

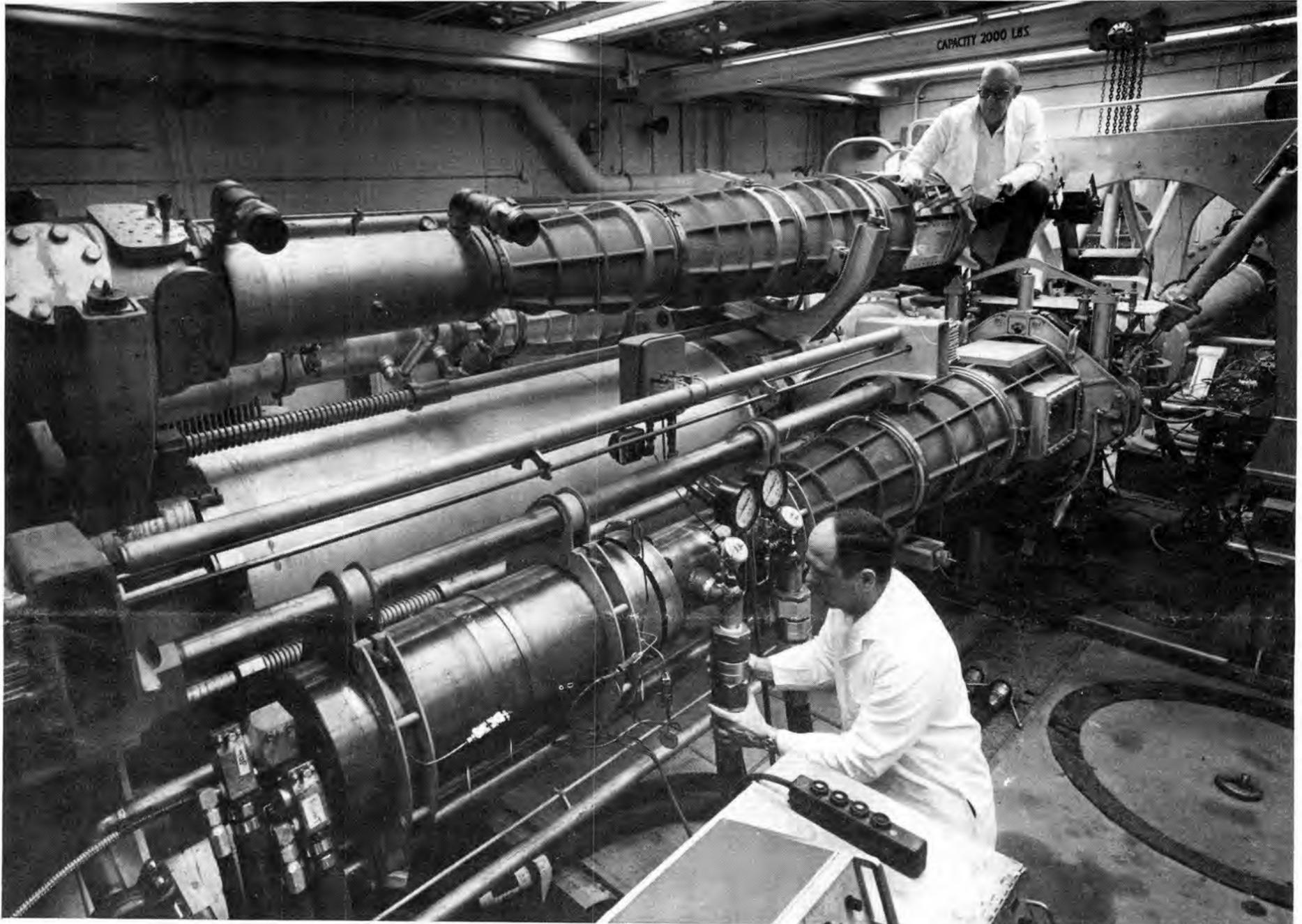


# LAB NEWS

Volume 24, No. 2

January 21, 1972

SANDIA LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV



HYPERSONIC WIND TUNNEL facility in Bldg. 865 was scene recently of the first successful Mach 14 run. Don MacKenzie adjusts cooling hoses to the throat section while

Cecil Tolbert stands above the test chamber. Note the unique "revolver" arrangement of the four nozzles (Machs 5, 7, 11, and 14).

## **Mach 14 Now Possible In Sandia's Wind Tunnel**

A new addition, successfully tested this month, to Sandia's Hypersonic Wind Tunnel Facility simulates reentry and flight conditions at Mach 14 (14 times the speed of sound — about 10,500 mph at sea level).

The addition is undergoing shakedown tests, with nozzle calibration scheduled over the next few weeks. Jim Reed, project leader for Experimental Aerodynamics Division 5622, says the new facility should be operational within three months.

For Mach 14 operation, an entirely new approach was devised. Where the original hypersonic tunnel operated at pressures up to 300 pounds per square inch (psi), the Mach 14 nozzle is designed for pressures up to 3500 psi.

The very high temperatures — about 1900°F — required to simulate Mach 14 conditions (and prevent liquefaction) dictate use of non-oxidizing nitrogen as the test gas and employment of high temperature tungsten heater elements. Gas for the new facility is stored in 10 pressure bottles at 10,000 psi and regulated to the desired total pressure.

The old nozzles use a huge gas-fired pebble bed heater to preheat the air. (At Mach numbers above 5 preheat is necessary to preclude liquefaction of the gas as it expands in the test section.) The Mach 14 addition uses an electric screen heater to preheat the nitrogen. This heater takes 1.25 million watts of three phase power at 65 volts,

and was designed by FluiDyne Engineering Corporation of Minneapolis. It consists of 14 sets of finely woven 3x3 inch screens — four sets of inconel screens and nine sets of tungsten screens. There are four or five screens in each set, and all screens are woven of 0.010 inch diameter wire.

The nitrogen passes through the heater and the hot gas is then ducted through a tiny nozzle throat at Mach 1. As it expands downstream the gas accelerates to Mach 14 in the 18-inch diameter test section. With expansion, gas temperature drops dramatically from the initial temperatures of about 1900°F

(Continued on Page Two)

# Afterthoughts

The Decline & Fall Of The Ragtop--Remember the convertible? In the '40's and 50's the very summit of existence for a young buck was the vehicular promenade around the campus, top down, preferably accompanied by some creature who looked like Kim Novak. The car's vintage didn't make much difference--if the top went down even a 10 or 12 year old klunker still conferred distinction upon its owner. But today's young man seems to prefer the van, which sort of resembles an errant bread delivery truck, and the few remaining convertibles are generally driven by aging sports. Sic transit gloria mundi, i.e., they don't make DeSotos anymore.

\* \* \*

Worth Repeating--"I know of no method to secure the repeal of bad or obnoxious laws so effective as their stringent execution."--Ulysses S. Grant

"The faculty of doubting is rare among men. A few choice spirits carry the germ of it in them, but these do not develop without training."--Anatole France

\* \* \*

More Of The Modern Inconveniences--You're driving to work. You're experiencing dizziness, ringing in the ears, blurred vision, nausea, and difficulty in breathing. You may not know this, but you've got the windshield de-icer fluid syndrome. That stuff you spray on a frozen windshield to melt the ice will sometimes enter the vent located at the base of the windshield. When you turn on the defroster, you may soon be riding high on the fumes of isopropyl alcohol. So open the windows. Or ride a bike.

\* \* \*

The Sibling Ploy--When the John Kelly (5223) family introduced an heir magnificently named Trek Thunder Kelly a year or two ago, most seasoned name-watchers conceded that this would be an impossible act to follow. But now we have (get ready)... Tara Shiloh Kelly, born Jan. 2, gender female. Sorry about that Trek baby. • js



TEST CHAMBER downstream from new Mach 14 wind tunnel nozzle is 18 inches in diameter, 33 inches in length. Don MacKenzie (5622) mounts a model of a Sandhawk instrumentation rocket for a test run.

(Continued from Page One)

## MACH 14

down to  $-407^{\circ}\text{F}$  ( $53^{\circ}$  above absolute zero).

The Mach 14 capability permits Sandia to simulate conditions experienced by reentry vehicles and high performance rockets. The heater may also be used with a new Mach 11 nozzle (now being designed) at total pressures to 1100 psi and temperatures to  $1400^{\circ}\text{F}$ . All four wind tunnel nozzles, the new Mach 14 along with the original Machs 5, 7, and 11, are in a unique revolver cylinder array which permits each to be rotated into place as needed. •dg

## Take Note

Value Analysis/Engineering training workshops, conducted by John Hueter of Engineering and Science Education Division 3134, were held recently at Mound Laboratory and at WE's Columbus Works. The Mound Laboratory workshop provided training for 59 people and the eight projects undertaken realized potential savings of \$266,000. Anticipated savings from the four projects studied by WE workshop participants amounted to \$571,000.

Two additional training workshops are coming up soon — one at Mound Laboratory (their fifth) and the other at Holmes & Narver in Las Vegas, Nev.

\* \* \* \*

Bob Flaxbart, manager of Plant Maintenance Department 4510, was recently installed as the first president of the newly-organized Chaparral Chapter of the American Institute of Plant Engineers. The group is composed of management, engineers and associates engaged in plant engineering and maintenance. Phil Leahy (AEC) was named national delegate.

\* \* \* \*

Lynn Barker (5163) will discuss "Recent Developments in Laser Interferometry for Shock Profile Measurements" at the 5100 Staff Seminar Jan. 25. The seminar meets Tuesdays at 8:30 a.m. in Bldg. 806, rm. 201.

## LAB NEWS

Published every other Friday

### SANDIA LABORATORIES

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In Livermore, Matt Connors &  
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Writers, while  
George Hosoda is the Photographer.



PETRIFIED FRAGMENT of an animal jawbone was found by James (4513) and Charles Farmer (3520) in the Caracas Mesa area of Carson National Forest while hunting. A check with UNM's Anthropology Department reveals that the animal was "... a plant-eating phenacodus from the Eocene period some 40 million years ago." — a primitive ungulate about the size of a pig.



LEIGH HENDRICKS (5425) discusses output from the new Gould 4800 printer with operator Audilio Tenorio (5411). Users will benefit from the fast turn-around-time.

## Computer Science Center Adds New Line Printer

Stepping into the Computer Science Center, the eye takes in the enormous array of computers and auxiliary equipment. Almost lost in this complex is a smallish piece of new equipment which became operational this week. The Gould 4800 is an electrostatic line printer which enables the programmer to have a quick look at his plot routines and an opportunity to debug the program.

Most of the high-speed production of plots has been done on the SD-4020, a device which records computer output on microfilm. Although the SD 4020 has 1024 addressable locations, only about every third point is resolvable while all 800 points on the Gould 4800 can be resolved, resulting in copy of higher resolution. The Gould unit prints 4800 lines per minute.

Leigh Hendricks of Advanced Techniques Division 5424 has prepared the software for the new system. Output tapes from the SD 4020 are adapted to be compatible with the Gould 4800. "I take the output from SCORS (plotting routine of the SD 4020) and add the control bits necessary to drive the Gould printer and to scale the SCORS information," Leigh says. "The original intent of the SD 4020 was to give us an early look at results. Now we hope to do this with the 4800, but the programmer still has the option of using either the 4020 or the 4800.

"The new printer is fast and quiet, the paper costs much less and the output hard copy is permanent," Leigh says. Contact Division 5424 if you wish to use the new printer.\*nt



# Credit Union Reporter

By Willard Prekker (4122)  
President, Board of Directors

Another successful year of operation for your Credit Union is now history. Total assets at year end were one and one-half million dollars more than at the end of 1970! This exceeds the total assets growth for any one of the previous five years. The month of December saw an all time high in loan volume with 1126 loans processed. Achievements such as these are accomplished only with the whole-hearted support of the membership and the hard work of the Credit Union staff, the Board of Directors and the Supervisory and Credit Committees. My thanks to all of you.

A highlight of the year was the first annual meeting of Livermore members and the move into new quarters at Livermore. Livermore members responded with strong support and the rate of growth has been excellent. We now provide all of the services at Livermore that are provided at Albuquerque, except for safe deposit boxes. Another membership meeting will be held at Livermore this year; time and place will be announced at a later date.

For the first time, dividends were paid quarterly during 1971 rather than on an annual basis as in the past. These dividends are at an annual rate of 6 percent and, when compounded, amount to 6.13 percent for the year. A one payment 90-day loan service was also initiated in 1971.

The Board of Directors are now considering a "point of purchase" type of credit plan. Under this type of plan, the member is supplied with blank checks which, by prearrangement, become loans when the checks are presented for payment. We will keep you posted as plans progress.

The 24th Annual Meeting of the membership of Sandia Laboratory Federal Credit Union will be held at 5:30 p.m., Thursday, Jan. 27, at the Coronado Club. Plan to attend so that you can hear reports from officials and take an active part in the election of directors and Credit Committee members. Each member attending will receive a gift and a chance on the two portable color TV sets offered as door prizes. As usual, refreshments will be served after the meeting.

\* \* \* \*

### Fourth Quarter Statements and Tax Information

Statements for the final quarter of 1971, which were sent out Jan. 10, show all share and loan activity during the last three months of 1971; in addition, the statement shows the total interest paid on loans for the full calendar year and the total dividend amount credited during the year. These amounts are reportable for tax purposes for the 1971 tax year. Dividends earned during the last quarter were credited on Jan. 1, 1972, so that amount will not show on these statements. These dividends are considered income for the 1972 tax year. Since these statements show all the information needed for 1971 tax purposes, individual 1099 forms will not be sent out.

At first glance, your dividend may appear



to be excessive. But with the change to quarterly dividends in 1971, the amount shown includes the annual dividend paid on Jan. 1, 1971 (which was all of the dividends earned during 1970), plus dividends paid for the first three quarters of 1971. Federal law requires credit unions to classify this income as dividends but for tax purposes it is considered ordinary interest income. Please remember that the Credit Union did not receive payroll deductions on monthly paid employees in December, so that no credit to loans or shares will show unless a cash payment or deposit was made.

\* \* \* \*

### Credit Union Statements

As part of its normal audit procedure, the Supervisory Committee recently mailed statements to members with account numbers from 13,000 to 14,999. If your account number is in this series and you have not received your statement, please notify Karl Waibel (4117), committee chairman.

## Events Calendar

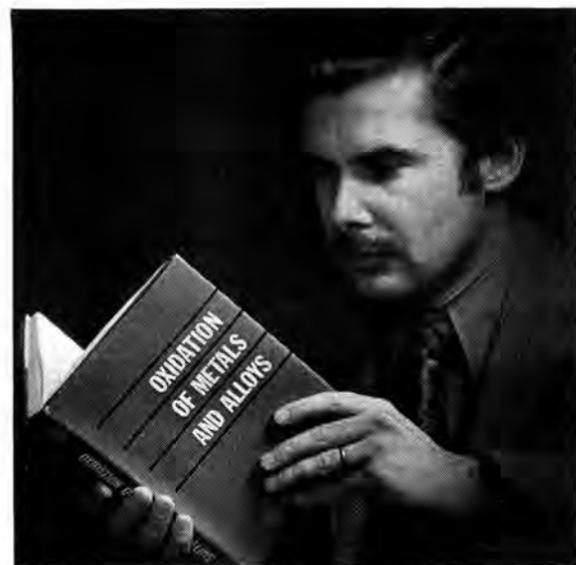
- Jan. 22 — Dance Theater of Harlem, 8:15 p.m., Popejoy Hall.
- Jan. 23 — Albuquerque Symphony Orchestra, Young People's Concert, 4 p.m., Popejoy Hall.
- Jan. 23 — N.M. Mt. Club, Rio Grande Cowpaths hike, meet at Gulf Mart, 8:30 a.m.
- Jan. 23 — UNM Art Museum, B.J.O. Nordfeldt, Retrospective Exhibition, Opening reception by Friends of Art, 2-5 p.m.
- Jan. 23, 30 — Old Town Studio, The Potts Puppets in "Hansel & Gretel" and "How The Whale Got His Throat," 2 p.m., for reservations, 242-4602.
- Jan. 24 — Associated Students UNM Lecture Series, Dr. Harvey Cox, author and head of Harvard Divinity School, 8 p.m., Keller Hall.
- Jan. 26 — Albuquerque Symphony Orchestra, 40th Anniversary Concert, 8:15 p.m., Popejoy Hall.
- Jan. 28-30 — "Boeing Boeing," Albuquerque Little Theatre, 8 p.m., for reservations, 242-4750.

# LIVERMORE NEWS

Volume 24, No. 2 LIVERMORE LABORATORIES January 21, 1972



SANDIAN RIDES IN HEART CYCLETHON — "Go, Go, Go" is the exhortation from some of Linda Hoeger's (8251) 55 Sandia sponsors as she starts a practice run in the recent Livermore fund-raising bike race to aid the Alameda County Heart Association. Sponsors' contributions ranged from 5 to 70 cents for each mile. Linda rode in the 10-mile event. Unfortunately, Linda had a flat tire about the half-way mark, but her heart-felt efforts still netted \$70 for the Heart Association.



TECHNICAL AUTHOR — "Oxidation of Metals and Alloys," a new book published as part of a series by the American Society for Metals, contains a chapter by Jim Swisher, supervisor of Metallurgy Division II 8313. Titled "Internal Oxidation" and based on a paper presented at an ASM seminar, the chapter describes principles and technological implications of oxidation.

## Congratulations

Bob Huddleston (8321) and Cheri Bonham married in Livermore, Nov. 20.

Glenda Day (8139) and Lyle Kamppinen (LLL) married in Livermore, Nov. 20.

John Akins (8351) and Sheila Mueller married in Livermore, Nov. 6.

Hank Andreski (8413) and Chris Rafal married in Livermore, Nov. 6.

Mr. and Mrs. Ken Marx (8341) a son, Kevin Daniel, Nov. 28.

Mr. and Mrs. Tony Thompson (8313) a son, Michael Anthony, Dec. 7.

Ed Healey (8183) and June Estes married in Carson City, Nev., Dec. 20.

Ferne Saylor (8433) and Lee Graves (8423) married in Walnut Creek, Dec. 18.

Jan Silva (8323) and Joe Inzerilla, married in Carmel, Calif., Nov. 27.

Mr. and Mrs. Pete Mattern (8331), a daughter, Elizabeth Catherine, Dec. 16.

Mr. and Mrs. Bruce Nevin (8183), a daughter, Tammy Dolores, Dec. 17.

Mr. and Mrs. Keith Oatney (8322), a daughter, Emjly Marie, Dec. 16.

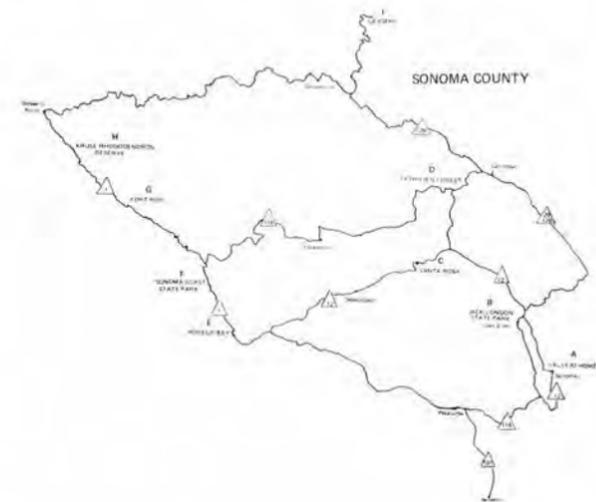
Mr. and Mrs. Jim Pergrossi (8164), a daughter, Jana Michelle, Dec. 22.

## Touring Northern California

This is a great time to tour California! The football season is over so Dad can tear himself away from the TV set and Mom can relax after the hustle and bustle of the holiday season.

In this issue we start a series on weekend tours of various counties in Northern California. The order of coverage will be: Sonoma, Lake, Mendocino, Humboldt, Del Norte and possibly Josephine County, Oregon. Further information, including facilities available, may be obtained from Public Relations Division 8235.

Many Sandians are well-traveled in Northern California and your thoughts on other places of interest would be appreciated.



A. Vallejo Home. One mile northwest of Sonoma. Charming chalet-style home of Gen. Mariano Vallejo. State museum.

B. Jack London State Park. At Glen Ellen, northwest of Sonoma in Valley of the Moon. Novelist's dream castle, his widow's home with London's mementoes. Small admission fee to museum, open daily 10-5.

C. Santa Rosa. County Seat. Home of the late Luther Burbank, naturalist. His gardens are a city park and he is buried there. "Church From One Tree" opposite Julliard Park, was built in 1875 from single redwood. Home of Ripley's "Believe It or Not." Burbank Rose Festival (May).

D. Petrified Forest. On road from Santa Rosa to Callistoga. Stone redwoods 126 feet long created by volcanic eruption. Admission fee.

E. Bodega Bay. Spanish explorers discovered bay in 1775. Russian fur hunters settled here briefly, 1809. Fishing, restaurants. Inland: quaint 19th Century town of Bodega.

F. Sonoma Coast State Park. 10-mile strip of rocky beach. Fishing and jade collecting, no swimming (treacherous surf), parking, beach access trails; campsites at Wright's Beach.

G. Fort Ross. Founded 1812 by Russians from Alaska, abandoned 1841. Site of chapel, stockade, commandant's house, museum (fee).

H. Kruse Rhododendron Reserve. 10 miles north of Ft. Ross, exotic wild flowers, April through May. Timber Cove nearby offers rugged scenery, new inn, gigantic modern statue by Benny Bufano.

I. Geysers. Discovered 1847, have been visited by kings and presidents. Steam-spouts and cauldrons (admission fee). Thermal power plant.

# Sandians and Jury Duty

"At first I feared the thought of having to go," admits Marie Dremalas (8213). "It meant fighting that early morning freeway traffic to Oakland and spending a lot of time waiting to be called as a juror. But now I know that wasn't the proper attitude. Responsible citizens do their duty."

Marie's reaction isn't uncommon. Other Sandians summoned to serve as jurors in California Superior Court made similar remarks.

It all begins with a letter addressed to you from the Alameda County Jury Commissioner (your name is taken from the Registrar of Voters lists). "Report to Municipal Court in Livermore," the letter says, "between the hours of such and such on a specific day; your qualifications to serve as a juror will be examined."

You go. You complete a form telling the Commission about yourself — your name, general health, employer, family and any reason why you can't be a juror. Then wait two months — or perhaps six — until the need for jurors puts you "on call service" for six weeks as a member of a Superior Court jury panel. (Prospective jurors in Contra Costa County are mailed questionnaires to answer; if selected for duty, they are "on call" for a year unless they serve on a jury that reaches a verdict or appear at least four days in the jury assembly room without being called to serve on a jury.)

Just about the time you have forgotten the initial interview, you are notified to report to a designated department at the courthouse (each time you appear, you're paid \$5 a day, plus 15 cents a mile one-way to Oakland). Here the judge tells you wisely and well about what it means to serve on a jury. If you have reason to be excused, you explain it. Most Sandians are not engaged in activities which exempt them from duty (i.e., practicing attorney, physician or dentist; a full-time teacher in a college or university or on active military duty). You're on a jury panel, waiting to be called as a trial juror.

"It's boring," says Barney Goncher (8236) to sit in that jury assembly room hour after hour waiting for the clerk to pick your name from the thoroughly shuffled contents of a wire cage. Finally, it happens. And a further selection of jurors for a specific criminal or civil case is beginning. Off to a courtroom. Again names pulled from a cage. More questions. The judge and the defense and prosecution attorneys want to determine if you can be fair in deciding a particular case. There is 'challenge for cause' (attorney requests prospective juror be excused because the juror has expressed some opinion which would make him unable to render an impartial decision; the judge determines if the challenge is legitimate). And then there are *peremptory challenges* (an attorney excuses a prospective juror for no given reason; you are not helpful to his cause). Maybe some of these machinations could be eliminated — I don't know."

"Selecting a juror for a criminal case from security-type people is a waste of time," Wes Hodges (8261-1) points out. "I went to the



WHAT DO THESE SANDIANS HAVE IN COMMON? They are five of some 70 Sandians selected in 1971 to serve as jurors. (l to r) Wes Hodges (8261), Ralph Jaeger (8231), Jack Hubner (8264), Marie Dremalas (8213) and Barney Goncher (8236).

courtroom eight times, got selected for a jury five times and was excused by the defense attorney five times. From questioning, they knew of my responsibilities for administering a Guard Force contract. As an advocate of law and order, I'm sure they thought I couldn't be impartial."

"Yet," maintains Marie, "if anything ever happened where I needed a jury, I'd want my attorney to pick one that would understand my cause."

"The wheels of justice turn very slowly during the trial," says Jack Hubner (8264). "It just takes forever and a day to get anything accomplished. But throughout, the judge is exceedingly fair. Very scrupulous, very particular. He makes sure everything is very carefully and meticulously handled."

The trial over, jury deliberation begins.

"Those I met in the jury room," continues Barney who was elected jury foreman on one

case, "were trying seriously and honestly to do the best job they could do. They were using all their capabilities to be just. Their sincerity was very obvious."

"Even when the facts tell you a person is guilty," Marie states, "a 'guilty' decision weighs heavily on your shoulders. It bothers you." She served on one civil and two criminal cases.

The decision is rendered. You hear the clerk read it. If the judge determines there is no miscarriage of justice, he thanks you and dismisses you.

Impressions, however, linger. Sandians had a few: simplify selection of jurors by eliminating all the challenges; reduce the number of jurors whenever possible; the law itself is impressive and people do look at the law and interpret it in different ways; it's a slow process; a tremendous experience — both educationally and sociologically. •mc

## Sympathy

To Gerry Benedetti (8353) for the death of his father-in-law in Salinas, Jan. 7.

To Jim Hopwood (8342) for the death of his father in Oil City, Pa., Dec. 14.

To Raymundo Lopez (8256) and Flavio Lopez (8433) for the death of their father in Livermore, Jan. 6.

To John Nielson (8411) for the death of his father in San Francisco, Dec. 31.

To Jim Rego (8423) for the death of his father in San Francisco, Dec. 31.

To Chandler Smith (8264) for the death of his father in Clear Lake, Iowa, Jan. 7.

## Take Note

Carl Schoenfelder (8313) has been elected to the board of governors of the local theatre group, Cask and Mask, for a two-year term. Active in the group for the past two years, Carl has appeared in a number of plays and workshops and has also done backstage work.

\* \* \* \*

Three employees from Instrumentation Development Division 8342 presented technical papers at the Underground Nuclear Test Symposium held last month in Albuquerque: Art Hull, "A Tensile Wave Measurement Technique"; Cliff Skoog, "Selected Topics in Manganin Gage Development at Sandia/Livermore"; and Ed Williams, "A Study of Common-Mode to Signal Conversions Through Impedance Transformations."





Alyce Loveless — 8273

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# MILEPOSTS

## LAB NEWS

January 1972



Dan Held — 8213

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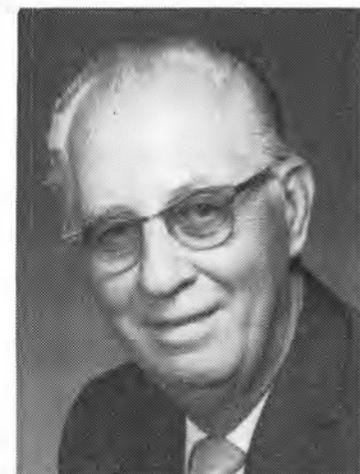
Rose Griffin — 4623

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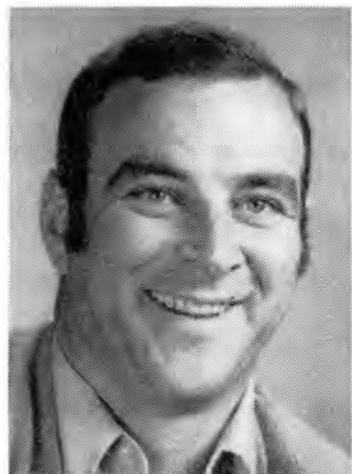
Hilman Frock — 3520

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Howard Thomas — 3512

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Dennis Sparger — 8412

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Art Pino — 4338

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Bob Hauff — 8432

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Louis Lindsay — 1425

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Gene Lopp — 8431

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Beatrice Haines — 7512

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Ray Sheppard — 8157

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Lenore Petersen — 8433

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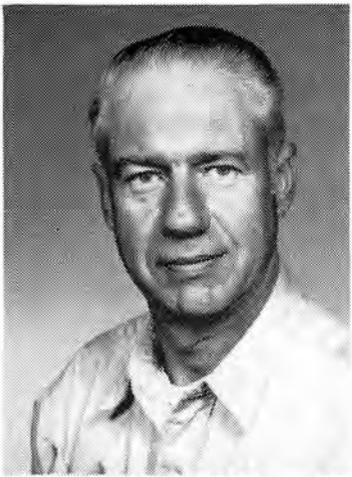
Ted Baggett — 3155

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Jerry Jones — 8164

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George Neufeld - 4518 20



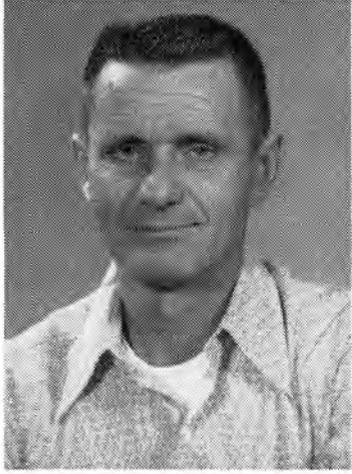
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Hazel Smeltzer - 7542 20



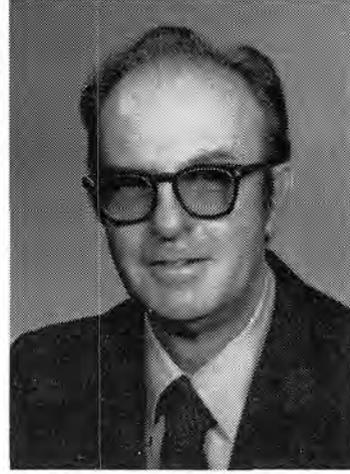
P. L. Lopez - 7112 20



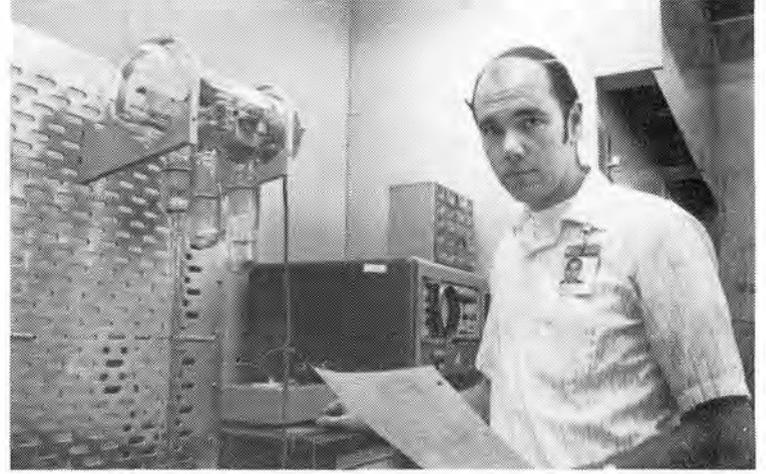
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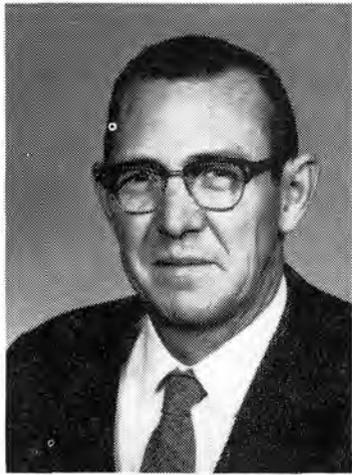
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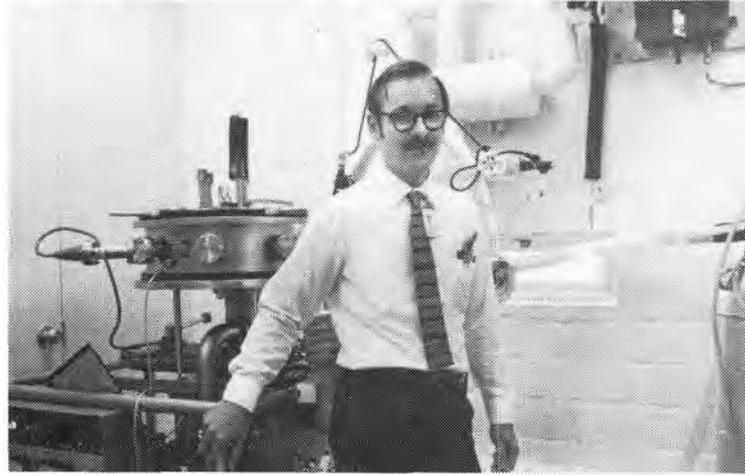
Donald Hurt - 7414 25



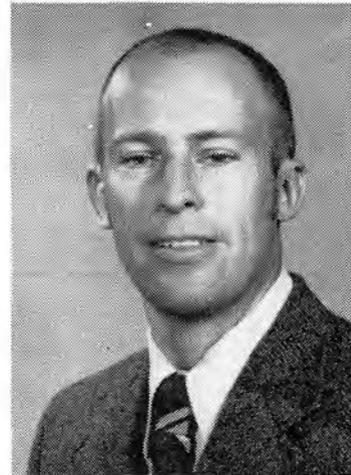
Robert Clark - 1913 10



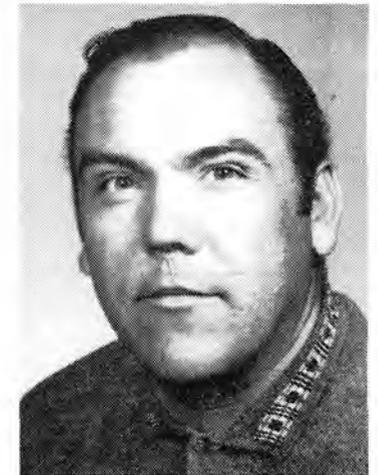
Wallace Mitcham - 4541 20



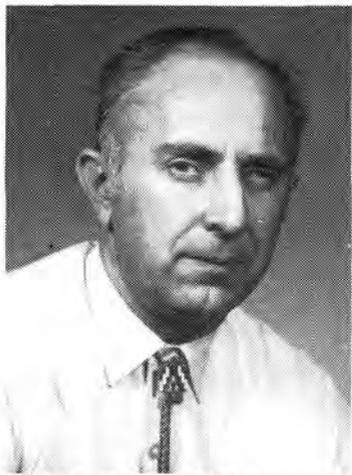
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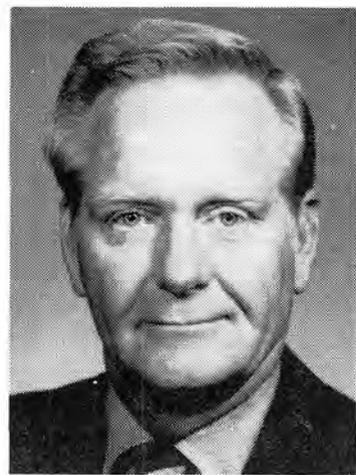
Thomas Devlin - 9226 10



John Smatana - 5314 15



Carl Wiseberg - 1334 15



Homer Pierce - 4140 15



Alfonso Trujillo - 7133 15



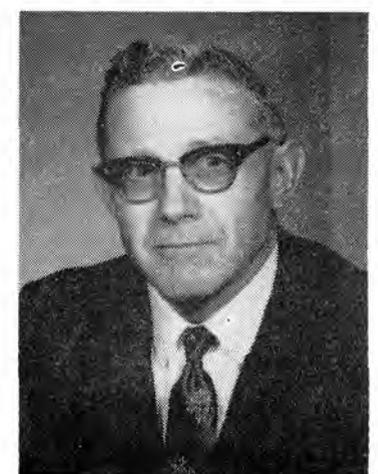
Dorothy Saiz - 5413 15



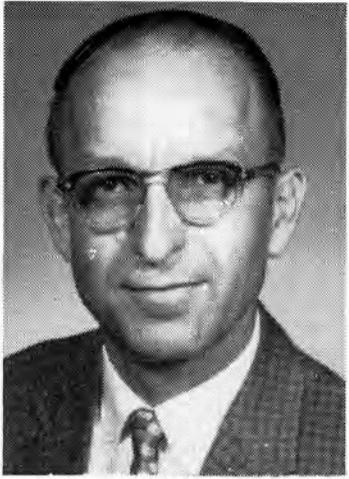
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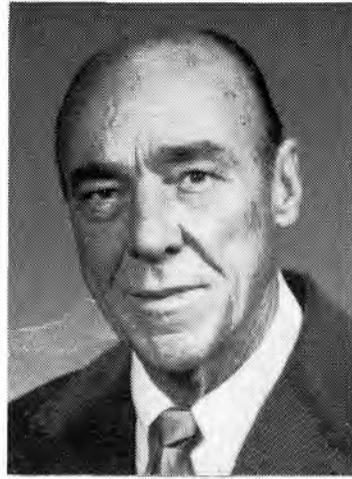
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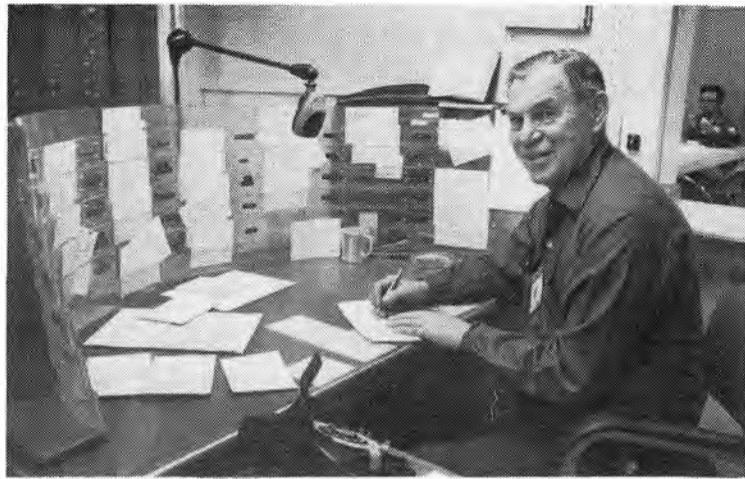
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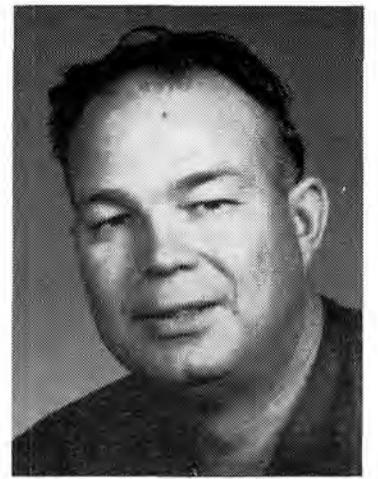
Carl Zickert - 1644 20



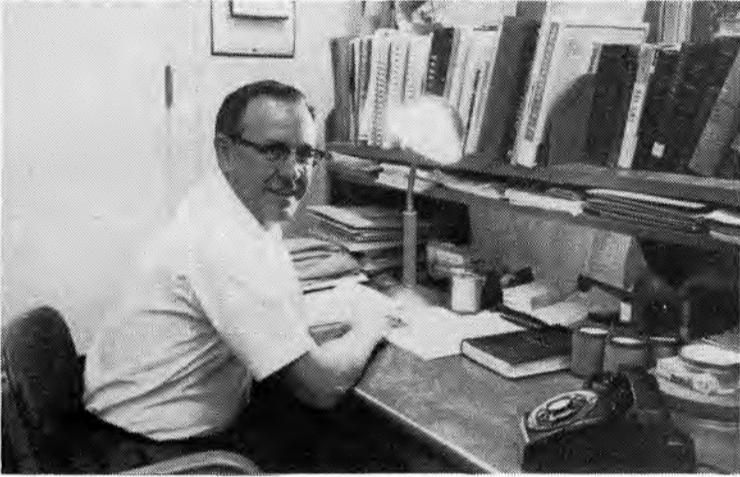
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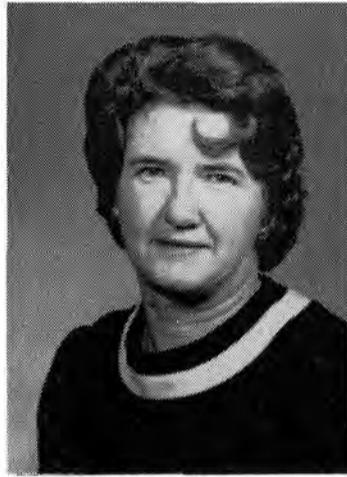
Marlin Klemm - 4614 10



John Gunby - 4512 15



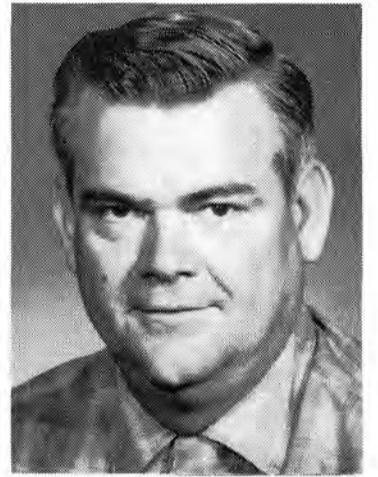
Richard McCann - 9235 20



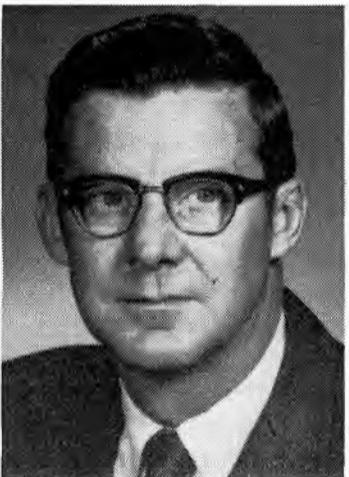
Dorothy Wall - 7631 20



Laverne Zipprich - 1523 15



Donald Jones - 7434 15



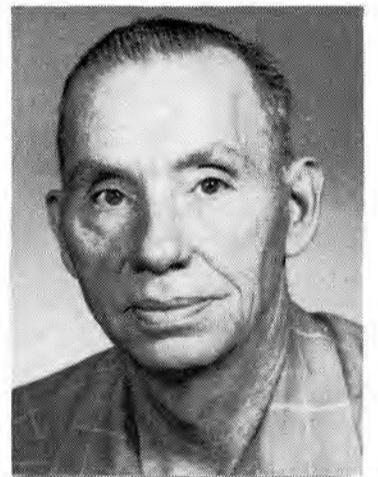
Robert Knight - 7122 15



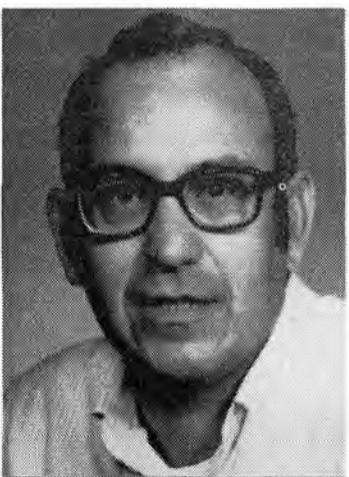
George Stohner - 4121 15



Carl Hawk - 3155 20



Daniel Davis - 7141 15



Adolfo Maes - 1612 15



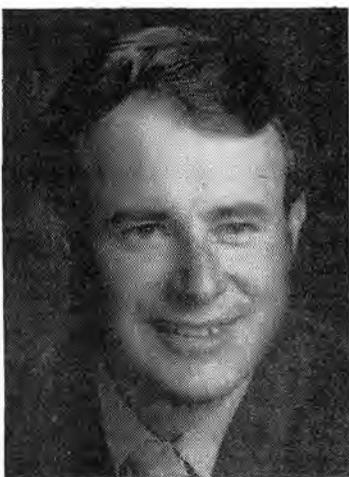
Rosa Steele - 4115 10



James Taggart - 1554 15



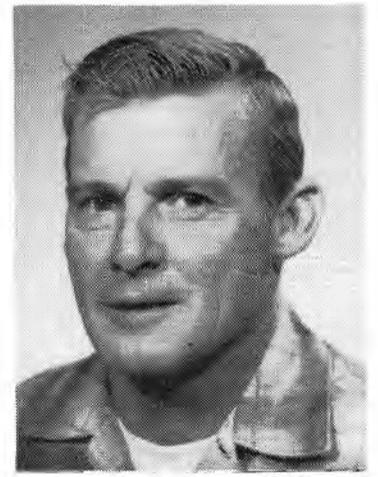
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Bob Graham - 8274 10



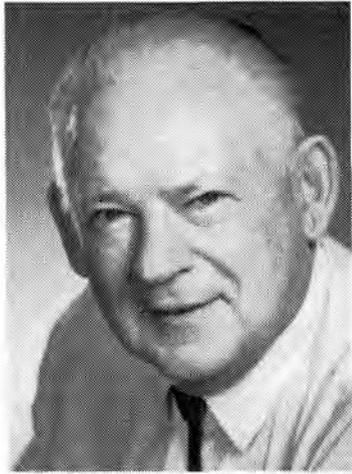
Jean Kirby - 4138 10



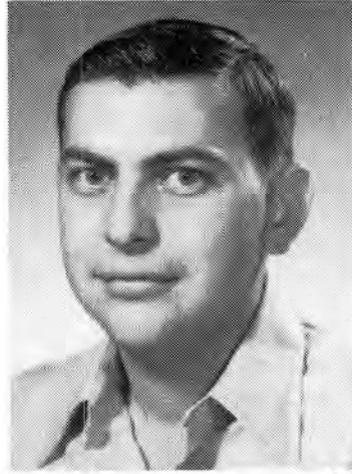
Leonard Hitchcock - 9333 15



Karen Yung - 8235 10



Jim Munyon - 8333 15



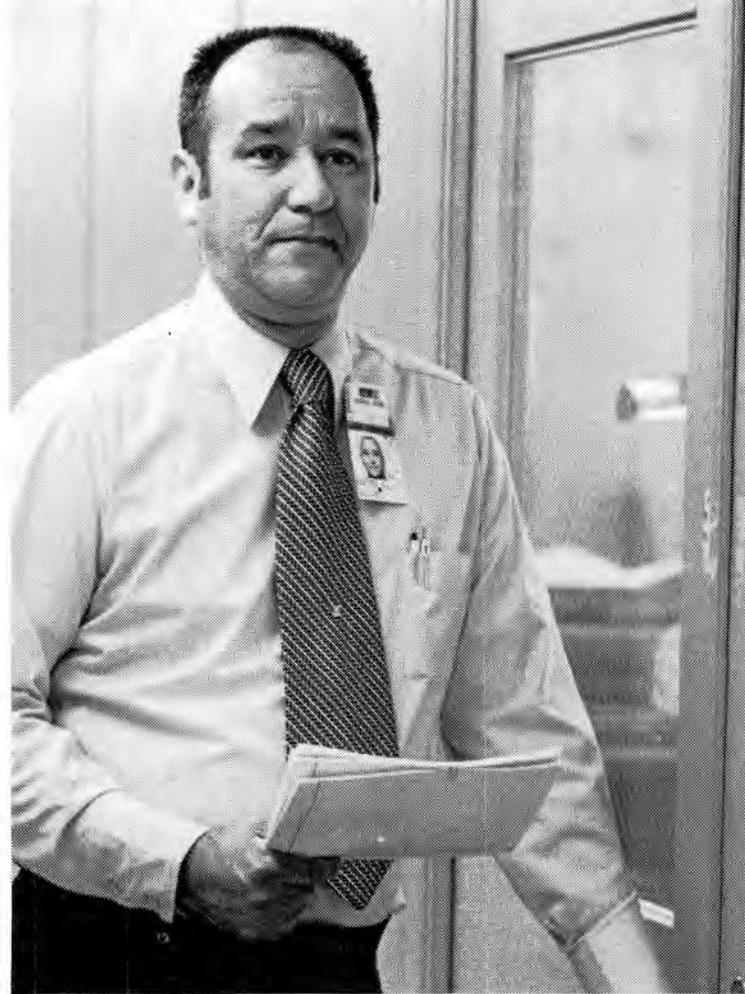
Gene Bates - 3132 10



Paul Péwé - 3113 20



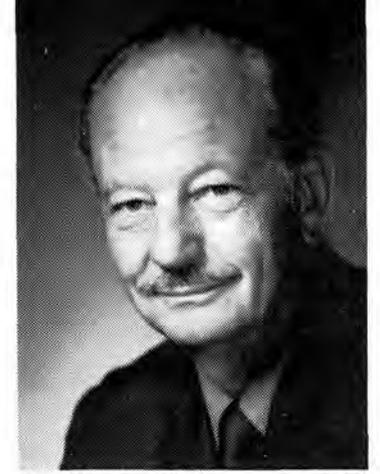
Charley Crawford - 8432 10



Al Alford - 8432 15



Ruth Scates - 7412 15



Ray Raty - 8261 10



Arnold Lamb - 9473 20



Edward Wood - 7511 20



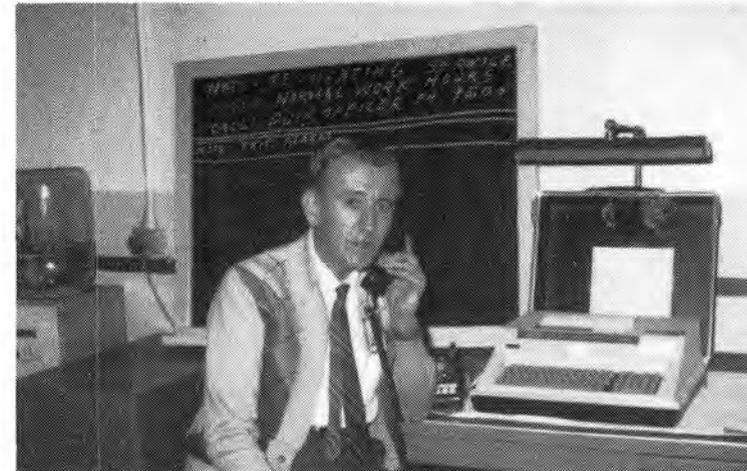
Bonnie Conley - 3256 10



Pat O'Brion - 8161 15



Lyle Porter - 9231 20



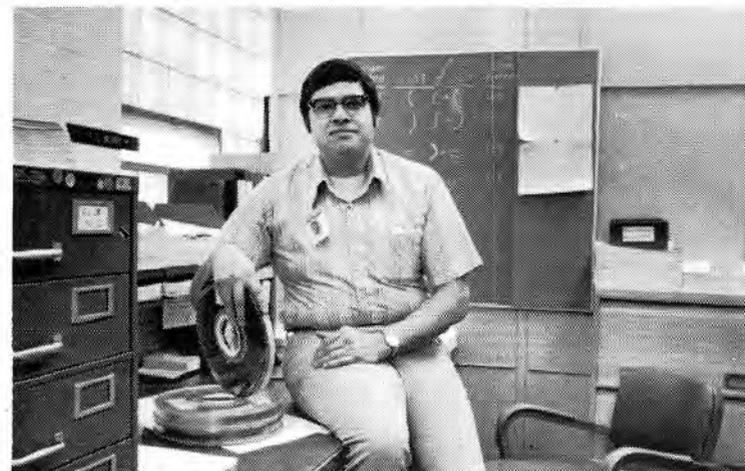
Jerry Dusek - 9243 20



Frank Lesperance - 4513 20



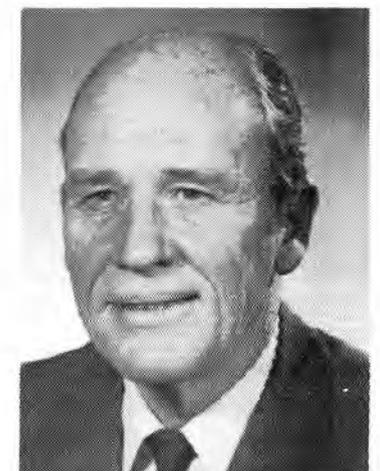
Arthur Bacon - 4515 20



Thaddeus Werner - 3148 10



Marion Johnson - 8175 10



Andy Blain - 4622 20



SKI TOURING in the Sandias, Finnish exchange student Mauno Koivisto heads toward North Peak. Susan Davenport's (5644) husband John tags along behind.

### **Sandians Participate in AIAA Aerospace Sciences Meeting**

The American Institute of Aeronautics and Astronautics (AIAA) held its winter Aerospace Sciences Meeting in San Diego this week. Two Sandians worked as technical program organizers and served as session chairmen: Fred Blottner (5643) organized the technical program on "Numerical Methods" and served as session chairman on "Fluid Dynamics IV: Computation of Viscous Flows." Robert Luna (5644) organized the technical program for "Atmospheric Environment" and was session chairman for "Atmospheric Environment: Environmental Pollution."

Sandians presenting papers at the meeting were: K.E. Putz (5628) and E.P. Bartlett (Aerotherm Corp.), "Heat-Transfer and Ablation Rate Correlations for Reentry Heatshield and Nosedip Applications"; K.J. Touryan (5640), A.J. Russo (5641) and D.W. Boyer (Cornell Aeronautical Lab), "Experimental and Numerical Studies of Flush-Mounted Electrostatic Probes in Hypersonic Ionized Flows"; J.F. Muir (5641) and A.A. Trujillo (5622), "Experimental Investigation of the Effects of Nose Bluntness, Free-Stream Unit Reynolds Number, and Angle of Attack on Cone Boundary Layer Transition at a Mach Number of 6"; and E.L. Clark (5622), G.W. Stone (5625) and G.E. Burt (ARO Inc.), "An Investigation of Nonsymmetrical Aerodynamic Damping Moments."

A special feature of the meeting included a visit to the San Diego Aerospace Museum in Balboa Park.

## **Skiing Without the Hassle: Ski Touring**

By any measure you care to use present day downhill or Alpine skiing is a mixed bag. It's fun — but it sure is complicated. Lots of people, lots of money, lots of faddishness. And a certain probability that someday, somehow, one of your extremities will end up in a cast.

So a group of people here in town, some of them Sandians, have taken the logical step of forming a ski touring club. Reduced to essentials, ski touring consists of attaching a rather simplified pair of skis (no metal edges) to boots that are more like hiking than conventional ski boots, and striding off to experience the pristine beauty of the New Mexico winter scene. Ski touring is no more or less arduous than hiking itself — a few miles over reasonable terrain is within the reach of all but the most determined non-physical type. And it's safe.

The New Mexico Ski Touring Club was organized last fall, now has some 50 members, and is shaping up as a going concern. I refer to the schedule in their newsletter:

"January 23 (Sunday) — Beginning clinic No. 2. Leader: Don Cook. Western Skies, 9 a.m.

January 30 (Sunday) — Beginning practice tour. Leader: Wayne Shaver (867-5458) Class I. This trip will be to the Jemez country for beginning practice. Gulf Mart, 8 a.m. Mileage: Car 120, tour 3-4 miles."

Plus half a dozen more activities scheduled through March. The clinics help beginners get started and include instruction and equipment check out. Format is a couple of hours of instruction (in the Sandias), lunch, then a short practice tour. Cost is three dollars for nonmembers, two for members. Rental equipment is available from three places in town, the Trail Haus, Mountain Chalet and Mountain Sports. If you get the bug you'll want to buy your own outfit — thirty dollars and up depending on how fancy you want to get. (Compare this to the cost of good downhill equipment: skis-\$150, boots-\$140, bindings-\$50, lift tickets - up to \$10/day in someplaces.)

Sandians involved in this Touring Club include Rex Shurtleff (9344), Sam Beard (5628) and Deanna Rawlinson (1724). Give them a call if you're interested or want more information. •js

### Survey Follow Up

## **Sandia Bikers Meet Monday Next**

According to a LAB NEWS survey, interest in bicycle riding ranges from high to fanatic among many Lab employees. Over 150 responded to the survey, and quite a few noted the generally hostile environment in which they do their thing. It's hostile not by design but by omission — there's too little recognition of the cyclist as a legitimate element in the traffic picture.

A small group of bikers met with LAB NEWS editor John Shunny and concluded that a general meeting of Sandia bikers and would-be-bikers was indicated. Purpose: to explore the desirability of forming an

organization which would formulate specific objectives, e.g., keeping open the gates to Los Altos Golf Course, and attempt to gain acceptance by appropriate authority of these objectives. It is believed that group action is likely to be more effective than action by individual cyclists. Coordination of activities with other cycle groups, such as that at the University, was also mentioned as another means of gaining more recognition of the cyclist.

The general meeting will be held Monday, Jan. 24, at noontime in the auditorium of Bldg. 632.



"CRAZY PEDALS" calmly surveys the results of his irresponsible bike driving. At this rate he probably won't make the Labs bike riders' meeting Monday noon (the 24th) in Bldg. 632. See accompanying article for more details.

# Retiring



**BENNIE  
LONGFELLOW (7122)**



**PATSY GARRETT (7133)**



**FLOYD SHAW (7632)**



**GARVIS CHANDLER (7121)**

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

**RULES**

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

## MISCELLANEOUS

**TWO WW F70-14 fiberglass studded snow tires, used 1 season, \$25 for both.** Solberg, 298-9248.

**TIRES:** 6.85-15, used 3 mos., \$15 for two. Jellison, 296-9155.

**SNOWMOBILE,** Larkin, 4HP, 4cy, used 4 hrs., cost \$350, sell \$250; Hayden transmission cooler, \$15. Russell, 298-0285.

**HONDA '66,** 50cc, recent overhaul, \$100. Frasier, 299-6933.

**BUFFET,** walnut finish, 3 drawers, 2 sliding doors, Danish modern style, \$85. Harley, 898-0594.

**BOAT,** 15' Larson, 70hp Merc., tilt trailer, spare tire, best offer. Tucker, 255-5335.

**GARRARD RC80 record changer w/diamond stylus & magnetic cartridge, Pilot AF 724 AM-FM tuner; Pilot AA-903 amplifier.** Hughes, 299-6674.

**MODEL 70 Win.** .243 cal., 4X Redfield scope, dies & reloading components, \$160. Dungan, 298-2906.

**TWO 7.00x15 6-ply tires w/tubes, never been flat, about 1/3 tread left, \$10 ea.** Stuart, 299-9190.

**8 1/2' TEAR DROP Junior camper w/new stove & oven.** Rhoden, 268-7191 after 5.

**BEDROOM SUITE:** dbl. bed, dresser w/attached round mirror, bedside table, no mattress or springs, \$75. Stark, 8212 Pickard Ct. NE, 299-5953.

**GIRL'S bicycle,** 20", \$20; Coldspot refrig. w/ auto. defrosting, \$35. Hart, 256-2811.

**CURTAINS & valances,** 72" wide x 43" long, 2 pr., pastel colors, \$20. Kelsey, 256-2460.

**BACK PACKS,** Canvas sack, outside pockets, wishbone aluminum frame, \$5 ea. Baxter, 344-7601.

**BLIZZARD G.S.** 210 skis, good base, Nevada toe, Marker LS Rotomat heel, \$75. Williams, 982-1477.

**STUDENT clarinet w/case,** \$75. Schuster, 255-5970.

**GIBSON S-G "standard" electric guitar, humbucking pickups,** \$420 orig. value, w/hardshell case, \$250. Green, 255-8518.

**BEDROOM SUITE:** chest of drawers, vanity, stool, bed, springs & mattress, \$75. Hutton, 255-7435.

**TABLE,** 24" x 20" folded, opens to 36" long, walnut color plastic top. Rowe, 296-6295.

**HONDA TRAIL 90,** less than 1100 miles, '66/'67 year, red, w/tool kit, owners manual, shop manual, \$250. Fry, 298-1613 after 6.

**3/4 SIZE roll-away bed & mattress,** \$45; Cleveland trombone & music stand, \$55; Reese equalizer hitch, \$50. Prekker, 898-5895.

**PANASONIC auto reverse reel-reel stereo tape deck, model RS-796 US, dual capstan drive, 16 mos. old,** \$130. Steele, 877-1225.

**BELT MASSAGER,** two intensity single belt, 1/5 hp motor, \$25. Rainhart, 299-2887.

**'69 MOBILE HOME,** 12x60, completely furnished, set up on good location in Four Hills Park. Lewis, 294-0563.

**STOVE,** Frigidaire, elec., nearly new, avocado green, 2 ovens, 40" wide, \$225, cost \$450 new. Guist, 265-3250.

**AUTO. WASHER,** Frigidaire custom imperial, 3 wash temps., 3 rinse cycles, 2 load sizes, shop manual included. Joseph, 299-6989.

**THREE 12-bass accordions,** \$15 ea.; 55-gal. oil drum w/filter on steel stand, \$12. Arnold, 898-1467 after 6.

**SKIS,** Head std. 150, Cubco bindings, poles, ski boots, sizes: 3 (Wedel), 7 & 8 (lace-up), 7 (Nordica), 9 (Koflach). Illing, 867-2837.

**HOOVER port. washing machine,** \$110; Magnavox console stereo w/AM-FM tuner, 15" woofers, treble horns, best offer. Bernard, 282-3279.

**16' SLOOP w/trailer, working sails + Genoa,** 1 1/2 hp Johnson, all safety equip., except fire extinguisher, \$1000. Ford, 256-1919.

**FREE ammunition & scope mounts w/purchase of .222 Sako,** all for \$125. Sower, 296-7455.

**'68 YAMAHA 60,** low mileage, w/crash helmet, \$125. Seward, 268-7116.

**'71 20' x 54' SHERWOOD MOBILE HOME,** 2-bdr., 1 3/4 bath, unfurnished, on corner lot (700 Doe Lane) at Four Hills Park, has skirting, AC stove, drapes, carpet. Goebel, 299-9145 after 5.

**SCHWINN COED BIKE,** elec. heater; cat scratch post; basketball goal & net; elec. charcoal starter; 35mm camera; tape recorder; '67 Corvette hubcaps. Snelling, 268-5895.

**BLIZZARD SKIS w/Nevada Grand Prix bindings & poles,** \$50. Gonzalez, 242-6296.

**PORTABLE Frigidaire dish washer,** copper tone w/cutting board top, \$40. Shaffer, 242-6507.

**HOTPOINT REFRIG.,** \$40; Singer sewing machine in cabinet; mahogany dining table w/6 upholstered chairs. Cave, 299-5066.

**LARGE DINETTE TABLE;** 1 pr. blue print drapes, 79" x 54 1/2"; cedar chest. Widenhoefer, 298-2510.

**TWIN SIZE HOLLYWOOD BED w/mattress & box springs; dbl. roll-away bed w/innerspring mattress; student desk.** Dodd, 299-6330.

**AMPEX speakers; AM/FM radio; Heath changer; Webor tape recorder; Polaroid Swinger; 4-track tapes; deep fry broiler; G70-14 tire.** Zmiejko, 265-4927.

**BROWN, modern 4-piece sectional couch,** \$160. Montoya, 4716 Delamar NE, 344-6222.

**AUTO air conditioner, E-bracket to fit '68 or later 170 or 200 Ford six.** Matthews, 869-2370.

**'68 50cc Yamaha stepthrough motorcycle,** 1805 miles, \$150; '68 one-unit snowmobile trailer, \$100. Smith, 299-7506.

**SKIS, Caravelle, wood, P-Tex bottoms, metal edges, 180cm,** \$15. Neel, 299-9309.

## CARS & TRUCKS

**'40 FORD coupe sans engine.** Preveder, 299-5253.

**'63 CORVAIR 4-spd.,** \$150; cut down VW chassis & body, \$50. Husa, 298-3335.

**'70 VOLKSWAGON fast back sedan,** 1400 series, firm \$1850. Feldman, 296-0238, 9626 Arvada NE.

**'64 CHEV. Impala, AT, PS, factory air, R&H, below book, will bargain.** Marsh, 243-2767.

**'67 DODGE VAN, custom sportsman, windows all around,** \$1500 or offer. Bruce Hansche, 296-1387.

**'70 MAVERICK, 6-cyl., std., R&H, new tires, low mileage,** \$1450 or best offer. Salazar, 255-1301 after 5.

**'65 MUSTANG, AC, radio, extra wheels w/snow tires, new battery, whitewalls, lifetime shocks, lt. blue,** 6 SS. Atkins, 298-5762.

**'64 CHEVELLE wagon, AT, PB, PS, factory air,** \$500. Steele, 299-9117.

**'68 FIAT, 850 sports coupe,** \$695. Kelly, 298-6035.

**'60 OLDS 88 2-dr. Holiday, air, PS, PB, radio, \$450, will bargain.** Westfahl, 298-5087.

**'69 PONTIAC Catalina 2-dr. HT, factory air, PS, PB, AT. Buss,** 298-1589.

**'61 FORD Galaxie, full power & air,** \$150 or trade on trail bike. Adams, 268-5943.

**'68 VW square back, white, luggage rack, trailer hitch, cooler, 2 new tires, 41,000 miles.** LaBarre, 299-3569.

**'64 VW BUG, \$300.** Kepler, 298-5652.

**'63 CORVAIR, 4-dr., standard, highest offer.** Lord, 299-5098.

**'68 VW bug, 56,000 miles,** \$975. Westman, 255-6048.

**'68 MUSTANG 289; maroon, R&H, AT.** Shepardson, 299-8227.

**'57 CHEV. 2-dr. sedan, R&H, air, 70,000 miles, needs brakes.** Williams, 255-4109.

**'66 DODGE wagon, orig. owner, AT, PS, PB, maintenance record,** \$750. Zickert, 898-3475.

## REAL ESTATE

**SELL OR TRADE half acre lot in Ruidoso.** Moriarty, 296-1369.

## WANTED

**SWAP '66 Pontiac Tempest w/'67 326 8-cyl. engine in very good shape for small car, preferably Volks in similar condition.** Detorie, 299-1868.

**AERQUIPT or Argus slide magazines for Argus 300 projector.** Mills, 299-2130.

**GOOD COUNTRY HOME FOR 10 mos. old female G. Shepherd puppy.** Leisher, 282-5258.

**STEEL DESK, executive type, good condition.** Larsen, 296-0327.

**GOOD HOMES FOR Cats: long-haired Persian, white, spayed female, all shots; long-haired 1/2 Persian, 1/2 Maltese, neutered male, all shots; young short haired neutered male, all shots.** Slesinger, 299-4626, 1602 Hoffman Dr. NE.

**CHILDRENS size 12 ski boots.** Leeman, 299-9149 after 6.

**LARGE size dog house; elec. fence charger.** Arnold, 898-1467 after 6.

**BABY SITTING, individual attention, play equip., enclosed yard, hot lunch.** Mass, 265-5248.

**VOLVO 122-5.** Johnson, 255-5427.

**CAR TOP BOAT, aluminum 12' long & 5 or 7 1/2 hp outboard motor.** Johnson, 296-5957.

## LOST AND FOUND

**LOST—gold loop earring for pierced ears, 175T service manual, chain w/4 keys, man's gold wedding band, pr. men's black leather fur-lined gloves, 1 key—B-69 w/pinch hook from case attached.** LOST AND FOUND, tel. 264-2757, Bldg. 832.

**FOUND—Radio, clip-on tie.** LOST AND FOUND, tel. 264-2757, Bldg. 832.

# Casino Night Tomorrow

TONIGHT at Happy Hour Wildman Bob Banks (recovered from a smashing New Year's engagement in the basement of the Club) will make all kinds of happy music for the TGIF crowd and provide rhythm for a fast moving style show. Omar, the caliph of the Boutique, will present a collection of hot pants fashions modeled by, among others, Soila Candelaria (1314) and Claudia Garlick (5314).

In honor of the occasion, club manager Smiling Jim Noonan has created an Oriental buffet with sweet and sour pork, chicken chow mein, egg foo yung and egg roll to name a few of the goodies. At \$1.75 for adults, \$1.50 for kids, you are taking a hosing by staying home.

Happy Hour prices will be in effect from 5 to 10 p.m. Yolanda Adent will entertain in the main lounge with piano and sing-along from 9 until midnight.

\* \* \* \*

HAPPY HOUR NEXT WEEK will feature music by Bud Fischer, barbecued chicken on the buffet menu, and Denny Gallegos and guitar entertaining in the main lounge. On Friday, Feb. 4, the Country Express will give country/western music fans a break while an Italian food buffet should provide a break from the hungries.

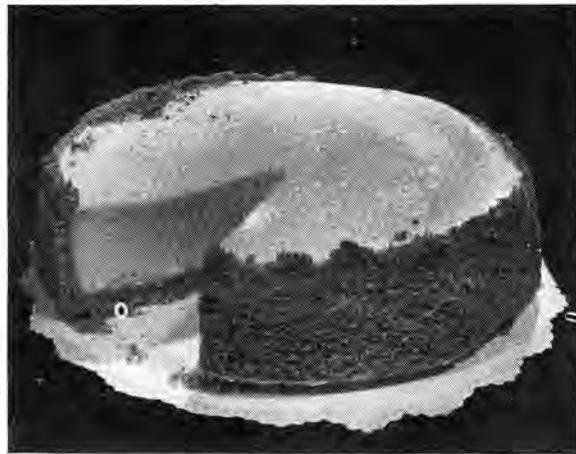
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TOMORROW NIGHT is Casino Night at the Club. The ballroom will be converted into a glittering Las Vegas fantasy and you can try your luck at the crap tables, black jack, roulette, chuckaluck, etc. The \$1 admission tab will buy you a stack of play money and you can make like the last of the big spenders. Chet Fornero (4337), pit boss, will pay 10 to one on a hard way 10. The games start at 8 p.m. Elton Travis and the

Westernaires will play for dancing from 9 to 1 a.m. with a break at midnight to give away a stack of door prizes. Super sandwiches will be available all evening.

\* \* \* \*

SOUL SESSIONS continue to pull in the younger swingers. It's a great formula — rock music, Happy Hour prices at the bar and free admission for members (guests \$1). The "Gentle Uprising" will be wired into the bandstand Saturday, Jan. 29, from 8:30 to 12:30 to close out the Club's January calendar.



ALRIGHT ALREADY — After our last two issues we had a lot of gruff calls about our back page. Seems that the biggish picture of Bldg. 800 gleaming in the snow and the sunshine didn't do much for them. Clearly they don't understand the higher forms of art. But just for their sake, we went to considerable effort to gain this revealing shot. Note the plunging crust-line, the provocative gleam, the suggestive curve of the filler . . .



TONIGHT Soila Candelaria (1314), left and Claudia Garlick (5314) are among the models presenting hot pants fashions from Omar's Boutique during Happy Hour at the Club. Certified wildman Bob Banks (4143), center, provides music for the show.

## Promotions

M. Jane Enfield (8422) to Secretarial Steno  
John Ernie, Jr. (7135) to Technician  
Margaret Fuentes (7121) to Specialty Worker (Microelectronics)  
Thomas L. Kelly (4154) to Accounting Clerk  
Albert J. Miera (3148) to Mail Clerk  
Elsie M. Upchurch (3313) to Technical Clerk  
David A. Chavez (7542) to Reproduction Equipment Operator  
Andrea Breckenridge (3113) to Staff Assistant Laboratory  
Wendy Grady (8181) to Secretarial Typist  
Wanda Hubbard (5160) to Secretary  
Carlton Pennington (7121) to Staff Assistant Technical  
Audrey Simpson (4331) to Purchase Service Clerk  
Janice Williams (8341) to Secretarial Steno

## Sympathy

To Loyd (4152) and Mary Kelley (7121) for the death of her sister Jan. 2, brother-in-law Dec. 20 in Albuquerque.  
To Dorothy Brink (4152) for the death of her brother-in-law in Dallas.  
To Henry Dodd (1751) on the death of his father in Kansas City, Mo.  
To A.W. Reger (7151) on the death of his brother in California, Jan. 11.  
To J.H. Harrell (9342) on the death of his sister in California, Jan. 10.

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L.P. Bradley (5245), "Laser-Controlled Switching," Vol. 7, No. 9, IEEE JOURNAL OF QUANTUM ELECTRONICS.  
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J.R.A.J. Nicastro (9114), "Invariant Variables Under Similarity Transformations," Vol. 39, No. 11, AMERICAN JOURNAL OF PHYSICS.  
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G.W. Kuswa (5243), "New Electrostatic Refraction Probe for Measuring Plasma Parameters," Vol. 42, No. 12, JOURNAL OF APPLIED PHYSICS.  
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