

## Message from the President

Fellow Sandians:

Every year Sandia's ECP total goes higher and higher, even with a lower number of employees. This is a source of deep satisfaction to me and to all those in the Albuquerque community who have come to look to Sandia to set the pace in such things. The same is true at Livermore, where the new employee plan, LEAP, has topped last year's record. At both locations there has been a substantial increase, both in participation and in fair-share giving, and this reflects the true generosity and compassion of our employees. At a time when costs have been rising and expenses are high, these increases in giving are particularly impressive, and I extend my congratulations and thanks to all of you for an outstanding demonstration of good citizenship.

*J. A. Hornbeck*  
J. A. Hornbeck

# LAB NEWS

VOL 22, NO. 23

NOVEMBER 6, 1970

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA

## Second Aerial Cable Facility Now Operating in Coyote Canyon Test Field

Sandia's unique aerial cable facility in Coyote Canyon Test Field has had a heavy workload since it went into operation in November 1968. Until this week, it was the only impact testing facility in the country which could duplicate an air drop of a test unit under controlled conditions and provide precise photometric data.

Now there are two aerial cable facilities in Coyote Canyon.

The second one is larger and longer than the first and is capable of handling test units weighing up to 1000 pounds at velocities up to 900 feet per second.

About a mile of heavy cable is stretched between two mountain peaks in Coyote Canyon. The launch platform for the test unit hangs from this cable at varying distances up to 600 feet from the valley floor. Two more cables are attached to the test unit. They drop to the ground level where they are guided through the tubes of an underground loop and their ends attached to the rocket sled. When the sled is fired, the test unit is pulled downward to the impact point. Since the position of this point can be precisely controlled, camera coverage of the test is simplified.

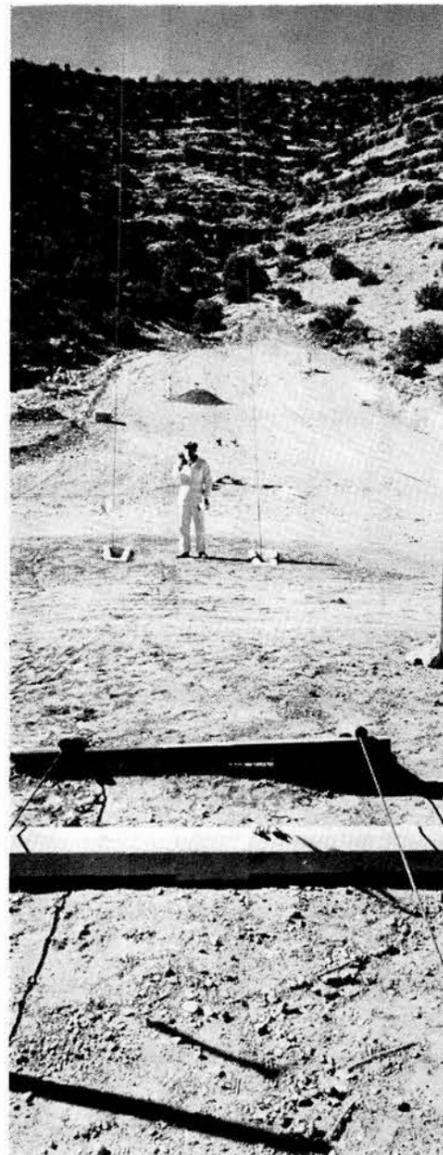
Special target material may be selected for a test and located between the guide tubes at the impact point. For water impact tests, a pond is installed.

Because there are no supporting structures (the cable anchors are on the backside of the mountain peaks), it is possible to run tests involving detonations or other hazards without risk of damage to the facility.

Impact velocities, a function of launch weight and the number of rockets, of 900 feet per second have been achieved. The overhead cable can support a payload weight of 3000 pounds but, on high velocity tests, payload weight is limited to 1000 pounds. Impact angle is also controllable.

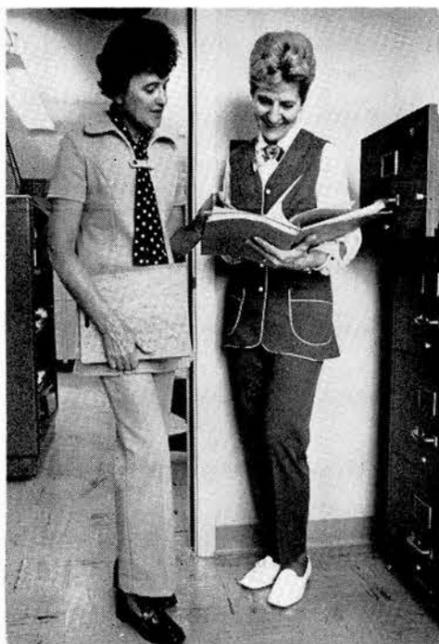
Rockets used are surplus HVAR's, obtained for shipping and handling charges, making the tests considerably less expensive than airdrops. However, the chief advantage of the facility is the capability to control precisely the impact point.

The facility was developed by Coyote Test Field Division 7343 under Dave Bickel. Connie Coalson is the project engineer. Ken Bell is responsible for explosives, Bob Lucas for sled design, Herb Bowen for site operations, and Jerry Cobb for photometrics.



CONNIE COALSON, aerial cable site project engineer, stands at the impact point between the two cables which are attached to the test unit suspended 600 feet above from an overhead cable. The tow cables, which curve underground, can be seen coming out of the guide tubes, heading toward the rocket sled for attachment.

## What's New with the Girls



PANT SUITS, as worn by Wanda Bishop and Lillian Hayes (both 3341), are popular for wear on jobs that require climbing in and out of pick-up trucks, bending w-a-y down to frequently used files in the bottom drawer, and similar activities.

'Tis said that fashion is nothing more than an attempt to keep women's minds occupied, their bank accounts depleted, and one sector of the economy healthy. "The year of indecision" could characterize 1970 on all counts. Hems up, hems down, pant suits, the gaucho look. These and other fashion aberrations contribute to the confusion. The only sure thing — prices are higher than ever. For alternatives to pants, see page two.

## \$322,590 Total Pledged in Current ECP Campaign

Final tabulation of the results of the recent Employees Contribution Plan campaign shows a total of \$322,590 pledged by Sandians to support the 32 agencies of the United Community Fund and eight other national agencies. This is an increase of \$22,885 over last year's drive.

Eighty-two percent of the Albuquerque employees contributed to ECP and of those contributing, 55 percent contributed at the fair share level or better.

Average gift of the 5263 Sandians who made a contribution to ECP is \$61.29, an increase of \$5.69 over last year.

Jack Merillat (3120), ECP committee chairman, is extremely pleased with the results of the drive. "Sandians are responsible citizens," Jack says. "The ECP total is an impressive way to express concern for community needs. We appreciate this generous contribution. My thanks also to all those Sandians who worked with the committee in conducting the drive. They performed a tremendous service."

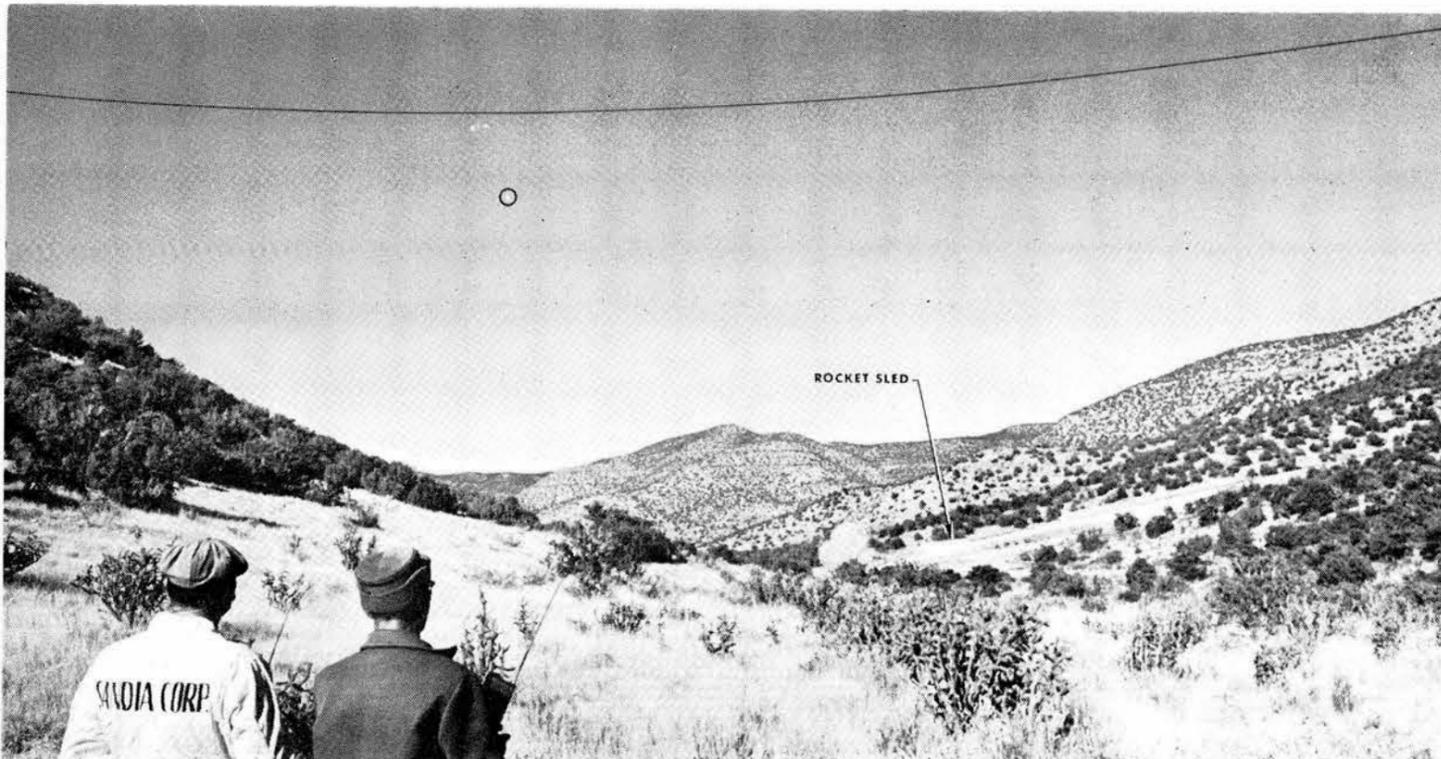
## Two Sandians Work On POW Problem

If you had a relation or close friend who was a prisoner or missing in action in North Vietnam, what would you do? Dave Begeal (2613) and Duane DeWerff (9239) both have POW brothers-in-law and their answer has been to become involved in "Concerned."

Dave explains: "The sole objective of 'Concerned' is to inform the president of North Vietnam of our concern for (1) the release of all names of POW's and MIA's (missing in action). Of an estimated 1600 in both categories, only 400 are now accounted for. (2) The assured humane treatment of these people, and (3) the eventual release of all POW's and MIA's."

This objective is to be gained, hopefully, through letters and post cards directed to Hanoi by the individual citizen. Members of "Concerned" are available to help schools, civic organizations and other interested groups undertake letter writing campaigns; the same help is available to any interested individual.

Next week, Nov. 9 to 15, has been proclaimed a week of "Concern For People Who Are POW Or MIA" by the Albuquerque City Commission. Contact Dave or Duane if you would like to help "Concerned" meet its objective.



10-9-8-7-6-5-4-3-2-1-BLAM! And it's over. Rocket sled pulls the test unit (marked with circle) into the impact point at Sandia's new aerial cable site in Coyote Canyon. Facility can duplicate air drops from jet

aircraft. One thousand pound test units can be accelerated to 900 feet per second and impacted under precisely controlled laboratory conditions. At left are Connie Coalson and Herb Bowen.

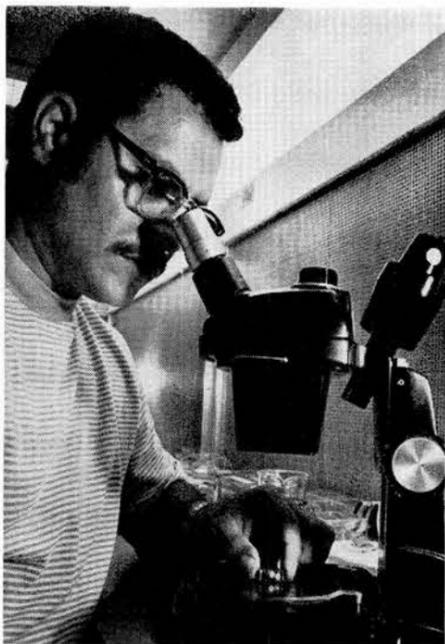
### Variable Annuity Unit Value

November 1970	1.431
October 1970	1.392
Average 1969	1.697

# New OJT Program Starts in Shops



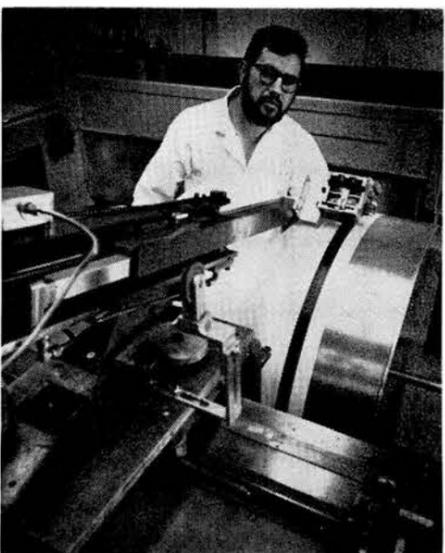
IN SCIENTIFIC GLASS LABORATORY, supervisor Ron Snidow (4221-4), left, instructs Ronnie Stone in the art of glassblowing.



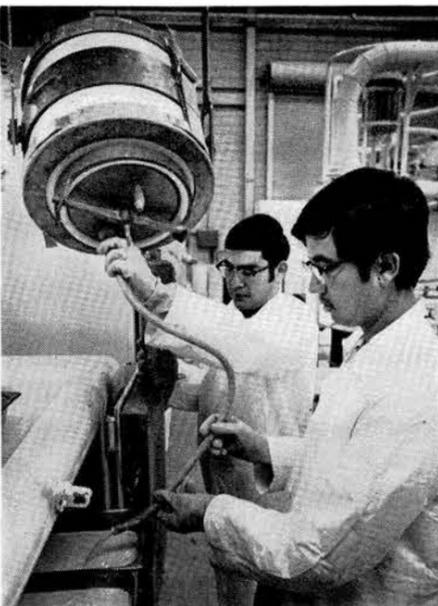
COMPLETED rolamite acceleration-sensing device is inspected under a microscope by Dennis Gutierrez in the Rolamite Laboratory.



ROBERT MARTINEZ prepares to evaporate aluminum using a vacuum bell jar in the Physical Electronics Laboratory.



AMADEO CARTER winds a thin strand of carbon around a mandrel in the Plastic Laboratory.



WORKING in Ceramics Laboratory, Herman Kaneshiro, left, and Joe Perea process piezoelectric ceramic slurry.



UNDER DIRECTION of supervisor Shary Holmes (4222-5), right, John Arnold immerses a piece part into plating tank to perform nickel plating.

Continued from Page One

## ALTERNATIVES



DOROTHY COWBOY (4511) and other Navajo women have been wearing their skirts at the new maxi-length for years. Her full white satin skirt, royal blue velveteen blouse, red and white hand-woven belt, and silver and turquoise jewelry are colorful indeed.



THERE'S A CHOICE? Laura Garcia (3255) prefers the comfortable mini-skirt — and without doubt any right thinking Sandia man would agree with her choice.



THIS IS IT! There's always one gal on the block who opts for the latest fashion — in this case Dorothy Hall (3120) and a mid-length knit dress. Bossman Jack Merillat, who looks rather conservative, says he likes the new style. (Ed. Note — compared to what, Jack?)

A new training program in the Development Shops, similar to Sandia's five apprentice programs, will produce a new kind of laboratory craftsman — a man with wide experience plus academic training in scientific fabrication processes.

Called the OJT Program (for on-the-job training), the work experience includes four-month assignments in the plastics, ceramics, plating, physical electronics, scientific glass, and rolamite laboratories.

Out-of-hours and some in-hours classes includes study of mathematics through calculus, physics, materials science, mechanical drawing, blueprint reading, metallurgy, and technical writing.

Total time in the program for participants will be three years and eight months. More than 6000 hours will be spent in laboratory training sessions, and 1000 hours of classroom work will be completed.

For the last 20 months of the training period the participants will specialize in one of the process laboratories, but they will be knowledgeable in all the areas of materials processing and development.

"The new program is the direct result of changing technology. Conventional training no longer produces experienced men with the skills and background required at Sandia," says Dave Watt, supervisor of Development Laboratories Division A 4221, and a member of the Joint OJT Committee which is responsible for the program.

"The new technologies require both an advanced academic level of achievement and wide practical experience," Dave says. "Men who complete the OJT program will be highly qualified."

After screening several hundred applicants, seven on-roll employees were chosen by the committee to participate in OJT. They are Herman Kaneshiro, Ronnie Stone, Amadeo Carter, John Arnold, Robert Martinez, Dennis Gutierrez, and Joe Perea. All are assigned to Division 4222 under Pat Conlon.

The OJT committee is composed of three members of management and three members of the Metal Trades Council. Merle Alexander (4232) of the Metal Trades Council is chairman. Cliff Taylor (4252) of management is secretary. Other Council members are Homer Messenger (4213) and Jake Young, Jr. (4252). Ray Parker (4213) and Dave Watt are the other management members.

## Take Note

George Elliott of Employment Division 3251 was a panelist on the Career Technician Program sponsored by the American Society for Metals in Cleveland, Ohio, last month. He discussed technician procurement before the group.

Roy Allison, a field quality representative in the Rocky Mountain Section (2492-1) of Quality Operations Department (2490) recently addressed the Joplin-Springfield section of the American Society for Quality Control. His remarks were entitled "Who me? The Inspector," and centered around the role of the inspector in the manufacturing community. The same talk was later delivered to the Tulsa Section of ASQC, at which time Roy received the Speaker's Award.

Sandia Peak Ski Patrol is clearing out a group of ski boots, skis, and clothing consigned to it by a commercial source for the Ski Swap. The Swap chairman, John Shunny (3432), advises that the articles will be placed on sale tomorrow, Nov 7 from 9 a.m. to 12 noon at the Tennis Club Annex, 2901 Indian School Rd. NE. Sale prices are aimed at clearing out all merchandise.

Two Sandians were named to head national committees for the American Vacuum Society during the group's annual meeting in Washington, D.C., recently. Bob Parks (5331) is the chairman of the AVS surface science division and Len Beavis (2613) is chairman of the AVS education committee.

Lynn Taylor (5162) will present "Heuristic Study of Finite Difference Techniques for the Compressible Flow Equations" at the 5100 Staff Seminar Nov. 10.

"Permanent Neutron Damage in Microwave Semiconductor Devices" will be presented by Roger Chaffin (5112) on Nov. 17.

The seminar meets on Tuesday mornings starting at 8:30 in rm. 201 of bldg. 806.

## LAB NEWS

Published every other Friday

### SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO  
LIVERMORE, CALIFORNIA

Editorial offices in Albuquerque, N. M.

Area 505-264-1053

ZIP 87115

In Livermore Area 415-447-2111

John Shunny is Editor, Don Graham Ass't. Editor

Cherry Lou Burns, Staff Writer

Matt Connors & Lorena Schneider

are Staff Writers in Livermore

Bill Laskar is Photographer

Norma Taylor / All The Rest

## Sympathy

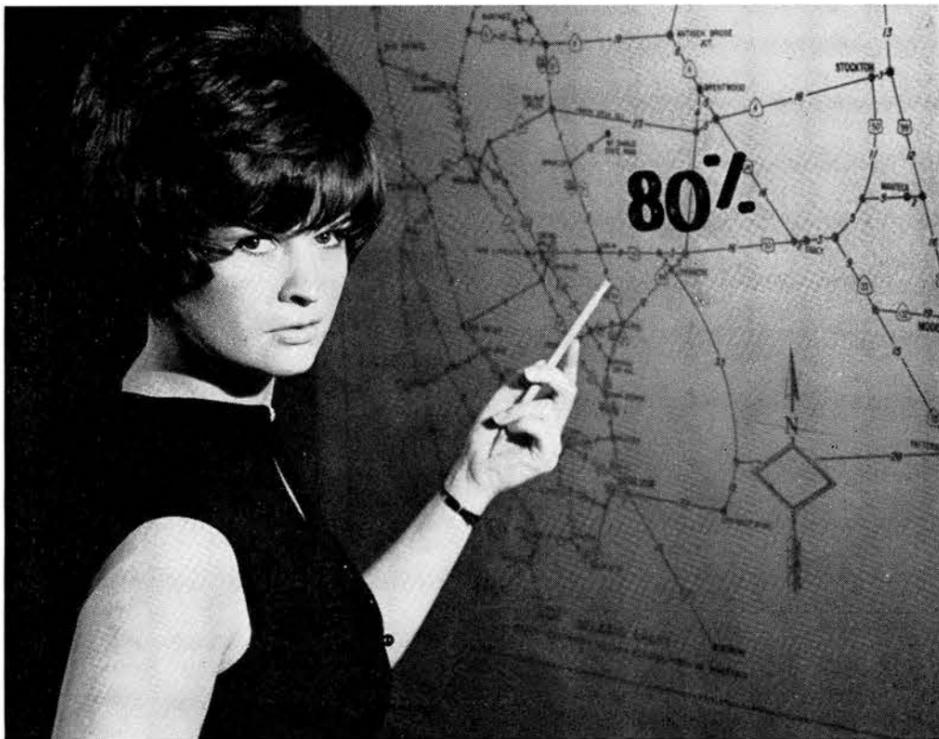
To Phil Contreras (4514) for the death of his mother in Albuquerque, Oct. 7.

To Helen (1700) and Lee (5133) Davidson for the death of his father, Oct. 21.

To Emelia Vigil (7532) and Eddie Vigil (4518) for the death of two sons and brothers, respectively, in Los Angeles and Albuquerque on Sept. 1 and Oct. 16.

To Bill Pepper (9324) for the death of his wife in Albuquerque, Oct. 24.

To George Hutchinson (4622-1) for the death of his mother-in-law at Aberdeen, S.D., Oct. 29.



BILLIE TITUS (8120/8150/8180) indicates where the majority of Livermore's employees reside. The other 20 percent are scattered throughout the Bay Area, some commuting 100 miles a day in their travel to and from work.

### Touring Northern California

Not many Californians are aware of the California Railway Museum located in Solano County — a unique collection of railroad cars and equipment on the Sacramento Northern line between Rio Vista and Fairfield on Highway 12.

Included in the collection are old street cars that ran along San Francisco streets in the 1890's, coaches in service on such lines as the Salt Lake and Utah Railroad and Western Pacific, and a solarium lounge car that ran between Oakland and Chicago. Some of the Key System trains that ran in the East Bay area and across the Bay Bridge in the 1930's can also be seen.

The California Railway Museum was organized in 1945 by a group of enthusiasts who began gathering old railway cars and equipment. The size of the collection grew and a place to store and restore was needed. In 1960 the Rio Vista Junction site was purchased, and by 1966 the Railway Museum had a trolley car operating under its own power. Limited operation for the public continues on a short track.

The museum charges no admission, but accepts contributions to help defray expenses. It is open on Saturdays, Sundays and holidays, and rides on the various cars are available.

## Ex-Research Chemist is Librarian, Author, Translator, Publisher

A reference librarian in Sandia Laboratories Livermore's technical library, Michael Schalit (8232) is an author in his own right.

His most recent work is the book, "Guide to the Literature of the Sugar Industry," published last summer. It is an annotated bibliographical guide to the literature on the manufacture of beet and cane sugar, and is dedicated to Michael's late uncle, Moritz Schalit (1871-1937), who was superintendent and technical director of a large sugar factory at Trepsin Tepla, Czechoslovakia, for many years.

Michael wrote the book to fill a need he discovered while working as a research chemist for a beet sugar firm in Denver, Colo., before he joined Sandia. "I found that there had not been a reference work published for the past 40-50 years which gives an overall view of the literature on sugar, sugar agriculture, and sugar technology," explains Michael. "This seemed amazing to me since the industry does over \$4 billion worth of business each year."

The result is a compilation of general work, abstracts, reviews, government publications, directories, periodicals, publications by sugar industry association, handbooks, tables, and publications on history and biography. A chapter on technical translations is included, as is an appendix containing a list of American doctoral dissertations on sugar and other significant technical publications.

While with the beet sugar firm, Michael wrote over 60 technical reports and published 60 translations from German, French and Italian.

Previously, he had translated a book from the German language — "The Cold Stone Heart," written by William Hauff, who lived at the turn of the 19th century.

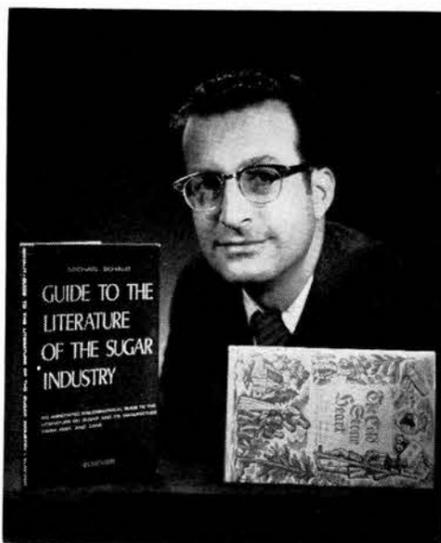
"I was born in Munich and had been exposed to Hauff's fascinating stories as a child," relates Michael. "The one I trans-

### Distance Traveled by Sandians Equal to World Trip Each Day

As you leave work in the evening, do you ever wonder where your fellow workers live? Maybe you're too absorbed in driving or listening to the radio to give it a second thought. But here are a few facts about where we all live.

About 80 percent of the Laboratories' employees live in the Livermore/Pleasanton area. The other 20 percent are scattered throughout the Bay Area. Leaving the parking lot, six percent head northwest to the San Ramon/Danville/Walnut Creek area. Another seven percent go straight west to the Hayward/Oakland/San Francisco complex. Some four percent head south — they "know the way to San Jose." And there is that three percent who always look to the east, to the Tracy/Stockton area when they leave work.

Would you believe these 1000 people travel about 21,000 miles a day — almost the distance around the world (24,874 miles)? How much smog do these cars produce? How many cars have a driver and no passengers? We'll give the answers in a later issue.



MICHAEL SCHALIT (8232) displays his new book, "Guide to the Literature of the Sugar Industry," and his translation from the German language of "The Cold Stone Heart," which he published in 1965.

lated, one of my favorites, concerns the outcome of the age-old contest between good and evil, and involves a 'heart transplant'. Most people recognize the common saying, 'heart of stone,' but I'm sure that not many know it was from this story."

Michael received his early education in Rome, London, and the United States and has earned a BS degree in chemistry and an MA in library science, both from the University of Denver. He is a member of the Special Libraries Association.

# LIVERMORE NEWS

VOL 22, NO. 23

SANDIA LABORATORIES

NOVEMBER 6, 1970

### Take Note

Tony Thompson of Metallurgy Division 8312 presented a technical paper at the joint meeting of the American Society for Metals and the American Institute of Mining, Metallurgical and Petroleum Engineers held in Cleveland, Oct. 17-22. His paper was titled, "Mechanical Behavior of Very Fine-Grained Copper."

Del Valle Sailing Club's 1970 Race of Champions held in Del Valle Reservoir recently ended with a three-way tie between Walt Bauer (8331), Jerry Weber (8176), and Tom Burden (son of an LRL employee). Eighteen skippers from each of the eight local club-sponsored fleets competed to determine the champion for the year. Other Sandians participating included Glen Brandvold (8170), Hank Lucas (8263), John Marion (8176) and his son Howard, Bob Schaefer (8172), Cliff Selva (8180), and Jim Lenz, a Sandia retiree.

Doug MacMillan (9125-1) shot a low net score of 67 to win the first place trophy in the Sandia Employees Golf Club tournament played at the Skywest Golf Course in Hayward, Oct. 17. Finishing in second place was Scotty Romine (8263) with a net score of 69. Ralph Morrison (8157) won the "fewest putts" feature of the tournament and Al Skinrood (8172) was closest to the pin in the hole-in-one contest.

James Shelby (8331) was the author of a technical article which appeared in a recent issue of the JOURNAL OF AMERICAN CERAMICS SOCIETY. Title of the article was "Mechanical Relaxation of Mixed-Alkali Silicate Glasses: I, Results."

John Chan of Materials Division 8311 presented a technical paper during the session on thermodynamic properties of metallic liquids and vapors at the Fifth Symposium on Thermophysical Properties held Sept. 30 - Oct. 2 in Boston, Mass. His paper was titled "Measurements of the Velocity of Sound in Liquid Aluminum to 1800°K."

### Sympathy

To Tom Cook (8000) for the death of his mother in Bowling Green, Ky., Oct. 23.

### Congratulations

Mr. and Mrs. Martin Gordon (8256), a daughter, Antonette Adelle, Oct. 7.



SANDIA CREDIT UNION REPRESENTATIVE AT LIVERMORE — Bernie Underwood (above) is now in Livermore to provide full-time Credit Union service for Livermore members. He hopes that all Livermore employees will drop in to learn more about what the Credit Union has to offer. His office is located in Building 911, Room 121A, and he may be reached on ext. 2253. Hours are 7:30 a.m. to 1 p.m. and 1:30 to 4 p.m.

### Magnetic Bubbles Subject of Nov. 13 Colloquium

The discovery of stable but mobile magnetic cylindrical domains (bubbles) in a variety of magnetic oxides has led to a family of new devices in digital data processing. Dr. Eugene D. Reed of Bell Telephone Laboratories will review topics including the physics of bubbles, the materials problem, and applications at a colloquium to be held at Sandia Laboratories Livermore on Nov. 13.

Dr. Reed joined BTL in 1947, and is now executive director of the solid state components division at Murray Hill, N.J. He received his Bachelor's degree in electrical engineering from the University of London and his Master's and Doctorate from Columbia University.

Tickets will be required for admission. J. C. King (8300) is host.



STEAM CAR ENTHUSIASTS—Bill Moore (8332), left, and Bob Hauff (8274) examine the boiler compartment of a 1922 Doble roadster steam car at the semi-annual meeting of the national Steam Power Club held over a recent week end in Livermore. Bill, who is vice president of the national club and served as host for the meeting, says that modern steam cars are generally patterned after the sophisticated design of the Doble. Both he and Bob are currently building their own versions of steam car engines. Bill also does consulting work on steam systems.



Why do boys have to play this dumb game?

Hooray For Our Side!

# Sandians Coach Young Footballers



Those few minutes before the game are the toughest.



No clipping, no pass interference, no runny noses.

Football is a rough and tumble game of body contact, and if we contact you harder than you contact us, well — you generally lose. In spite of (because of?) its rigors, the young men of the land have embraced this sport as no other, even down to the 10-year-olds shown in these pictures.

Twenty or so Sandians spend quite a bit of time working with boys in teams of the Young America Football League. The League really is a big deal: 44 teams, 1400 players. In these photos, Norris Rose (3111) is coach, while Vic Sirwinski (2444), also a coach, can be seen in cap behind Norris (below left). Pete Cook (4338) is referee.



Hey — who's got the ball?



Well, can't win 'em all...



Make it a double option end sweep with reciprocating flanker out of a scrambled Z-formation and pull in your tongue.



**MARIACHIS**—The east wing of Bldg. 802 is entertained during breaks and noon hours by music of the Trio Tecolotes, emanating from behind the closed doors of the freight elevator. Here are the musicians in the unique trio — (l to r) Mel Ortega (7523), Diego Gonzales (4518), Herman Marques (4614) and Ben Jojola (4337).

## Authors

L. M. Barker and R. E. Hollenbach (both 5161), "Shock-Wave Studies of PMMA, Fused Silica, and Sapphire," September issue JOURNAL OF APPLIED PHYSICS.

R. R. Barkowski (5152), "Spin-Wave Relaxation in High-Magnetization Materials," September issue JOURNAL OF APPLIED PHYSICS.

W. E. Warren (1721), "Theory of Axial Plane Reorientation in Liquid Crystals of Nematic Type," Vol. 23, Part 2, QUARTERLY OF MECHANICAL AND APPLIED MATHEMATICS.

R. P. Reed (5163) and D. M. Schuster (5314), "Filament Fracture and Postimpact Strength of Boron-Aluminum Composites," October issue, JOURNAL OF COMPOSITE MATERIALS.

B. Morosin (5152), "The Crystal Structure of  $\text{Cu}(\text{NO}_3)_2 \cdot 2.5\text{H}_2\text{O}$ ," September 1970 issue, ACTA CRYSTALLOGRAPHICA.

R. G. Musket (8311), "Room-Temperature Adsorption of Oxygen on Tungsten Surfaces: A Review," October 1970 issue, JOURNAL OF THE LESS-COMMON METALS.

R. C. Powell (5514), "Host-Sensitized Energy Transfer in Molecular Crystals," August 1970 issue, PHYSICAL REVIEW.

N. J. DeLollis (5333), "Outdoor Aging of Adhesive Sealants," 1970 National SAMPE Technical Conference, Oct. 6-8, Dallas.

J. R. Dick (2341), "Radiation Effects on Bulk Explosives"; W. B. Leslie and R. W. Dietzel (both 2346), "EBW Initiation of New Explosives" and "Experiments with NONA and HNAB-MDF in the Midi Mist Event," 15th meeting of JOWOG-9, Sept. 28-Oct. 2, Los Alamos Scientific Laboratory.

W. J. Patterson (9327), "Terradynamics Program at Sandia," graduate student seminar at New Mexico State University and ASME student section, Oct. 13, Las Cruces.

D. A. Northrop (5154), "Determination of Effective Orifice Areas," Gordon Conference, July 6-10, Issaquah, Wash.

C. E. Land and P. D. Thacher (both 5153), "Electrooptic Properties of Ba, Sn, and La Modified Lead Zirconate Titanate Ceramics," 1970 General Motors Research Symposium, Oct. 5-6, Warren, Mich.

J. R. Freeman (5241), "Computer Simulation of Plasma," Rio Grande Chapter of the Association of Computing Machinery, Oct. 12, Albuquerque.

T. G. Priddy (1542), "Applied Mechanics at Sandia Labs," Engineering Seminar, Oct. 30, Texas A&M.

A. B. Campbell (7281), "Pre-emphasis for Constant Band Widths FM Subcarrier Oscillators for FM and PM Transmitters," International Telemetering Conference, Oct. 13-15, Los Angeles.

F. W. Muller (7425), "Quality Assurance of Our Nuclear Weapon Stockpiles," ASQC Chapter, Oct. 15, Kansas City.

D. R. Smith (5242), "Plasma Focus Research at Sandia," Auburn University Physics Department, Auburn, Ala., Oct. 16.

## Service Awards

### 20 Years



Edwin Bruce  
1554

John Church  
4253

Willis Erwin  
3520



Lewis Hake  
2324

Bill Hoagland  
1513

Aaron Kint  
4213



Stanley Landrith  
4210

Alfonso Lujan  
9213

Patrick Sanchez  
3520

### 15 Years



Joe Bradshaw  
8125

Richard Demmel  
4152



Ed Holbrook  
8121

Louis Jamme  
7611

Martha Levenez  
8275



Robert Randall  
2325

Maxine Stephens  
3341

George Tucker  
3313

### 10 Years

John Weber 2342, Jerry Hunting 8172, and Ruby Bell 8264.

## SPEAKERS

R. E. Cuthrell (5333), "Intermolecular Forces in Polymers and Liquids," 160th National Meeting of the American Chemical Society, Sept. 14, Chicago.

R. O. Woods (5235), "Complete System for Atmospheric Density Measurements from Rockets," William Maxwell Reed Mechanical Engineering Seminar Series, Oct. 8, Lexington, Ky.

K. L. Goin and G. A. Arnot (both 9342), "The 1.25 Megawatt DC Power Supply for the Sandia Plasma Jet Facilities," 34th Semi-Annual Meeting of the Supersonic Tunnel Association, Oct. 8-9, Lockheed, Ga.

H. H. Wicke (on leave) and J. M. Worrell (1721), "A Characterization of the Hausdorff Perfect Pre-images of Metric Spaces," American Mathematical Society meeting, Oct. 31, Washington, D.C.

F. G. Blotner (9343), "Finite Difference Methods for Solving the Boundary Layer Equations with Second Order Accuracy," Second International Conference on Numerical Methods in Fluid Dynamics, Sept. 15-19, Berkeley.

A. B. Donaldson (1543), "Thermal Conductivity of Insulating Gases," 10th Thermal Conductivity Conference, Sept. 28, Boston.

R. A. Baker (7361) and J. L. Irwin (1225), "Ultrasonic Evaluation of Carbon-Carbon Composite Materials"; Bernard Stiefel and R. H. Yoshimura (both 7361), "A Capability and Limitation Study of Structural Thermography," 30th Annual Fall Conference of ASNT, Oct. 19-22, Cleveland.

H. S. Levine (5224), "The Spearpoint Phenomenon"; L. S. Nelson (5224), "Stu-

dies of Molten Aluminum Oxide Drops Prepared with a Carbon Dioxide Laser," Conference on High Temperature Science, Oct. 7-8, Philadelphia.

D. C. Williams (5321), "Calculations of Helium Release from  $^{238}\text{PuO}_2$  Microspheres"; W. A. Stark (5321), "Helium Release from  $^{238}\text{PuO}_2$  Microspheres"; D. E. Amos (1722) and C. J. Northrup (9512), "Helium Diffusion in  $^{238}\text{PuO}_2$ ," Fourth International Conference on Plutonium and Other Actinides, Oct. 5-9, Santa Fe.

J. W. Reed (9150), "Wind Profile Analysis of the Lubbock Tornado"; W. A. von Riesenmann (1541), "A Survey of the Finite Element Method in Structural Engineering," Texas-New Mexico Sections' Fall Meeting, American Society of Civil Engineers, Structural Technical Group, Oct. 9, El Paso.

J. P. Brannen (1741), "Digital Simulation of Two-Point Boundary Value Problems" and "Digital Simulation of Implicit Differential Equations"; M. R. Scott (5222), "Invariant Imbedding and Linear Partial Differential Equations," National Meeting of the Society for Industrial Applied Mathematics, Oct. 12-14, Boston.

O. Milton (5333), "Surface Breakdown of Dielectrics in Vacuum with Micro-second Pulses," 1970 Annual Meeting of the Conference on Electrical Insulation and Dielectric Phenomena, Oct. 12-14, Pocono Manor, Pa.

R. P. Pardee (5333), "The Effect of Humidity on Low-Load Frictional Properties of a Bonded Solid Film Lubricant," ASME-ASLE Lubrication Conference, Oct. 13-15, Cincinnati.

W. D. Smith (5153), "Electroelastic Constant Measurements for PLZT Ceramics," 1970 IEEE Ultrasonics Symposium, Oct. 21-23, San Francisco.

## SHOPPING CENTER

### CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday. A maximum of 125 ads will be accepted for each issue.

### RULES

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

### FOR SALE

#### MISCELLANEOUS

- MODEL 430 Case diesel tractor w/front-end loader & blade on back. \$2695 cash or consider trade of smaller tractor. Flowers, 282-3458.
- TWO-LEAF overload springs, \$35. Martinez, 877-6031.
- KENMORE auto. washer, best offer will take. Adent, 247-8434 after 5.
- SHELF for VW beetle; new boot for hand brake; new boot for turn axle. Hayes, 299-1157.
- 12' FIELD & STREAM camping trailer, \$650; shell, cab high, insulated, for lwb, \$150. Hansen, 299-6643.
- '70 SUZUKI T-500, 3000 miles, \$775. Romero, 255-4322 or 277-3250 after 5.
- 6.5 HP 60-CART. Maydew, 256-1696.
- MATERNITY: back & abdominal support w/garters, 36-37, \$10 (was \$21); nursing bras, 36-38E, \$1 (was \$5.50). Smith, 265-5447.
- 15 CU. FT. frost-free Goldspot refrig. w/auto. ice-maker, \$225. Barnaby, 265-4353.
- TYPEWRITER, Royal manual, \$25. Kelsey, 842-8263.
- PINE CONE wreaths for holidays, varied decorations, some antiqued, all varnished, 10-12" dia. \$7-\$9; some gold, \$10-\$12. Key, 296-4039.
- 4-CYLINDER JEEP engine. Kurowski, 256-7295.
- YAMAHA '67 model 250, plastic still on seat, \$350 or trade for smaller motor. Ward, 298-7250.

- WHEEL: 4.5x14 w/4 bolt, fits Maverick, some Mustang & Comet, \$6. Leisher, 282-5258.
- BASE ROCKER, turquoise naugahyde. Williams, 298-2671.
- DRUM SET, 4 pieces w/cymbals & accessories, Budlong, 298-1060.
- ENCLOSED utility trailer, 2-wheel, 4 1/2'x4'x3 1/2', \$95. Young, 296-1963.
- WINCHESTER MODEL 70, never fired, cal. 30-06, \$135. Dean, 244-3281.
- SEWING MACHINE, straight stitch, foot pedal, fdw. & rev., dms, \$50. Frye, 255-8364.
- AFRICAN VIOLETS: young named varieties, 35c. unknown, 25c ea. Crites, 296-6766.
- WESTERN CHAPS, child's size 8-10, \$10; Beckwith's English breeches, child's size 8-10, \$5; 17" TV, blond console, \$20. Bassett, 898-1840.
- POODLE puppies, rare silver-beige miniatures, purebred, 3 males, 2 females, \$50 up. Aronson, 268-7109.
- REFRIG., \$35; Army type metal cot w/mattress, \$8; 4 Mag wheels w/hub covers, lugs, locks, fit '68 & newer VW, \$100. Campbell, 268-8445.
- POODLES, Toy, black, female; old TV's for parts; misc. electronic parts. Johnson, 298-7356.
- '64 GIRL'S bicycle, std. 24", thorn-proof tubes, luggage carrier, saddle baskets, \$12. Collier, 299-0182.
- DANISH modern vinyl covered love seat & chair, \$50. Millard, 299-2039.
- LUGGAGE RACK, 4x5', adjustable chrome tubing w/hardwood slat bottom, \$25. Placek, 898-3560.
- ORGAN, Thomas Malibu transistorized, 4 yrs. old, used 4 mos., still in guarantee; \$100 worth of sheet music, all for \$595 firm. Duvall, 299-2294.
- FREE: 5 female puppies, crossbreed reg. Weimaraner & Labrador. Barnes, 877-0841.
- MAN'S SUIT, medium weight, size 37 long, brown muted plaid, from Henry's, worn 4 or 5 times, \$25. Miller, 255-6838.
- TOT-TO-TEEN grow-up crib, Colonial crib w/mattress, new, \$85, sell for \$50. Feldman, 344-6114.
- 12 CU. FT. refrig., \$35; blue bathroom wash stand & fixtures, \$10. Poole, 299-2642.
- YAMAHA cycle, '65, 100 cc, \$175. Johnson, 298-1437.

- GE electric clothes dryer, 220V single speed, will deliver, \$40. Rozelle, 298-0396.
- JET PUMP & jet, \$30; meter box & 60 amp. fuse box for trailer, includes pole hardware, \$25. Souder, 282-3121.
- GOLF CLUBS, extra long shaft, 1970 First Flight, driver, 3, 4, 5 woods w/covers, X-shaft, irons 2 through 9, pitching wedge, used less than 3 mos. Kraft, 296-3991.
- '67 HONDA TRAIL 90's (2 ea.), \$225 & \$175; Ithaca 12 ga. Mod. 600, over/under, vent rib, \$200. Benson, 268-9727.
- KNEISSL Red Star skis, 210 cm, giant slalom (RS). Holland, 898-3118.
- '70 MOBILE HOME 24'x60', 4-bdr., 2 baths, drapes, carpeting, partially furnished. Jockle, 298-8380 after 5.
- HEADPHONES, engine; new superex st-pro, \$25; MG 950, complete, \$35; both for \$50; 8.25x15 tire, under 1000 miles, \$10. Martin, 282-3794.
- KITTENS, female, free to good home. Rand, 299-1048.
- SKI SET, Hart Holiday skis, Lang boots, Salomon step in bindings, used part of last season. Lee, 299-8707.
- CAMPING EQUIP.: Arctic 5-gal. cooler, Thermos lantern & stove (w/propane attach.), \$8 ea.; all for \$20. Tiefa, 299-2763.
- MINK STOLE; electric meat slicer; snow tires, sterling silver flatware; car-top rack. Harris, 299-6664.
- COUCH, chair, coffee table & 2 end tables, \$110 for the set. Barton, 255-5491 after 5.
- WOOD SKIS, Northland, 210cm, metal edges, ebonite bottoms, Nevada toe & cable heel bindings, \$19. Keeling, 255-2943.
- BOY'S bicycle, 26", brand new, never ridden, \$35. Schmidt, 299-7305.
- 7' POOL TABLE, \$65; baby crib w/mattress, \$25; baby stroller, \$10; 2 French provincial lamps, \$10 ea. Ray, 296-1266.
- REG. BEAGLE, 2 yrs. old, all shots, etc., \$5 to a good home (preferably w/children). McBride, 265-5247.
- VACUUM CLEANERS: Hoover upright, \$20; GE canister, \$15. Boade, 298-6120.
- USED 6.50x16 tires, 6-ply, some tread left. Causey, 299-0089.

- MINIBIKE, Benelli scrambler, 50cc, street & trail sprockets, \$230 or best offer. Binder, 296-8090.
- SWEDISH MAUSER 6.5x55, \$60 or trade for .45 auto. or M1 carbine. Zaluza, 344-1564.
- '67 BMW R-60, 600cc motorcycle, 3/4 fairing, Craven bag & rack, trip tank, \$850. Carstens, 898-0065.
- REAL ESTATE
- 5 1/2 ACRES level irrigated farmland, Los Chavez, 1 1/2 miles east of Hwy. 85, will consider late model PU w/ or w/camper in deal. Barreras, 247-8096 after 6:30.
- CARS & TRUCKS
- '63 PONTIAC Grand Prix, 2-dr., loaded, \$500. Daniel, 268-8335 after 5:30.
- '66 CHEVY Super Sport, yellow w/black interior, tach w/instruments, new Goodyear F-70's, 396-360 hp, other extras; '68 camper w/lift up top. Baker, 298-3341 after 5.
- '56 FORD Country sedan, AT, PS, radio. Jones, 299-4900.
- '66 FALCON 4-dr., 200 cu. in. 6-cyl., 46,000 miles, \$800. Koetter, 265-3279.
- '69 AUSTIN SPRITE convert., 4-spd., bucket seats, 12,000 miles, \$200 under book. Kash, 299-2677.
- '67 CHEV. Camaro SS 350, Rally pack options, 4-spd., wide rear tires, \$1750 or best offer. Lunsford, 344-3142.
- '64 OLDS 88 4-dr. sedan, R&H, air, PB, PS, AT, new shocks-tires-brakes. Mullin, 898-0285.
- '66 MERCEDES 230SL, sports car, PS, PB, AC, radio & transistorized ignition, Michelin tires. Cundiff, 256-0043.
- '64 1/2-ton FORD pickup, LNB, VS, 4-spd., radio; '68 '8' Open Road camper, stove, sink, toilet. Chavez, 299-5102.
- '63 FORD F100 pickup, 292 VS, AT, custom cab, will consider trade on station wagon, \$750. Shuck, 877-3728.
- '69 VW, 14,000 miles, \$1600. Cantwell, 243-2136.
- '63 RAMBLER station wagon, 6 cyl., R&H, \$325. Browne, 344-9873.
- '63 BUICK Electra convertible, \$500. Gardner, 344-2547.
- '65 BEL AIR WAGON, 9-pass., AT, PB, AC. Thornton, 299-5747.

### WANTED

- FRONT BUMPER to fit '65 MGB, width about 55". Hansche, 296-1387.
- AMERICAN or European old hunting knives or daggers, also Japanese daggers, trade Colt .25 auto. or cash. Smitha, 299-1096.
- BOY'S 10-spd. bicycle. Krieg, 298-2895.
- SANDIA SURPLUS draftsman's stool; port. air compressor. Laskar, 299-1024.
- TWO twin beds w/mattresses, chest, good condition. Ward, 256-2658 after 5:30.
- CHILD CARE, extra loving attention in my home. Anderson, 256-3367.
- ENCYCLOPEDIA, prefer Britannica, reasonably priced. Johnson, 298-6294.
- PORTABLE STEREO; hide-a-bed. Roth, 877-4997.
- BUY OR RENT: used well drilling rig for water well. Berglund, 255-3988.
- ENCYCLOPEDIAS, Britannica or World Book, recent edition. Sektan, 296-5396.

### FOR RENT

- NICELY furnished duplex apt. w/attached garage, utilities paid, no pets, couple preferred, available Nov. 8. Berger, 605 San Pablo SE, 255-0265.

### LOST AND FOUND

- LOST—Sunglasses w/black frames, plastic box w/black leather gloves & misc., ladies' white gold Helbrus watch, black Parker pen, sunglasses w/wire frames in blue case, Rx glasses, Sandia HS class ring. LOST AND FOUND, tel. 264-2757, Bldg. 832.
- FOUND—Gold ring-double-connected at bottom, metal 6" ruler in case. LOST AND FOUND, tel. 264-2757, Bldg. 832.

**Coronado Club Activities**

# The Actress Got Away But Cheryl Lee at Club Tonight

Something different happens every Happy Hour at the Coronado Club.

A couple of Fridays ago, for instance, a movie actress was there named Nettie Beth Hughes whom somebody thought was Howard's daughter and proposed on the spot. She got away to Jemez Springs.

Tonight, a very special girl named Cheryl Lee will do some fancy country western entertaining with an energetic group of youngsters called the Carter Brothers. They will present a couple of shows and play for dancing. No increase in prices. Those special Coronado Club happy hour prices will be in effect until 9 p.m.

Seafood is the buffet feature tonight and as an added attraction all those lovely rainbow trout left over from the Kids Fishing Derby will be part of the menu. The buffet costs \$1.25 for adults, \$1 for kids, and will be spread from 6 to 8 p.m.

At 9 tonight, Yolanda Adent will take over the main lounge with a sing-along until midnight. Yolanda furnishes the word-books and piano while the north end of the lounge furnishes the voices. It's great fun and you don't really have to sing — just mumble and beat time on the piano.

**THE NEW ENGLAND SEAFOOD DINER** is sold out. Some 300 early birds picked up their tickets already and will enjoy whole Maine lobster, cherrystone clams, wine taste, etc., and the Max Madrid orchestra on Saturday, Nov. 14.

**LOBO FANS** can beat the traffic problem by parking their cars at the Club tomorrow afternoon and catching the bus at 1 p.m. from there to the stadium. It returns right after the game for a happy hour in the main lounge. Same deal again on Nov. 14. The bus is free to members.

**ON FRIDAY** the 13th of November, ignore superstition and enjoy Club manager Jim Noonan's special Italian food buffet. This one will feature lasagna, spaghetti and meatballs, assorted salads, etc., and the price is still \$1.25 for adults, \$1 for kids. Frank Chewiwie will make the happy music.

**WILDMAN BOB BANKS** with the red Yamaha electronic organ and the other jokers will play their own kind of happy music for social hour Nov. 20. The giant chuckwagon roast beef will be the buffet feature.

**ANNUAL BOWLING TOURNAMENT** for men and women singles and doubles will be played Nov. 14 and 15 at San Mateo Lanes. Winners will qualify for the upcoming City tournament. Entry fee of \$2.50 per person per event will be returned as prizes on a handicap basis. Closing date for registration is Nov. 13 at 5 p.m. Call Dick West (2312), 344-0731, or John Nakayama (1514), 299-8539, for additional information.

**A FASHION SHOW** will be presented during the noon hour Thursday, Nov. 19. Rosario Ayres will moderate. The Club's special 99-cent luncheon will be served.

**A FEW SEATS** are still available at \$315 for the Coronado Club travel package to Grand Bahamas Island Dec. 9-15. Call the Club office right away if you want to make the trip. Departure will be at 9 a.m. on Dec. 9.

## Sanado Club Meets For Luncheon Nov. 10

Sanado Woman's Club will meet Tuesday, Nov. 10, at 1:15 p.m. at the Coronado Club for a sherry luncheon. Guest speaker will be Maxine Chesire, columnist with the WASHINGTON POST. She will be guest of honor at a cocktail party at the Club on Monday, Nov. 9, which will also honor 82 new Sanado members.

Reservations for the luncheon should be mailed today to Mrs. T. R. Royman, 2215 Ambassador NE.

## European Tech Meetings Require Long Airport Wait

American speakers were scarce at meetings in France and the Netherlands where Robert Park (5331) recently presented papers.

At the Seminar on Dynamic Aspects of the Diffraction of Slow Electrons, held in Grenoble, France, he spoke on "Kinematical Model of the Influence of Imperfections on LEED Intensities." His subject was "Chemical Analysis of Solid Surfaces by Soft X-ray Appearance Potential Spectroscopy" at the International Symposium on the Solid Vacuum Interface, held in Groningen, The Netherlands. Jack Houston (5332) was co-author of both papers.

Bob reports that in leaving both Paris and Amsterdam, his flights were delayed three hours while passengers were frisked. It wasn't that the process took so long, merely that both airports have such heavy flight traffic that the security officers couldn't keep up with the flow of passengers.

## Events Calendar

- Nov. 6-8 and 12-15—Old Town Studio presents "Medea" at 8 p.m. Box office, 242-4602.
- Nov. 6—Duke Ellington Orchestra, San Felipe Church benefit. Civic Auditorium. 8 p.m. For information, 243-1049.
- Nov. 6-8—Second Annual Albuquerque Art Festival. The Mall.
- Nov. 12—Harvest dance, Tesuque and Jemez Pueblo.
- Nov. 16—Audubon Wildlife Film. Popejoy Hall. For information, Bill Stamm, 264-7885.
- Nov. 17—National Players present "Twelfth Night" and "Oedipus Rex." Popejoy Hall, 3 and 8:15 p.m.



CHERYL LEE and the Carter Brothers will entertain and play for dancing at the Coronado Club happy hour tonight. Seafood, including rainbow trout, is the buffet feature.



**THIS CREW** of Coronado Club members (some are hiding inside the bus) spent last weekend in El Paso and Juarez attending the Lobo-Miner football game, the dog races, and other sporting events. Chet Fornero (4337), far right, Club travel director, reports that the troops had a ball.

## Sandians Present Papers at Front Surface Physics Meet

Sandia Laboratories was well represented at the Front Surface Physics Meeting, Oct. 20-21, sponsored by the Air Force Weapons Laboratory, KAFB. Of 30 papers presented, these were delivered by Sandians:

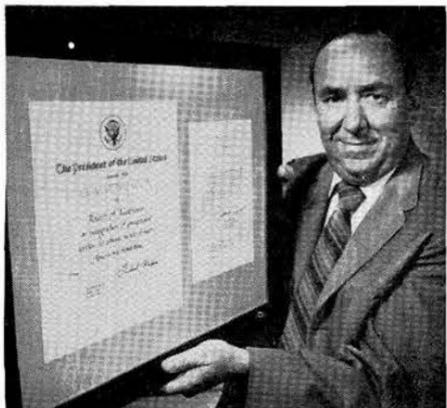
A. J. Chabai and V. J. Roh (both 1224), "Analysis of Impulse Data on Graphite Materials"; D. G. Swanson and H. S. Lauson (both 1224), "Impulse Calculations for Heterogeneous Materials"; P. D. Anderson (1224), "Application of a New Theory to Impulse Experiments"; E. D. Jones (5114), "Laser Produced Impulse in Solids"; N. C. Anderholm (5114), "Vapor Velocity and Density Determination"; C. M. Percival (5315), "Laser Radiation of Lucite Composites"; R. T. Meyer (5224), "Effect of Vapor Composition Contaminant Vaporization and Chemical Reactions on the Effective Sublimation Energy of Carbon"; R. Ng (8174), "A Comparison of Various Blow-off Impulse Prediction Techniques and Gages," and "Technique for Measuring a Tensile Shock Wave"; and H. A. Spetzler (8311), "Effects of Melting Rates Upon the Depth of Shock Wave Penetration."

## Credit Union Statements

As part of its normal audit procedure, the Supervisory Committee of the Sandia Laboratory Credit Union recently mailed statements to members with account numbers from 12,000 to 12,999. If your account number is in this series and you have not received your statement, please notify Karl Waibel (4117), Committee Chairman.



SANDY JEWETT 4333



**FROM THE MAN HIMSELF**, President Nixon that is, comes this commendation to Bob Matthews (3454) for his "outstanding work in the field of suicide prevention." Bob was prime mover in establishing Suicide Prevention and Crisis Center in Albuquerque.



**IS ALWAYS A WINNER**