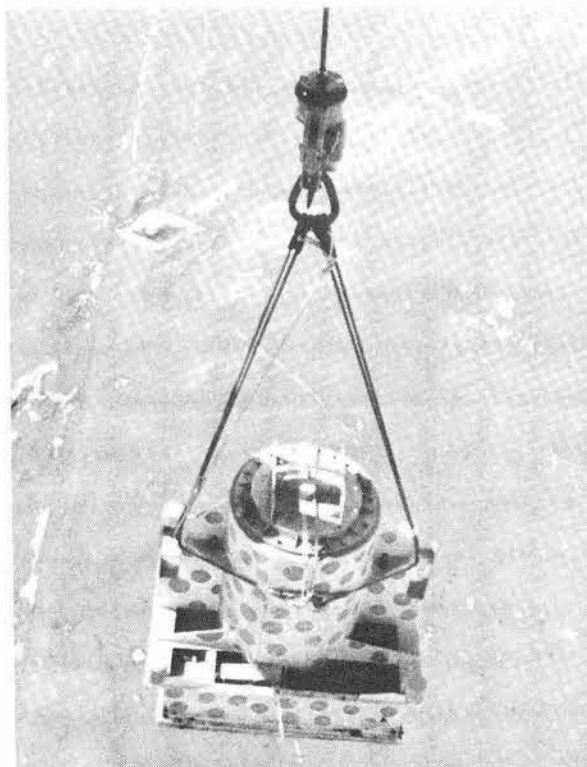
**Retiring**



Mark Elich (1213)



Everett Gleseker (1522) Clarence Gutierrez (9715)

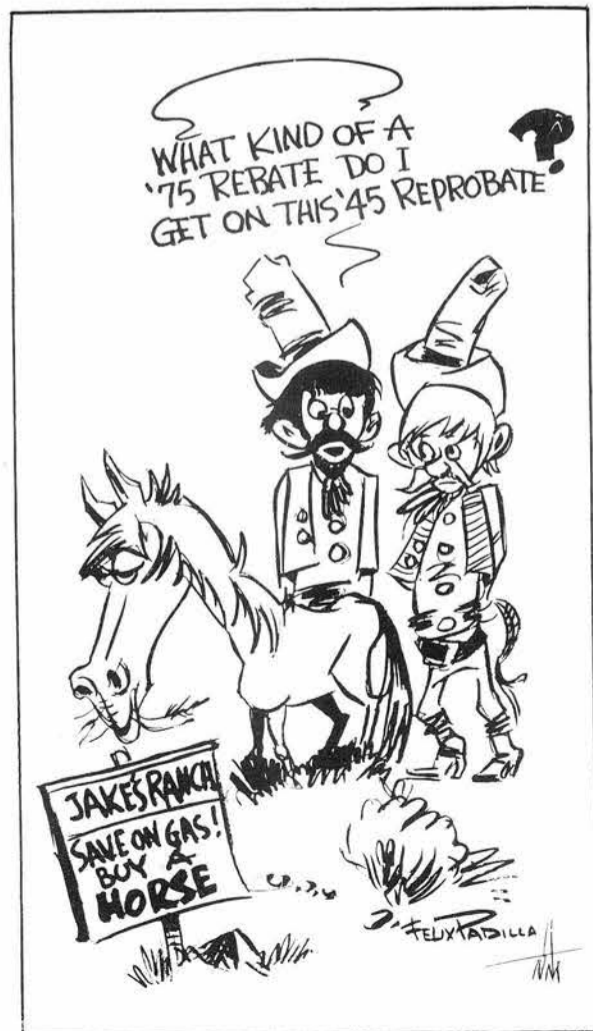


SKY CRANE CH54B prepares to lift a 7425 kg (16,500 lb.) reactor fuel shipping cask into the air over Edgewood Test Range. Another 3150 kg (7000 lb.) unit was also dropped from 600 m (2000 ft.) altitude. Photo at left shows large unit suspended from the helicopter above the range. Tests to demonstrate the ruggedness of the casks were performed by Division 9414 for ERDA's Division of Waste Management and Transportation. Ivan Waddoups (1741) is project engineer; Harold Rarrick (9411) is test program manager. Other tests are planned in Coyote Canyon to subject the casks to explosive shock. Both casks survived the air drop intact.

**Sympathy**

To Robert Carlton (3617) on the death of his brother March 9 in Kansas.

To Robert Tant (3645) on the death of his wife March 7 in Albuquerque.







# LAB NEWS

VOL. 27, NO. 7

APRIL 4, 1975



## Getting a Charge Out of the Wind

Bob Alvis (5718) grew up on the plains of Oklahoma. John Rosborough (2317) is a farm boy from Iowa. Both Sandians remember (with mixed feelings) the wind generators for electricity which saw widespread use in rural America in the '30s.

"The wind always blew enough," Bob says, "but either the voltage regulator or the batteries would fail. This failure was hardly ever noticed until power was needed — usually at night. This created some ill feelings toward the system. When low-cost REA power came, it was a welcome change and spelled the end of the windcharger era."

Today, however, both men pursue a leisure time project that combines nostalgia with scientific curiosity and may have some value in the national energy picture. They have rebuilt and adapted a 30-year-old Wincharger for study.

The machine was a rusted hulk when Bob brought it back from Oklahoma last Christmas. They have rebuilt it and added a 60 amp, 15 volt automobile alternator in place of the original generator. They carved a six foot propeller out of redwood and mounted it on the roof of John's house in the Northeast Heights. The system is working, breadboard-fashion, and is connected to an auto storage battery. Recent wind gusts have produced more than 800 watts.

Their system uses commercial power to control a converter which takes a dc source and converts it into 60 hertz, ac power that could be fed into the house wiring. The system consumes no power when the wind is not blowing.

"Contrary to popular belief," John says, "Albuquerque is not a good place for wind



THIRTY-YEAR-OLD Wincharger — a relic of rural America — has been restored and updated for study by John Rosborough (2317), left, and Bob Alvis (5718).

generators. The power available is directly proportional to air density, to the square of the propeller diameter and to the cube of wind velocity. Both the altitude and low average wind velocity — 8.8 mph — work against peak power here."

But Bob points out that there are plenty of places in the country where wind power could be used profitably.

"Eastern New Mexico, for instance," Bob says. "There, average wind velocity is around 14 mph and the air is more dense. If 1000 windchargers of 1.5 kw ran 50 percent of the time, the power plants could save about

$6.9 \times 10^4$  tons of coal or 11.6 million gallons of heating oil (or 1.5 billion cu. ft. of natural gas) over a 10-year period. We believe wind can be a profitable natural resource."

The Sandians will continue their study — maybe add a second propeller — and try to use the wind-generated power in John's house.

"I tried running an electric drill one day off the Wincharger and it worked fine — until the wind stopped," John says.

"We'll collect some data," Bob says, "and maybe write a paper."



# Afterthoughts

Bilingual education--The second language our children should be taught is Government Pronouncement. That property tax notice mailed by the Bernalillo County Assessor a month or so ago contains this rare specimen:

"Schedule D - Property not valued in the 1974 tax year which is now subject to Valuation and Property which has been valued in a tax year but which was not valued in a tax year subsequent to the year of initial valuation because it was not subject to valuation for that subsequent year but which is now subject to valuation. (See Schedule D)"

The author of that should be one of the first we put up against the wall.

\* \* \*

Those reticent UFOnuts--Professor Hynek's talk about UFO's was a delight--intriguing, provocative, full of convincing statistics and case histories. I do believe something intelligent is out there. But there's one nagging question: if the UFOnuts are curious enough about the earth to travel one hellacious distance, then why do they turn so excessively coy once they've arrived? Curiosity is an aspect of intelligence, and if you or I had made the trip and saw something vaguely humanoid through the port hole we'd likely throw caution overboard in our haste to establish contact. Perhaps "they" aren't like us; yet it is strange that the instinct (or whatever) that prompted them to come here in the first place is totally muted once they've arrived.

\* \* \*

Our tottering republic--In the Fall & Decline of the Roman Empire, Gibbon attributed the collapse to a number of causes, one of them the increasing disparity between the very rich and the very poor. So last week I read that Frank Sinatra and Dean Martin command salaries, while performing in the fleshpots of Las Vegas, of \$250,000 per week. Is it my New England bleakness, or is such compensation as grotesque as it appears to be? A quarter million per week for a modest ability to carry a tune reveals how far we've come in our scale of values--maybe the word is "regressed."

\* \* \*

Pop singers, take note--"It is preoccupation with possession, more than anything else, that prevents men from living freely and nobly."  
Bertrand Russell, Principles of Social Reconstruction

\*js



Lorella Salazar (212)

## Women's Program Coordinator Named

Lorella Salazar (212) has become Sandia's Women's Program Coordinator, succeeding Janet Jenkins who has been on loan from the Technical Art Division. As Women's Program Coordinator, Janet is completing the filming and coproduction of two films for ERDA regarding opportunities for women in science and engineering.

The Coordinator helps the Labs gain full utilization of the human resources represented by women employees by working to insure their equal opportunity in matters of employment, training, development, promotion, and career-path planning. She also offers a channel of communication for women to express their views on Labs policies and practices, to propose areas for study and action, and to recommend approaches for resolving problems which may exist.

From 1949 to 1965, Lorella managed the New Mexico office of U.S. Senator Clinton Anderson. She joined Sandia in January 1966 and has since assisted a number of institutions in the fields of equal employment opportunities and affirmative action. From September 1972 to May 1973, she worked with AT&T in New York on their affirmative action program. While with AT&T, she organized and directed a conference, attended by the northeastern Bell Companies, relating to problems of Spanish surnamed employees. From September 1973 to September 1974, Lorella served as Director of Development for the University of Albuquerque. She also served as Director of Alumni Relations and continues to serve on the Advisory Board of the Evening and Extension Schools of the University.

## Advice to the Poolorn

By Otto Miles Shorter, Exp.

Dear Otto:

Way back when our car pool was formed, we always went straight home after work.

Then one evening John (not his real name; his real name is James) had to pick up a prescription for his son who had terminal acne. The following week we had to detour by a pawn shop so Shirley could hock her squash blossom to help pay for gas. Later I had to get bail money to my brother (the masher, not the pyromaniac). Well, by now a typical trip home looks like this: the Airport to meet TWA Flight 49 (in case someone we know is arriving); City Hall to make a contribution to the Adopt-a-Chuckhole Fund; the Super-Qwik Frosty-Burger joint (where you "thaw your own" against the engine block); and a picketing stint at Salmonsons where they pay the guard dogs better than the clerks. I haven't seen my husband -- awake -- since New Year's Eve. Are all car pools like this?  
DEE TOURAN RYDER

Dear Dee:

No. Yours has an advanced case of Erranditis. Unless everyone in the pool is totally agreeable to the detours, you need immediate cold turkey treatment: Go directly home. Do not pass GO. Do not collect \$200. Run errands after you get home or on Saturday.

## LAB NEWS

Published every other Friday

### SANDIA LABORATORIES

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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

## Retiring

Ricarda Gallegos (3152)

