

PARABOLIC TROUGH REFLECTORS measuring 9x12 feet, part of Sandia's solar energy research program, were recently installed in the northwest corner of Area I. The giant mirrors are made of fiberglass and polyester with a lining of aluminum reflector sheet. Not installed yet, the "plumbing" will include receiver tubes at the foci of the reflectors. A storage tank with associated instrumentation, pumps and

control valves is already in operation. Fluid operating temperature is 600° F. At upper level are Roscoe Champion (5712), project engineer, and Dick Braasch, Division 5712 supervisor. Mechanical designer is Grover Hughes (9474), below. A sign at the facility warns passers-by not to look directly at the mirrors or to touch the exposed pipes.

LAB NEWS

VOL. 27, NO. 2

JANUARY 24, 1975

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

Heat Exchanger Tested

Magma Experiment Successful

A pivotal experiment in the Sandia Magma Energy Research Project was conducted recently in Area III with resounding success. One hundred and fifty pounds of lava rock was heated to a molten state (1400°C), and a Sandia-designed heat transfer unit was inserted and operated for 24 hours.

The magma project, sponsored by the AEC's Division of Physical Research is centered in Advanced Energy Projects Department 5710 under John Colp. Purpose is to study the feasibility of extracting energy from the molten core of the earth. By circulating water within a heat exchange unit in the molten magma, steam would be generated and, ultimately, electrical power. Purpose of the recent experiment was to verify that the special stainless steel heat exchange pipe could withstand the heat and corrosive

properties of magma and still function. The answer is yes.

With water circulating inside the pipe, the unit sees an initial insertion temperature of about 1000°C for about five seconds which quickly stabilizes to an operating temperature of 400°C — sufficient to produce high quality (completely vaporized) steam and low enough to avoid requirements for exotic heat exchange materials.

After initial insertion of the heat exchange unit, the magma solidified around it and formed a solid crust from 3/8 to 1/2 inch thick. Convection currents in the heated magma kept the molten mass circulating around the crust, and thermal energy was transferred through it.

Transfer rate was from 100 to 200 kw per sq. metre during the experiment, according to
(Continued on Page Four)



Afterthoughts

The perils of richdom--As if our rich folks don't have enough to fret about, now a newspaper item reports that fear of kidnapping is threatening their pursuits of happiness. Wackenhut Corp., a largish security organization, is receiving more and more requests from the rich ones for protection. The company studies a client's daily living arrangements to provide a tailor-made suit of security. On his Palm Springs estate, the situation has become so bad that Frank Sinatra has planted a cordon of trees around the place and turns on bright lights at night so that his squad of assistants--the ones who made such a big hit in Australia--can better apprehend intruders. That must be a real drag, Frank.

Afterthoughts--A few readers, bless them, have inquired of the spotty attendance record of this column in LAB NEWS. I'm reminded of that weary bromide to the effect that everything likeable is illegal, immoral or fattening. With Afterthoughts, it's everything I like is irreverent, impertinent, or sensitive. I hasten to add this isn't a complaint--a company newspaper is hardly the forum for zingers on politics, religion, pornography and the United Nations. But when you eliminate those and kindred subjects, well there just isn't much left.

Allons enfants--There's a memo circulating, Sandia Labs letterhead and all the official trappings, that stops you in your tracks. It begins: "La Table Francaise rencontrera ce mercredi, le 15 Janvier 1975, dans le cafeteria (Bldg. 839) a 11 h. 30 du matin." One is transported back to that drowsy French 127 class, where a frustrated M. Joliet tries once again to teach an American schoolboy how the French "u" is pronounced. The memo is the work of Berweida Learson (5813), certified Francophile, and it's her imaginative way of getting speakers of the language together for lunch and the exchange of a few bon mots.

For seminar and symposium organizers--A tip. It is no longer devastatingly clever to entitle an item on the program "Everything you wanted to know about _____, but were afraid to ask." We can guarantee the non-attendance of at least one person at any presentation so labeled.

"And now let us believe in the New Year that is given us--new, untouched, full of things that have never been." Rilke *js



Klaus Bowers Elected IEEE Fellow

Klaus Bowers, vice president 2000, will receive the rank of Fellow of the Institute of Electrical and Electronic Engineers at a joint meeting of IEEE, ASME, NMPE and AIAA Wednesday, Feb. 5, at the Hilton Inn. He was elected to IEEE Fellow by the national board Jan. 1, and the citation is "for contributions to and management of solidstate, optical, magnetic and semiconductor research and development." Fellow rank is the highest within the Institute.

Speaker for the meeting will be Willis Smith (on leave from 5113), IEEE technical advisor to the Senate Interior Committee. He will discuss "Energy Research and Development in the 93rd Congress."

A cocktail hour at 7 p.m. is scheduled prior to the 8 p.m. program. Guests are welcome.

Sympathy

To Dan Archuleta (3645) on the recent death of his father in Albuquerque.

Events Calendar

LAB NEWS

Published every other Friday

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An Equal Opportunity Employer

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

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

lorena schneider reports on livermore

Jan. 24-26 — Classics Theater Company, "Macbeth", 8:15 p.m. on 24 and 25; 2:15 p.m. on 26, Popejoy Hall, 277-3121.
Jan. 24 — Albuquerque Little Theater, "Dr. Cook's Garden," 8:00 p.m., 242-4750.
Jan. 24 — Basketball, UNM vs Utah, 7:30 p.m., UNM Arena.
Jan. 25 — Basketball, UNM vs BYU, 7:30 p.m., UNM Arena.
Jan. 25 — Swimming, UNM vs NMSU, 7:30 p.m., new pool, UNM.
Jan. 25 — Motion Pictures LTD., "The General," 10:30 a.m. & 12 noon, Guild Theater, 265-0220.
Jan. 26 — UNM Music Dept., Jane Grealish, soprano, 8:00 p.m., Keller Hall, UNM.
Jan. 26 — Fine Arts Museum, Architectural Photos, Bernard Ralph Maybek, Wm. Wilson Wurster, UNM.
Jan. 27 — Keller Hall, UNM Faculty Recital, Wes Selby, organist, 8:00 p.m.
Jan. 27 — Travel Adventure Film Series: "Six Gateways to the Caribbean," 7:30 p.m., Popejoy Hall.

Jan. 27 — Basketball, UNM vs Florida State, 7:30 p.m., UNM Arena.
Jan. 28 — Cultural Entertainment Series: "80 Proof," W.C. Fields, 8:15 p.m., Popejoy Hall.
Jan. 29 — Royal Shakespear Co., "The Hollow Crown," with Sir Michael Redgrave, 8:15 p.m., Popejoy Hall.
Jan. 30 — First Methodist Church, Norman Luboff Choir, 7:30 p.m.
Jan. 30-31 — Old Town Studio, "The Glass Menagerie," 8:00 p.m., 242-4602.
Jan. 31, Feb. 1 — Indoor Track & Field, 7:30 p.m., State Fair Colliseum.
Feb. 1 — Basketball, UNM vs Texas, El Paso, 7:30 p.m., UNM Arena.
Feb. 1-2 — Albuquerque Children's Theater, "Winnie The Pooh," 1:30 & 3:30 each day, Popejoy Hall.
Feb. 2 — Ski Touring Club, Valle Grande, Gulf Mart, 7:30 a.m.
Feb. 4 — Cultural Entertainment Series: Broadway musical hit "Pippin," 8:15 p.m., Popejoy Hall.

LIVERMORE NEWS

VOL. 27, NO. 2

LIVERMORE LABORATORIES

JANUARY 24, 1975

Parents Without Partners More Than a Social Group

"Helping single parents and their children adjust to a healthy maturity is our main purpose," says Norm Sirnic (8254), this year's international president of Parents Without Partners. Formed 18 years ago and now with chapters in every state, Canada, and Australia, the organization's program and activities are entirely the volunteer work of its members.

"Too many people, though, think of us as merely a social group," Norm continues. "After a divorce or losing a partner where children are involved, the rehabilitation, so to speak, doesn't occur at a dance or other social function. Our discussion groups provide a means for members to talk out their problems. I didn't realize at first how bitter I was from my own divorce, but quickly made my accommodation when I discovered some of the experiences of others."

PWP also offers community service seminars, called SOS programs, which feature noted speakers on such subjects as the merits of divorce versus staying together, how children are affected, the problem of loneliness, etc.

Although the average member stays in PWP about two years, Norm has been in for over 10, holding office the entire time. First as president of both Hayward and San Jose chapters, then treasurer, vice president and president at the regional level, he became the west coast director at the national level in 1970. The next year as national vice president he developed and published a children's program manual, and last year he was chairman of the board.

Because his 10 and 12-year-old sons who lived out of state were to be with him summers, the PWP children's program was the original reason Norm joined. "Dealing only with adults, I didn't want to lose my rapport with children. Working on pancake breakfasts, playing ball, camping, rapping with the kids, taking them to ball games, I was able to introduce my boys right in when they arrived. Every weekend they'd have such a fantastic time I'd have to pry them away."

As president, Norm writes a monthly one-page message to members via PWP's official journal, "The Single Parent," and his photography has appeared on the cover of many issues.

One of his goals is to see the entire organization restructured. "No one visualized the tremendous growth PWP would experience when those 50 people attended the first meeting in New York City in 1957 as the result of a newspaper ad," he comments. "The membership has grown to over 102,000 and we're still reaching only about one percent of the population. So, the by-laws are being rewritten, conflicting literature revised, and duties and responsibilities of the officers and members redefined. With such a diversified membership, we're also implementing new orientation and leadership programs."

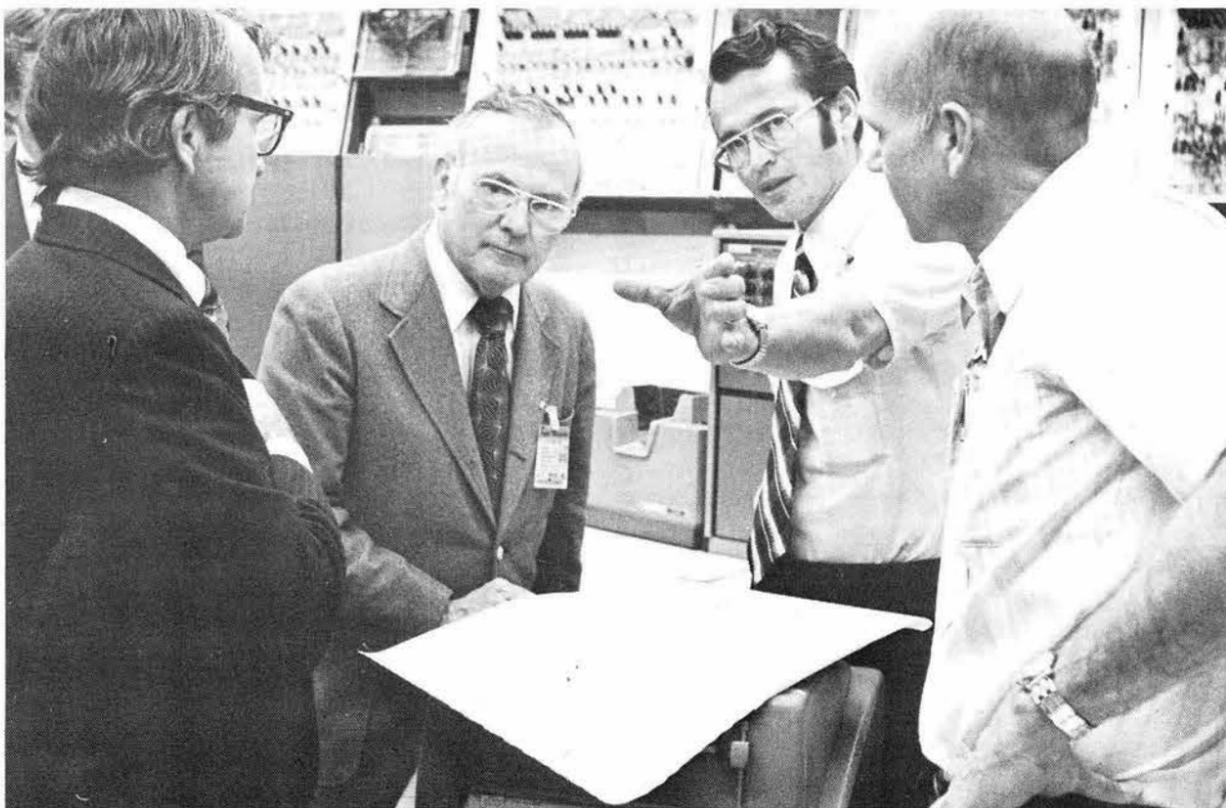
Although PWP receives many referrals from social workers and is being used as a statistical and informational resource, Norm says his main goal is to gain greater



COVER OF LAST MONTH'S ISSUE of "The Single Parent," official journal of Parents Without Partners, featured Norm Sirnic (8254), current international president of PWP.

professionalism for the organization. "Always a self-help group, we're now going into the community to create more awareness of the single parent and other singles discrimination. A good example is the grant awarded UCLA by PWP to fund a pilot, graduate-level course for sensitizing educators and others in the professional community to the single person situation. The feasibility of starting programs for mothers who want to return to work is also under study.

"The media tend to depict the bachelor as a swinger and the woman as a gay divorcee, but with the responsibilities of supporting or taking care of a family, that's not likely," concludes Norm.



CALIFORNIA CONGRESSMAN John Moss (center left) visited Sandia Livermore this month for briefings in his capacity as newest member of the Joint Committee on Atomic Energy. He is shown with (from left) Vice President Tom Cook (8000), Leonard Hiles (8158) and Gene Angvick (8412) as he toured Laboratories' facilities.

Supervisory Appointment

Paul Dominguez to supervisor of Drawing Reproduction and Micrographics Section 8433-2, effective Jan. 1.

Joining Sandia/Livermore in Oct. 1958, Paul was a mail room clerk and later a senior clerk in drawing reproduction. In 1959 he transferred to accounting as a plant property clerk and subsequently became a classifier and certifier. In 1964 he was promoted to a staff assistant. For the past nine years, he has been a procurement coordinator in the product control organization.

Paul attended classes at Diablo Valley and Chabot Colleges, majoring in business administration and accounting. The current president of the Livermore Parent's Group, his leisure-time activities also include bowling, water skiing and hunting.

Paul and his wife Betty, a former Sandian, and their four children, two boys and two girls, reside on El Dorado Drive in Livermore.



Death

Chet Hamlin, an engineering design assistant in Specification and Design Definition Division 8432, died suddenly Jan. 1 in Bristol, Ind. He was 55.

Chet had worked at Sandia since June 1962.

Survivors include his widow, four sons, two daughters, and six grandchildren.



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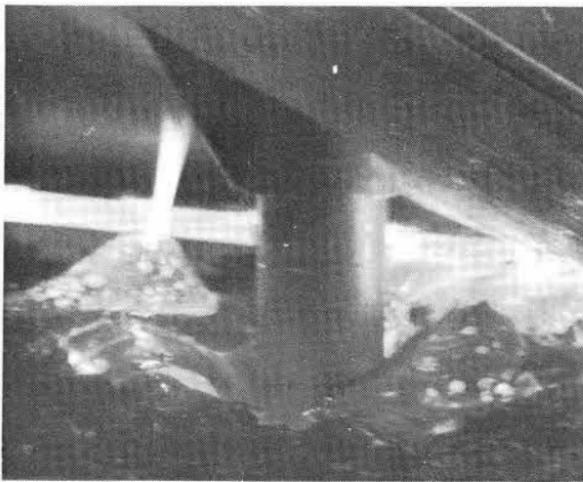
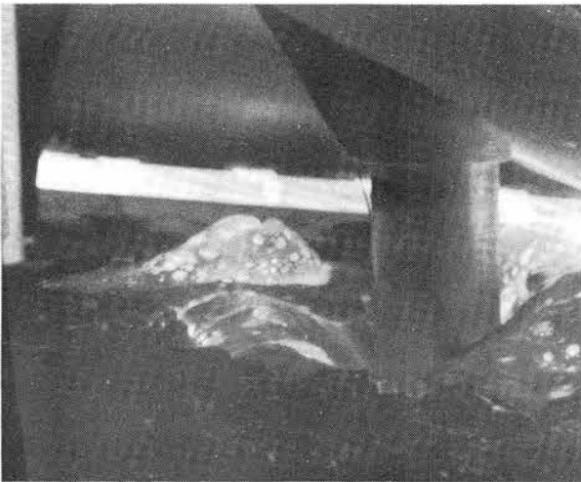
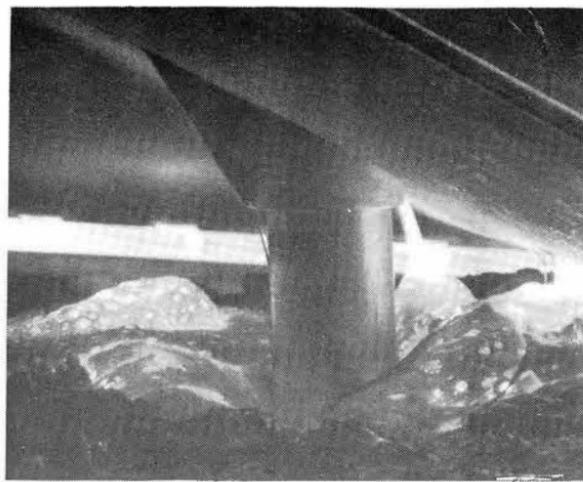
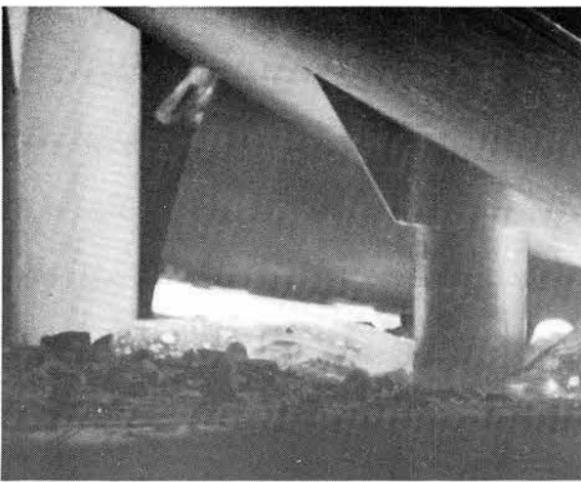
Continued from Page One

Magma Experiment Successful

Harry Hardee (1543) who designed the heat transfer unit. "This verified our theoretical predictions," he says, "and provides a data base for further calculations. We obtained sufficient engineering and operating data. It will not be necessary to repeat the experiment."

Mark Davis (5830), who was responsible for the materials and chemistry aspects of the experiment, is also pleased with results. "After the experiment," he says, "the heat transfer unit cooled and the glass-like crust cracked off. No corrosion of the unit was revealed. It looks feasible to build long-lived units that will function in a magma environment."

According to John Colp (5710A), magma project engineer, future plans call for building a larger heat exchange unit for further testing in Area III using electrical heaters instead of molten lava. A still larger unit, perhaps 300 feet long, is under consideration for experiments in a lava lake with a solidified crust near an active volcano in Hawaii.



MAGMA ENERGY RESEARCH experiment in Area III showed that a stainless steel heat transfer pipe could survive and function in the corrosive 1400°C magma environment. The three foot long heat transfer unit, inserted in a crucible of molten lava, stabilized at an operating temperature of 400°C for a 24-hour period. Note buildup of volcanic bubble on surface of the molten lava.

Energy Reporter

Fusion, Energy Extravagance, Tar Sands & The Turbine Car

Fusion & big energy — Commenting on laser fusion and its impact upon the country's energy problems, Edward Teller wouldn't predict when energy breakeven might be achieved by experimenters but felt that the larger issue in fusion is "economic breakeven." Given energy breakeven, it may still be a long time before fusion power becomes economically attractive. Another critic commented, "To say that fusion has anything to do with energy right now is like saying Evel Knievel was trying to develop a new method of family transportation."

* * * *

41% is a lot — The single greatest consumer of energy is industry, which uses some 41% of the total. Ordinarily, the pursuit of profit insures that the most economical means of production be used, but the cost of energy has never loomed large in the financial equation and, consequently, a certain extravagance in this area has been accepted. Writing in the Bulletin of Atomic Scientists, Milton Rubin cites areas where major energy savings could be gained: Aluminum production through electrolysis now consumes 2.8% of total U.S. electric utility purchases, but new processes could reduce this by 43%; in steel, the basic oxygen process offers more than three times the energy efficiency of the open hearth process; the energy equivalent of 1 1/2 tons of oil is used to mine one ton of copper, suggesting a more vigorous effort to make use of scrap; the same recycling efforts should be applied to plastics, largely produced from petroleum at the present rate of 12 million tons annually. As energy costs increase, industry will find the cost of changeover to new techniques and processes less of a barrier.

* * * *

Tar sands bonanza — They're sticky, black and goey, but the Athabasca tar sands in the Canadian province of Alberta represent the largest single known reserves of petroleum in the world. The stuff is not easy to extract, however. Some is being recovered through surface mining techniques, but the bulk of the tar sands is so deep in the earth that extraction can be only by in situ methods. Present surface mining calls for heroic measures: the overburden of muskeg, up to 20 feet deep and easily capable of swallowing a 150-ton dump truck, can only be removed when frozen. Nature accommodates by providing temperatures down to -60° F, fine for solidifying muskeg but a little hard on men and machinery. In spite of the difficulties, production has been underway since 1967 and considerable expansion is foreseen to take advantage of high oil prices. One (of several) ecological problems: for every three cubic yards of material mined, the process returns four cubic yards of backfill.

* * * *

Where's the turbine car? — After chugging along with the piston engine for the better part of a century, Detroit should be ready for the turbine engine. It offers minimal maintenance with its 80% fewer parts, negligible oil consumption, low exhaust emissions, and a few incidental benefits like self-cooling (no water, no antifreeze), and the virtual elimination of tune-ups. In the 50's and 60's Chrysler mounted a large-scale turbine development program and, by the mid-60's, had produced a turbine engine that compared favorably with the piston engine in terms of performance. Indeed, in 1963, the company produced 50 turbine cars and farmed them out, free of charge, to American drivers to gain on-the-road data which was

then used to produce an even better turbine engine. It looked like an idea whose time had arrived. So what happened? Why has Detroit forsaken the turbine car?

"The real answer," says James Cicarelli in the Bulletin of the Atomic Scientists (Dec. '74), is "technological inertia which is due to (1) the vested interest Detroit has in the piston engine, and (2) the make-up of the U.S. auto industry, which, by its very nature, discourages innovation." He goes on to suggest that for Chrysler to go into turbine cars on a commercial scale would be an all-or nothing proposition — if the car turned out to be another Edsel the company might just fold. From this he concludes that General Motors alone has the muscle to risk a turbine car venture. Unfortunately, GM has thus far shown little enthusiasm for the turbine.

(For greater detail on these items, check literature in the Energy Resource Reading Room of the Tech Library.)

New Location

for the Minnesota Mutual insurance counselors: Coronado Club, Room B-8. Phone numbers remain the same.

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COL. JACK WESBROOK displays U.S. Army Meritorious Service Award.

Jack Wesbrook Receives Meritorious Service Medal

Jack Wesbrook, supervisor of Scientific Computer Operations Division 2631, retired from the U.S. Army Reserve Dec. 5 after 32 years and six months of military service. The U.S. Army awarded Col. Wesbrook the Meritorious Service Medal on that day for "outstanding meritorious service as a citizen soldier of the U.S. Army Reserve."

Jack joined the Army in June 1941 and was attending Officer's Candidate School when WW II started. He served in the infantry and participated in the D-Day invasion of Europe. Wounded, he recovered and served with SHAEF headquarters until April 1946. He has been a member of the Reserve ever since. For the past dozen years he has served as an instructor in the Logistics School and the Command and General Staff School.

He joined Sandia in March 1952 as a quality control analyst, became a programmer in 1960, and has headed Division 2631 for the past 14 years. The Meritorious Service Medal will join the Bronze Star, Purple Heart, and Combat Infantryman's Badge on those rare occasions when Jack wears them.

Authors

W.J. Camp (5151), "Note on the One-Dimensional Hubbard Model," Vol. 10, No. 7, PHYSICAL REVIEW B.

R.D. Moyer (9532), "Transmission Line Impedance Matching Using the Smith Chart," Vol. MTT-22, No. 11, IEEE Transactions on MICROWAVE THEORY AND TECHNIQUES.

J.M. McKenzie (2115), "Statistical Distribution of Neutron Semiconductor Device Degradation," Vol. NS-21, No. 5, IEEE Transactions on NUCLEAR SCIENCE.

C.F. Melius (5211), B.D. Olafson and W.A. Goddard III (both CIT), "Fe and Ni ab initio Effective Potentials for Use in Molecular Calculations," Vol. 28, No. 4, CHEMICAL PHYSICS LETTERS.

R.A. Assink (5811), "Plasticization of Poly(dimethyl Siloxane) by High-Pressure Gasses," Vol. 12, No. 11, JOURNAL OF POLYMER SCIENCE.

J.W. Guthrie (9533), "Poly(Styrene Sulfone) — A sensitive Ion-Millable Positive Electron Beam Resist," Vol. 121, No. 12, JOURNAL OF THE ELECTRO-CHEMICAL SOCIETY; "Identification of AgCl as a Surface Contaminant on Hybrid Microcircuit Capacitors Using Ion Microprobe Techniques," Vol. 121, No. 12, SOLID-STATE SCIENCE AND TECHNOLOGY.

Take Note

In the magazine *Audiovisual Instruction*, Neal Vinson and Bill Atkins, both of Weapons Training Division 1213, describe their solution to the problem of controlling several AV units. To avoid the spaghetti-bowl tangle of cords Neal and Bill developed a remote control system in which the instructor operates a small hand-held control unit, somewhat similar to those used to control television receivers. In fact, the unit operates on the same sonic principle as those used with TV sets. Full text of the article is in the January '75 issue.

* * * *

Cecil Land (5113) will discuss "PLZT Ceramic Displays" at the 5100 Seminar Jan. 28. On Feb. 4, Richard Schmidt (5163) will present "Triaxial Stress Studies of Rock Materials." The seminar meets Tuesdays at 8:30 a.m. in Rm. 201, Bldg. 836.

* * * *

Help! Katrina Person of Affirmative Action Division 211 needs a few tutors to help Indian boys and girls at the grade school and junior high level. English and math are the chief problems, but help is needed in other subjects too. If you can lend a hand, give Katrina a call on ext. 9396.

Recreation Notes

FUN & GAMES

Sandia Runners Ass'n. — Does running make you live longer? A team of California scientists report on their study of 41 male long-distance runners, ages 35 to 59. They found a pattern of blood fat distribution similar to that of young women — a group noted for its low incidence of heart disease. "Long distance" is defined as 15 or more miles per week of running. Significance of their findings is that vigorous exercise, already acknowledged to be beneficial in opening auxiliary blood routes to the heart, may also slow down the disease process that sets the stage for heart attack in the first place.

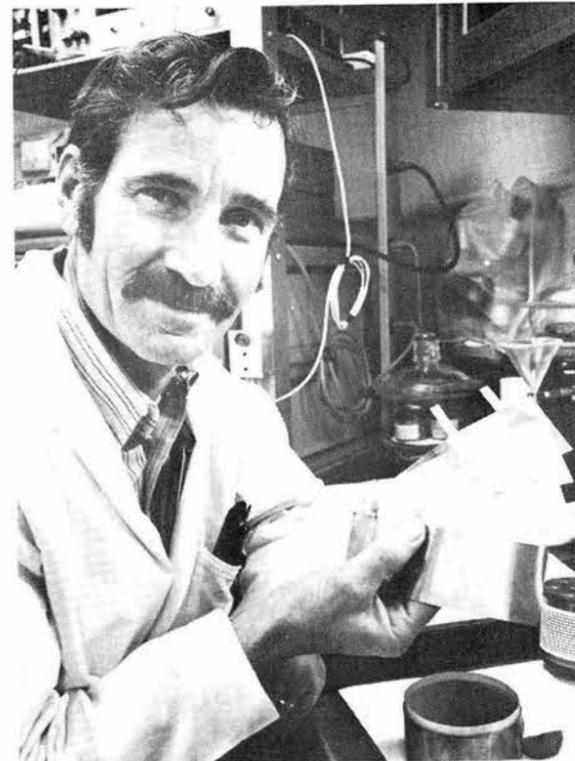
Dave Saylor (5122) has sent us the program for the State AAU Indoor meet, to be held at Tingley Coliseum on Feb. 8 and 9. SRA'ers will be interested in the 440, mile, and 3-mile events; in addition to the open category, these events are age bracketed — 30 to 39 and 40 and over. They'll be run on a banked plywood track, 10 laps per mile, on which, says Dave, you always run faster. Entry deadline is Feb. 3.

* * * *

On the road — It's June, the snow is gone, and Minsk is a festival of fun, well almost, promises Howard Seltzer (9654) who's rounding up a few more people for a 21-day tour of northern Europe and the Soviet Union. If Minsk is less than enchanting, then there's Paris, Copenhagen, Stockholm, Helsinki, Leningrad, Moscow, Warsaw and Berlin. Departure from Albuquerque is June 14, the price is good, and call Howard on 299-0284 to save a place.

Congratulations

Mr. and Mrs. Dick Thompson (9633), a daughter, Maresa Irene, Jan. 8.



DON BUSH (2523) holds elements of his invention which prevents the activation of a thermal battery exposed to heat from an accidental fire.

Fire Safing Device For Thermal Batteries Awarded Patent

The AEC was awarded a patent recently for a thermal sensing, fire safing device for thermal batteries invented by Don Bush of Exploratory Battery Development Division 2523.

The device is the result of a requirement that thermal batteries must not function if exposed to accidental fire. Thermal batteries become operative when heat pellets are ignited, burn and melt the electrolyte. External heat could possibly cause the battery to function and deliver power to a system.

Don's solution is simple, compact and effective. It consists of thin (5 to 10 mil) concentric cylinders surrounding the thermal battery and a layer of thermal insulation. The cylinders are, in a sequence, (1) iron, (2) tin, (3) perforated mica, (4) tin, and (5) iron. The positive lead of the battery is connected to one iron cylinder and the negative lead to the other. Additional leads then go from the cylinders to the output terminals. If the battery is exposed to fire, the tin melts (232°C) making an electrical path through the perforations in the mica and causing a direct short across the battery preventing electrical output to the system.

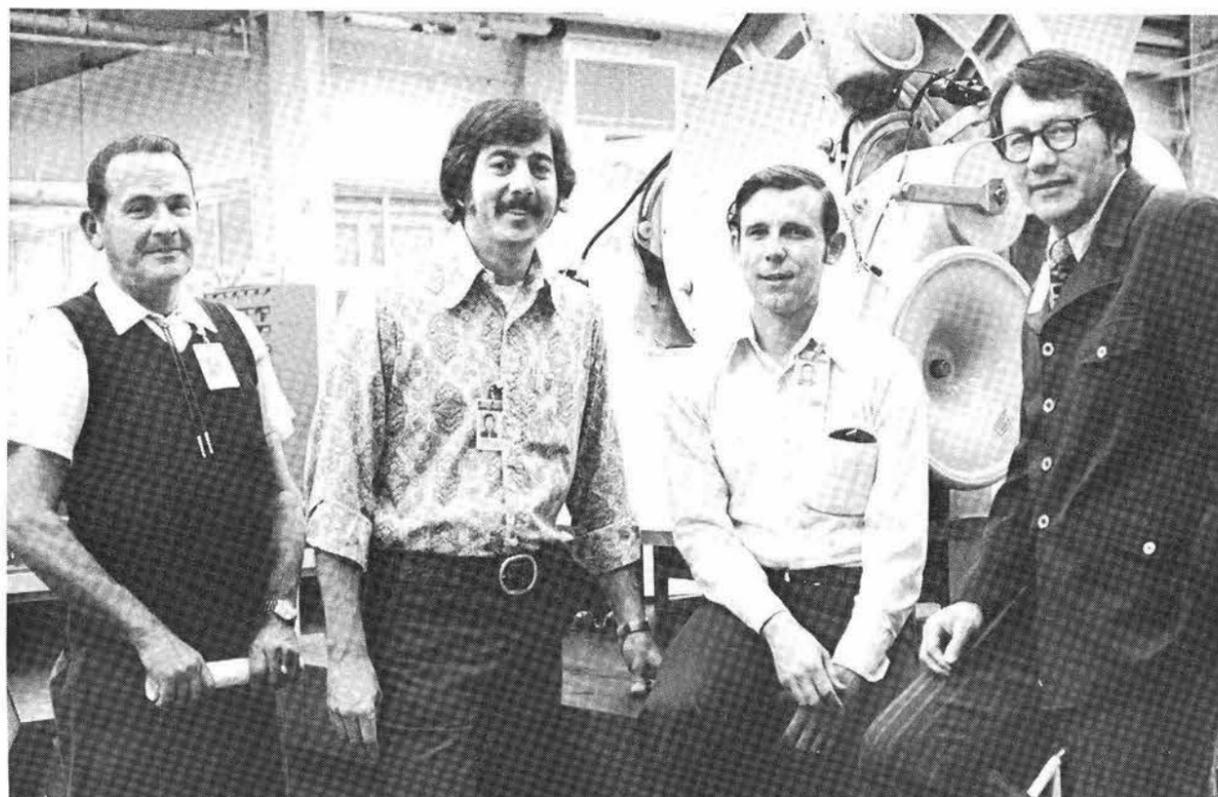
When the thermal battery functions normally, the insulation layer between the battery case and the fire safing device prevents melting of the tin cylinders. Other materials may be substituted for specific applications and the fire safing device may be incorporated into the battery case to reduce size and weight.

Don has worked in battery development since joining Sandia in June 1955. He holds one other patent relating to his thermal battery work.

Variable Annuity Unit Value

February 1975	1.078
January 1975	1.105
Average 1974	1.361

Supervisory Appointments



NEW SUPERVISORS: (l to r), Ken Butler (3644-1), Tom Cleveland (3645-2) Tommy Simpson (3647-1) and Jake Gonzales (3644).

LARRY AVILA to supervisor of Custodial Section 9715-4, effective Jan. 1. Until his promotion, Larry had been a security inspector at the Labs since July 1958. Before that he had been with the civil service guard force at KAFB-West.

Larry joined the Army in 1940 and was assigned to a machine gun troop of the Seventh Cavalry at Fort Bliss, Texas. "We were real cavalry then," Larry says, "and rode horses on border patrol between Columbus, New Mexico and Sierra Blanca, Texas. We were a good fighting outfit, but horses were slow, so the outfit was mechanized and reassigned." He took part in the invasion of Africa and fought his way through Europe. He also served as an interpreter of three languages — Spanish, Italian and French. He was discharged in 1945.

Most of Larry's spare time for the past several years has been spent remodeling his home. He and his wife Corina have two daughters and two sons, but all live away from home now. They have six grandsons. The Avilas live at 4015 Comanche NE.

* * * *

GLENN BAKER to supervisor of Custodial Section 9715-2, effective Jan. 1. Glenn joined Sandia in September 1964 as a custodian. He later worked as a tool crib attendant, rigger, crane operator and, most recently, as a preventive service maintenance man. Before coming to the Labs, Glenn worked for a local electric company following retirement from the military.

He was in the Air Force from '43 to '63, serving in Newfoundland, Alaska, Greenland, Spain and, during WW II, in the China/Burma/India theater as an aerial gunner.

Glenn's outside activities include his work as cub master for a Boy Scout troop. He and his wife Laverna have four children — two married daughters, and a son and daughter at home. They live at 905 Cardenas Dr. SE.

* * * *

JAKE GONZALES to supervisor of Machining Division 3644, effective Jan. 1. Jake has been with the Labs since 1955 and was a member of the first group of graduating journeymen machinists in 1960. He has worked as a programmer and as an apprentice



NEW SUPERVISORS: On the left, Glenn Baker (9715-2) and Larry Avila (9715-4).

instructor, and was promoted to supervisor of the apprentice section in 1969. Jake has completed the TI mechanical technology program and is currently attending UNM.

Jake, his wife Dina, and their three children enjoy family outings — boating, water skiing, hunting and fishing. Their oldest son Anthony plays football for the Lobos, Donald plays football for Manzano, and Gina is a cheerleader at Grant Jr. High. The family lives at 8805 Robin NE.

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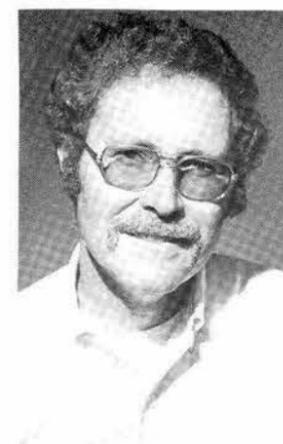
KEN BUTLER to supervisor of Miniature Shop and Tool Crib Section 3644-1, effective Jan. 1. Ken has been a machinist since joining Sandia in June 1957. He had worked as a machinist and methods engineer for various companies in New England before coming to Albuquerque.

He is a member of the Citroen Auto Club. The membership is small but since there is no Citroen dealership or service facility locally, the group is kept pretty busy helping one another maintain their autos.

Ken and his wife Mildred have two



Billy Marshall



Jim Leonard

Sandians Helping ERDA with Solar Energy

Jim Leonard of Solar Energy Projects Division 5712 and Billy Marshall of Solar Energy Systems Division 5717 have been working at AEC headquarters in Germantown since mid-November. The assignment followed on a request from AEC's Division of Applied Technology (DAT) for staff help during the transition into the new ERDA organization.

ERDA now has responsibility for solar energy programs, most of which previously were administered by the National Science Foundation (NSF). Some \$50 million in programs are now transferring to ERDA for administration by the Assistant Administrator for Solar, Geothermal and Advanced Energy. His staff will be drawn from former NSF and DAT people.

Jim and Billy are still assisting the new ERDA organization with program planning for solar energy research and development. Their assignment will wind up within the next few weeks when the transition is completed.

married children and six grandchildren. They live at 329 Gen. Bradley NE.

* * * *

TOM CLEVELAND to supervisor of Composites & Abrasives Section 3645-2, effective Jan. 1. He joined Sandia in March 1961 as a messenger, graduated from the machinist apprenticeship program in 1965 and then worked six years in the rolamite development program. Tom completed the Labs' mechanical TI training program in 1973.

Tom was in the Air Force from 1956 to '60 and was stationed at Manzano Base. His two sons, Todd, 15, and Scott, 13, live with Tom at 11904 Morocco NE. They spend their leisure time fishing, water skiing, camping and traveling.

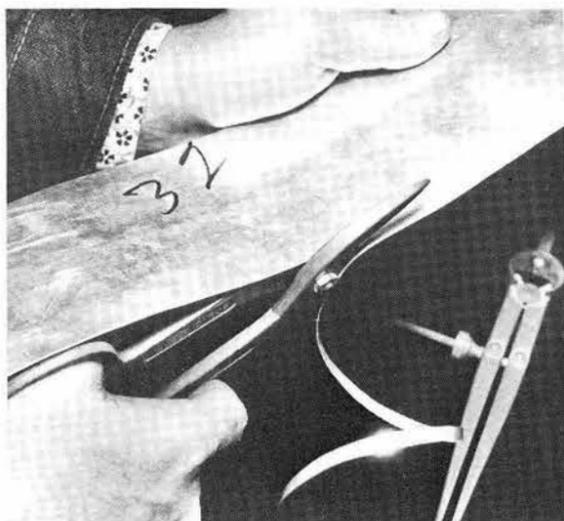
* * * *

TOMMY SIMPSON to supervisor of Apprentice Training Section 3647-1, effective Jan. 1. Tommy came to the Labs in September 1964 as an apprentice machinist and graduated in 1968.

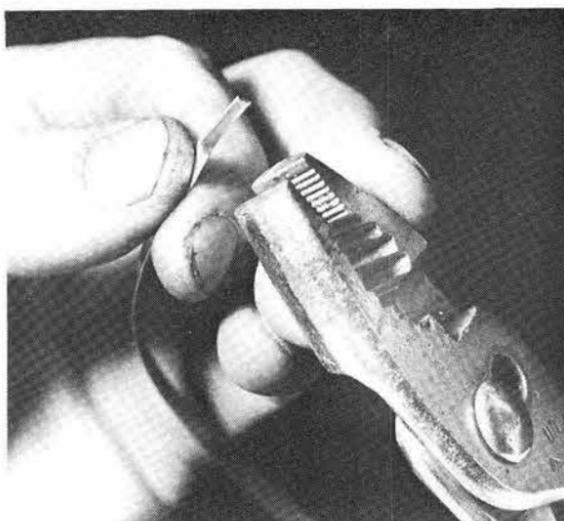
He attended New Mexico State University for two years, studying mechanical engineering. Tommy's hobbies include hunting and fishing.

He and his wife Oranna have two children, a nine-year-old daughter and seven-year-old son — and live at 12416 View Court NE.

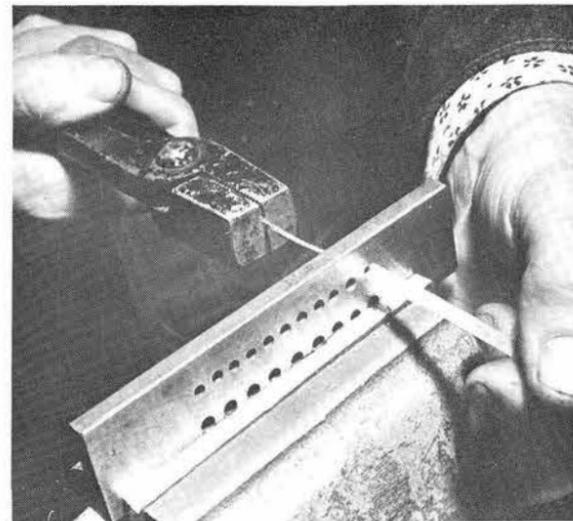
Want to make your own heishi?



Cut a thin strip from a sheet of 32 gauge silver.



With pliers crimp one end of the strip.



The strip is pulled through progressively smaller dies, forming a tube.

Ed Graeber Originals in Silver & Turquoise

Ed Graeber, a geologist in Materials Analysis Division 5825, has many interests — skiing, river running, fishing, hunting, painting and, not least of all, jewelry making.

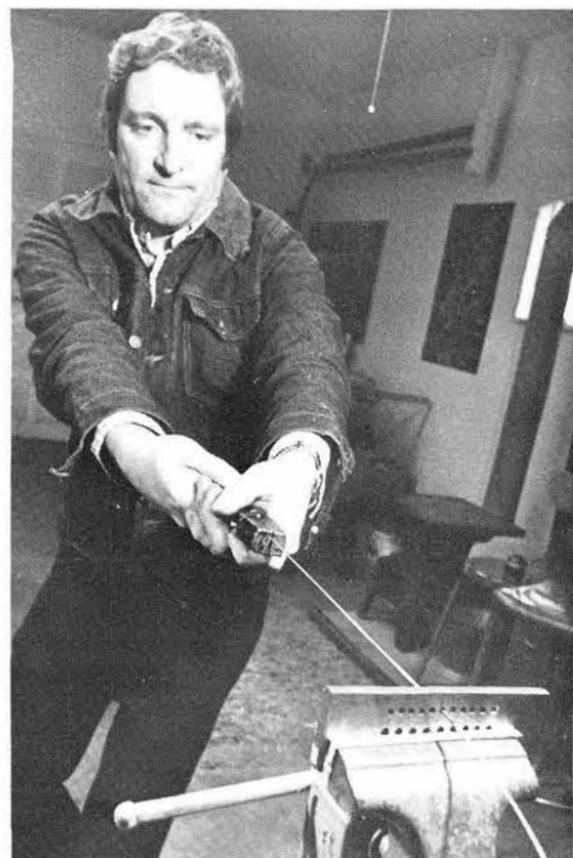
Ed has been making silver and turquoise jewelry for 12 years. He's a craftsman. His pieces are beautiful and original. His shop reflects his ingenuity, incorporating motors from motorcycles, washers and vacuum cleaners. A home-made furnace came from a step-on waste can and an ice cream carton, and equipment from a dentist's office is used for polishing and grinding. "I don't have any investment in equipment," Ed says, "which makes this hobby even more enjoyable — I don't feel compelled to justify any large expense." Ed makes his own tools, patterns and molds.

He is adept in all phases of working with

silver, whether the piece is fabricated or cast. Ed particularly likes sand casting because of the texture of the finished piece, but also does vacuum casting.

The turquoise Ed uses might also be called original since he hand picks the turquoise-bearing ore and then breaks, shakes, cuts, grinds, slices, polishes and buffs until he has a selection of stones suitable for mounting. "I don't think you can come up with a really good design until you have the stone in front of you. The shape, texture, and color all help to determine a new design," Ed says.

Ed sells some of his jewelry, but friends and family are proud owners of much of it. He also makes heishi, both shell and silver, and the accompanying pictures show how it's done.



Labs Payroll, Purchasing Figures Announced

The Sandia Labs payroll for calendar '74 amounted to \$92.6 million at Albuquerque and \$14.7 million at Livermore. For CY '73, these figures were \$93 million for Albuquerque and \$14.5 million for Livermore. Salaries of some 70 employees at Nevada Test Site and Tonopah Test Range are included in the Albuquerque figures.

At the end of CY '74, 6425 persons were on roll, including 865 at Livermore. The total is 65 more than at the end of CY '73; however, the average number on roll during 1974 was about 100 less than in 1973.

The value of installations operated by Sandia for AEC/ERDA totaled \$319.1 million at the end of CY '74, compared to \$316.6 million in CY '73. These figures represent undepreciated value of buildings and facilities.

Purchases by Sandia in New Mexico amounted to \$34.3 million for CY '74. More than 99 percent of the amount, or \$34.2 million, went to Albuquerque firms. Purchases from other AEC/ERDA contractors are not included. Purchases in the state in CY '73 amounted to \$25.3 million.

Speakers

K.L. Brower (5112), "Electron Paramagnetic Resonance Studies on Defects in Irradiated Silicon," invited paper for Physics Dept. Colloquium, Montana State University, Nov. 22, Bozeman.

H. Sumlin, D. Robbins (both 2644) and T. Fox (2643), "SLACON — A Program to Generate Pictorial Information," Computer Image Processing Conference, Oct. 29, San Diego.

M.J. Clauser (5241), "Electron Beam Fusion Targets," NMAS annual meeting, Oct. 11-12, N.M. Highlands Univ., Las Vegas.

G.E. Brandvold (5710), "Wind Power," Nov. 15-16, Argonne National Laboratory; and "Energy Opportunities - 1985 and Beyond," Dec. 13, Oklahoma City Chamber of Commerce, Oklahoma City.

C.P. Sillern (3311), "Why Face Masks?" Respirator Conference, Nov. 13-14, LLL.

S.L. Thompson (5166), "General Properties of CSQ"; "Equation of State of Water Suitable for Reactor and Other Studies"; L.D. Bixton (1722), "Two-Material, Three-Dimensional Hydrocode Development," EIVR meeting, Nov. 13-14, LLL.

J.B. Gerardo (5210), "Laser-Physics and Laser-Fusion Research at Sandia," Graduate Seminar, EE Dept., U. of Ill., Nov. 14, Urbana.

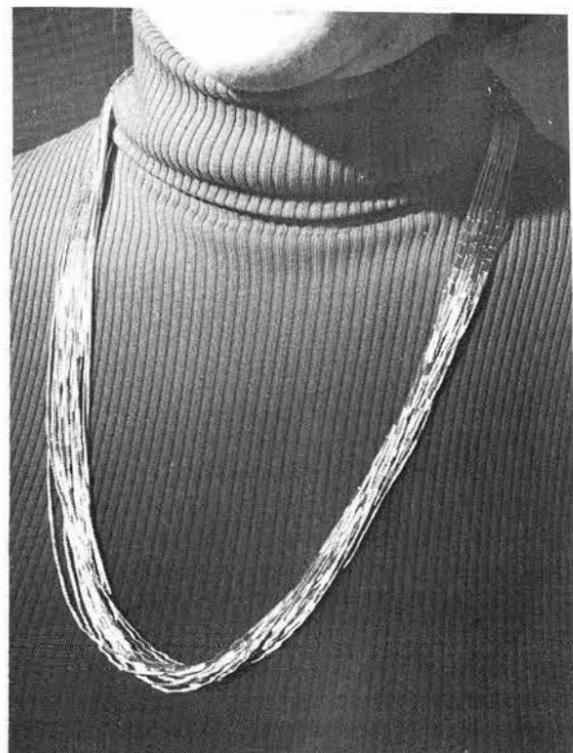
I.J. Fritz (5132), "Pressure-Induced, Pure-Strain Transition in Paratellurite (TeO₂)," Seminar, Argonne National Lab, Nov. 15, Argonne, Ill.

K.W. Schuler (5163), "Observation and Analysis of Nonlinear Wave Propagation in Plexiglas," Mechanics and Materials Seminar, Nov. 15, Texas A&M, College Station.

R.T. Dillon (5251), "Heat and Gamma Radiation Auxotrophs Induces in *Bacillus subtilis* var. *niger* Spores," APS Fall meeting, Nov. 15-16, Albuquerque.

W.A. Von Riesenmann (1544), "Nonlinear Analyses by the Psuedo-Force Method"; D.O. Lee, W.P. Schimmel (both 1543), and J.P. Abbin (2324), "Sizing of Focused Solar Collector Fields with Specified Collector Tube Inlet Temperature," ASME Winter annual meeting, Nov. 17-21, New York.

The first draw is easy but the last one is a little tougher. After the final draw the tube is sliced, burrs are removed and the pieces are polished.



The finished necklace. Each element of the silver heishi measures .052 x .187 inches.



SPINNER SPINNING is Shirley Herbert (left). Wool has been cleaned and carded (so all the fibers lie in the same direction). Spinner's experienced fingers feed just the right amount into the spindle to produce the size of yarn desired. Weaver is Reita Jordan, weaving a poncho on a four-harness jack loom. Shuttle (right hand) contains yarn for woof; beater (left hand) pushes it tight in the warp. Pedal-operated harnesses, raised and lowered by ropes, allow various patterns by lifting selected portions of the warp.

Our Town

Spinning and Weaving — And Growing

True or False?

- ___ 1. Any synthetic fabric is more fire-resistant than wool.
- ___ 2. A dye is a kind of color-changing chemical.
- ___ 3. Good weaving can be done only on a machine.
- ___ 4. Only backwoods grannies know how to spin yarn.
- ___ 5. Wool is an outdated fabric.
- ___ 6. Spinning wheels are basically decorative.
- ___ 7. Sheep can come unraveled.

Misconceptions about spinning and weaving are understandable: the arts nearly died out with the advent of woolen mills and synthetic fibers.

But they're being revived by groups like the Albuquerque Handweavers Guild and the Las Arañas Spinning and Weaving Guild. "Lots of people these days spin and weave simply because they like the feeling of having created a finished product from a raw material," says Reita Jordan, one of the founders of Las Arañas. "Others are interested in keeping these age-old handicrafts alive. Some just hate seeing a spinning wheel or a loom relegated to the attic. And a lot of us simply enjoy spinning and weaving as hobbies — or as occupations."

Whatever the reason, both groups are booming. The Handweavers Guild, founded in 1956, is a weaving-only group restricted to 20 members who have four-harness looms (the kind that permit the weaver to do intricate patterns and designs). Says President Dorothy Clark, "We keep the group small so we can meet in members' homes. Most of us weave simply because we enjoy it — it's a hobby, not a vocation for us."

The group has a couple of looms on which

experienced members instruct new ones in their own homes. And an extensive library on the many kinds of handweaving, traditional and modern. Members sponsor the Handweaving Exhibit at the State Fair each year.

The Handweavers Guild is parent of four-year-old Las Arañas (The Spiders). Another healthy organization, it too meets once a month but it's a bigger group in several ways: it has about 90 members, several of whom support themselves completely or partially with their craft; it includes spinners and dyers as well as weavers; and it conducts workshops and courses for both old and new members. Las Arañas also sponsors a Textile Show at the Museum of Albuquerque every other year, a Zoo Workshop (emphasizing dyeing and spinning exotic fibers like those from llama, camel, and buffalo), and the popular Sheep-to-Shawl exhibit at the State Fair each year.

"Sheep-to-Shawl shows people the entire process from shearing a sheep through the carding, spinning, and dyeing steps all the way to a final woven, knitted, or crocheted product. It's our most successful venture in terms of education," says Reita. "Similar exhibits are springing up across the country, but ours was one of the earliest."

"Sheep-to-Shawl meets at least the first two of our aims," adds Shirley Herbert, another charter member. "It promotes the crafts and it educates the public. Our third aim is to help each member improve his or her skills, primarily through demonstrations at regular meetings and at special workshops."

Most Las Arañas members are from Albuquerque, but members come from all over the state and from El Paso. Two members, Janice and Mel Gnatkowski, have a sheep ranch in Lincoln County, and other

members are beginning to raise their own sheep or mohair-producing goats.

"It's exciting — the number of young people getting involved with spinning and weaving," says current Las Arañas President Myr Teeter; she's a professional weaver from Jemez Springs, and it's greater competence in the crafts she'll be promoting throughout her year in office. "I don't know whether groups like ours create the demand or meet it — maybe it's the counterculture and their 'return-to-the-natural' that's stimulating interest in handspun yarns and handwoven fabrics. Whatever, it's great to be part of the revival."

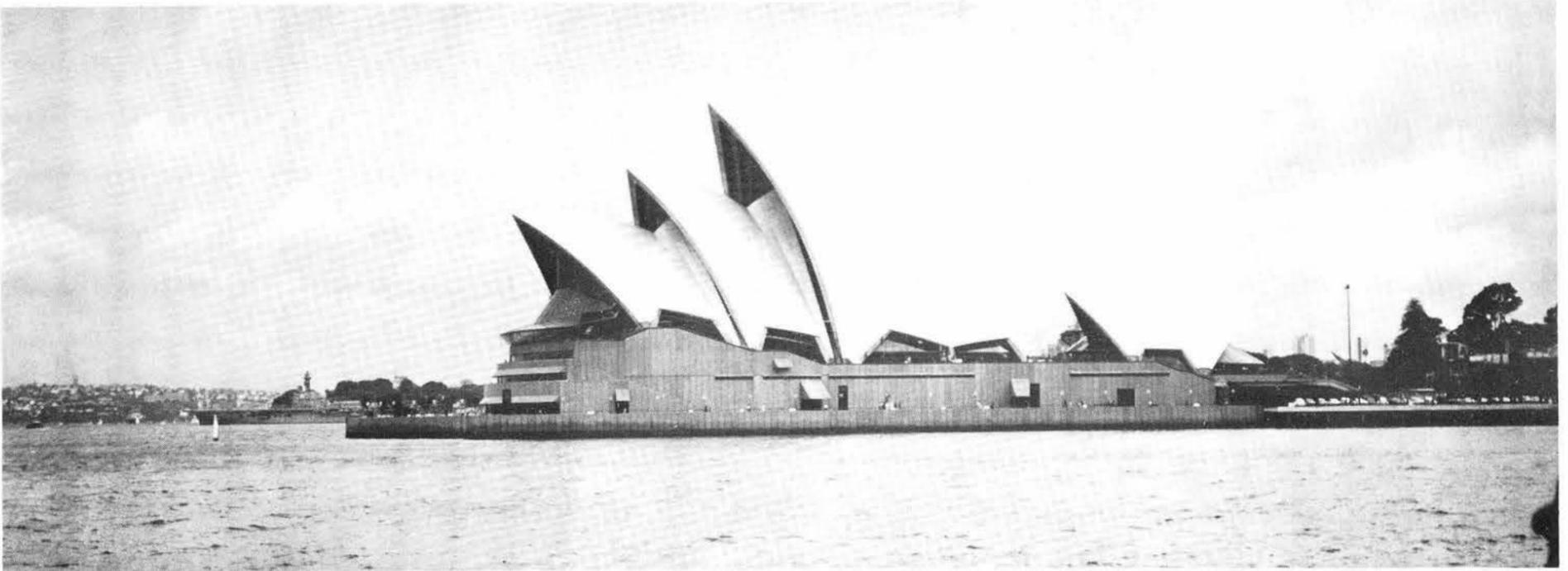
Further info on Albuquerque Handweavers Guild from Dorothy at 831-0347, on Las Arañas from Reita at 344-5773.

Answers to quiz: all false except No. 2 — some dyes *are* aniline (chemical), but many dyers — and buyers — prefer vegetable (natural) dyes. • bh

ENERGY SAVINGS

COMPARED WITH USAGE IN BASE PERIOD - JULY 1972 THRU JUNE 1973
CURRENT REPORTING PERIOD ENDING DEC.'74

ELECTRICITY	BASE PERIOD 48664 MWH 1975 37378 MWH	23.2% SAVED
STEAM PLANT FUEL EQUIV. OIL	BASE PERIOD 106283 BBLs 1975 90681 BBLs	14.7% SAVED
VEHICLE MILES	BASE PERIOD 1290000 MI. 1975 944000 MI.	26.8% SAVED



Sandian Enthusiastic About Australia

On a January morning a few years following the American Revolution, a fleet of six small ships dropped anchor in a harbor and proceeded to disembark some 750 people. It was January 26, 1788, the harbor was Sydney, and the 750 men and women were the first European settlers in Australia. The scene is reminiscent of that earlier landing where the Pilgrims stepped ashore on Plymouth Rock and piously gave thanks, except that the parallel is somewhat flawed. The Australian colonizers were, by all accounts, much more flamboyant than your average Pilgrim — in fact, they were convicts sent half way 'round the world from their British homeland.

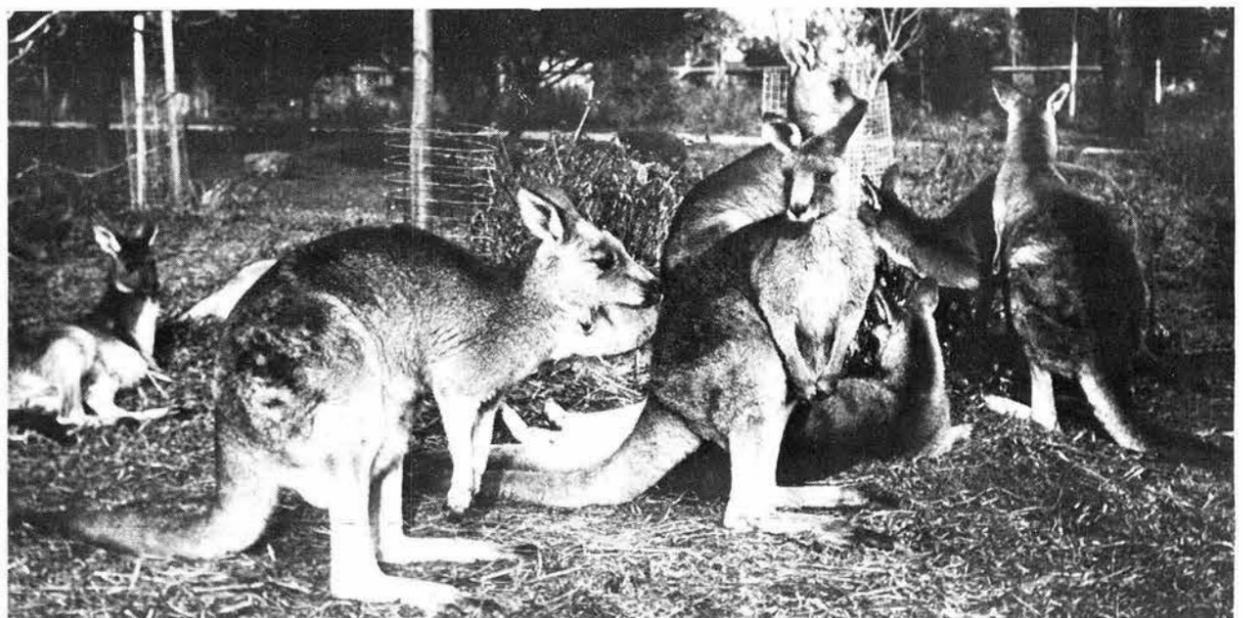
One contemporary writer has described the criminal society of the time: "spendthrifts, rakes, giddy young men . . . in the pursuit of criminal pleasures. Profligate, loose and dissolute characters, vitiated themselves and in the daily practice of seducing others to intemperance, lewdness, debauchery, gambling and excess . . . strolling minstrels, ballad singers, showmen, trumpeters, and gypsies." Hardly the stuff from which one forges a new country but, oddly enough, this colorful group and others like it that followed have forged a country that Americans, if they ever consider emigrating, usually put at the top of the list.

One of those Americans is Pete Seward, head of Field Support and Logistics Section 1135-1, who last summer had the enviable assignment of spending a couple of months in Australia, supporting a scientific experiment relating to a solar eclipse. Pete was situated near Perth, a seaport town of more than a half million people on the southwest coast. His photos reveal a countryside strikingly similar to that of southern California — or at least what southern California must have looked like before Chamber of Commerce-type improvements.

"If I were 20 years younger I think I'd move there," says Pete. "The people are great, there's lots of economic opportunity, it's unspoiled, and the climate and land are super."

He relates one success story about the man upon whose property the solar experiment equipment was set up. An emigrant from Poland after WWII, he arrived in Australia with little to his name. But he is now affluent, having made a series of profitable investments in the area, and he made his land available at no charge to the experimenters. "Actually," Pete says, "he was interested in our scientific activity, so I was able to engage him as a sort of watchman when we weren't there, but he didn't really need the money."

As a society, Pete feels the Australians are



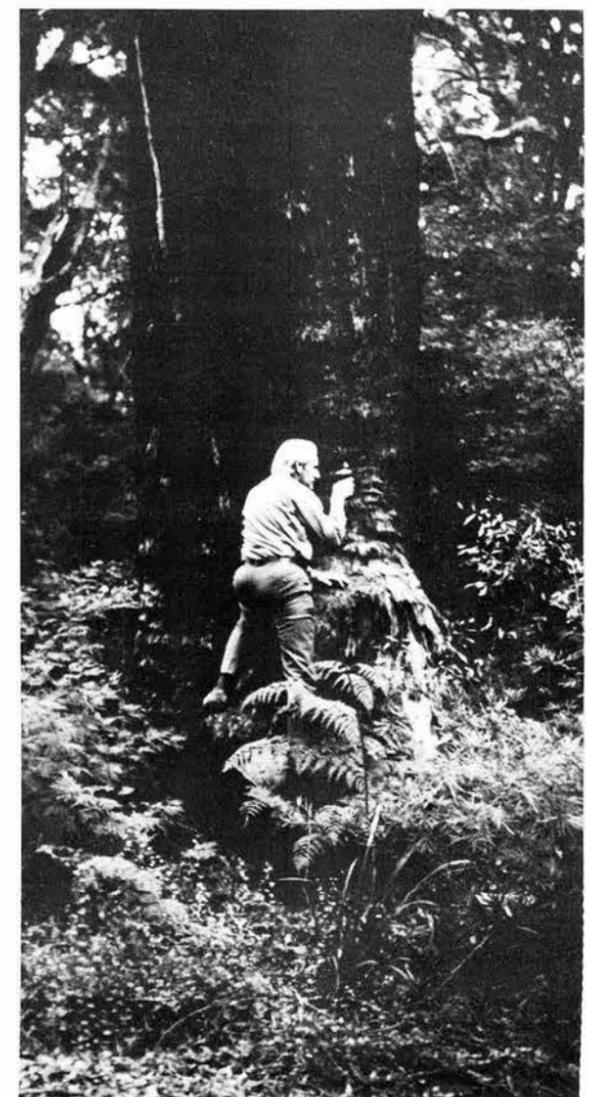
a bit more formal than Americans. "I'd always wear a coat, shirt and tie when I went into town on business or, for that matter, if I were invited to someone's home for dinner." And the male mystique prevails in Australia. After work, the Australian drops by his favorite pub to meet his male friends, have a beer, maybe play some darts. He then goes home for dinner, dutifully prepared by his wife, after which some stay home, some return to the pub. One Australian saying has it that the three most important things in a man's life are, in order of priority, "his mate, his auto, and his wife."

Another cultural difference is the Australian's passion for athletic activity. Where most American males passively watch, virtually every Australian takes part in several vigorous activities — football (Australian rules), soccer, rugby, squash, tennis, etc. Playing reservations at the local squash club are stringently scheduled, Pete noted, and when the bell sounds indicating your playing time is up you stop in mid-stroke and vacate the court.

To wind up his stay in the country, Pete decided to cross the continent from west to east aboard the Indian Pacific train. The 2500-mile trip includes one 300-mile stretch of absolutely straight railroad track across the Nullarbor Plain. Place names along the way have a marvelous flavor: Kalgoorlie, Zanthus, Ooldea, Tarcoola, Woomera (sounds familiar), Mulgathing, Broken Hill, Dubbo. But the Great Outback, Pete discovered, is no Louisiana Territory awaiting the farmer's plough. With less than two inches of rain per year, this forbidding desert supports little life. Obviously it's just the place for some of our developers to carve up into "ranchettes" . . .

• js

THE OPERA HOUSE in Sydney, our marsupial friends & a big tree — the karri — found in the forests of southwestern Australia.



MILEPOSTS

LAB NEWS

January 1975



Donald Parker — 3311

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Richard Burken — 9717

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Dick Bice — 9000

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Harry Farmer — 8168

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Ralph Hampy — 2431

20



Tom Lonz — 4124

20



Dave Timmer — 8168

15



Earl Wangerin - 4123

15



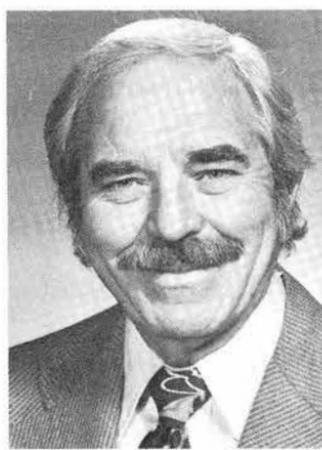
Louise Converse — 8411

15



Ken Mitchell — 8163

15



George Hosking — 9522

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Arthur Savage — 3617

20



Jim Kane — 1713

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Gordon Kibby — 8421

15



Albert Murphey - 1252

20



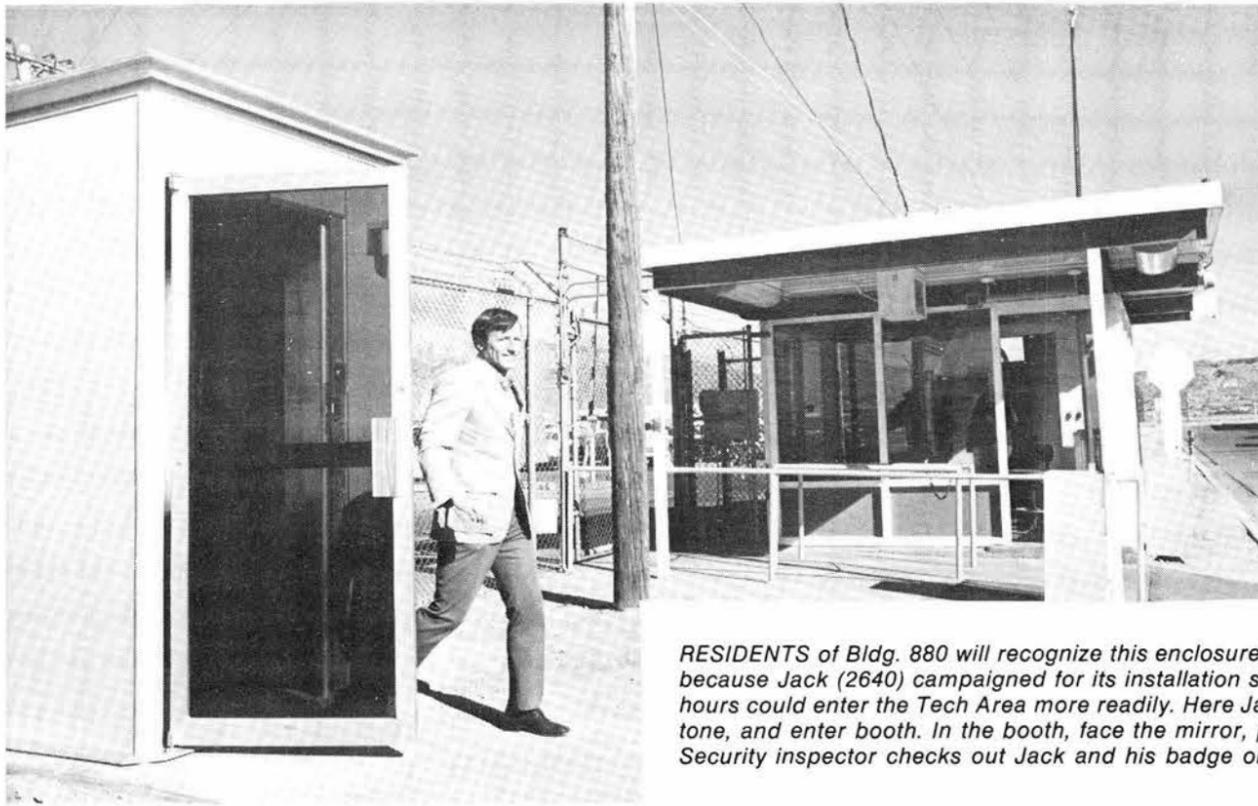
Earlene Brinegar — 4251

20

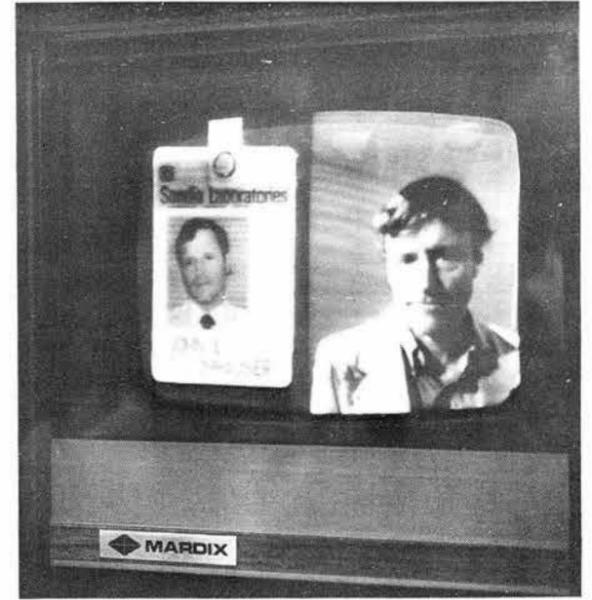


Harold Goddard — 1642

25



RESIDENTS of Bldg. 880 will recognize this enclosure, formally "Videoguard," less formally Tischhauser's Booth, because Jack (2640) campaigned for its installation so that people coming to work in the computer center after hours could enter the Tech Area more readily. Here Jack demonstrates operation. For entry, push button, wait for tone, and enter booth. In the booth, face the mirror, place badge on ledge, listen for tone, and leave the booth. Security inspector checks out Jack and his badge on TV monitor before releasing electric door lock.



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

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

RULES

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

MISCELLANEOUS

TRASH BAGS, \$3.50 box, South Highway 10/14 project, Lab News Office, Bldg. 832, east end.

20 GAL. aquarium w/accessories & metal stand. Sektnan, 293-7961.

SKIS, Lucern Skitique, proplon base, internal locking racing edges, 6 ft. long, w/bindings, \$18. Smith, 266-7341.

KENMORE auto. washer, 3-cycle, copper color, needs some servicing, \$35. Marrs, 299-3865.

WHITE German Shepherd, 1-1/2 yrs. old. Greenway, 299-8540.

DYNACO PAS-3 stereo preamp & stereo 70 amplifier, needs work, both for \$45; Ampex Professional 2-track tape deck, \$40. Van Den Avyle, 898-6474.

35,000 BTU heater; trailer hitch for Blazer; 300 amp aircraft generator. Patterson, 877-3158.

THREE radial tires, size 1.85 x 14, 25,000 miles, original equipment on '73 VW bus, \$5 ea., 3/\$14. Wilson, 344-5373.

LEATHER jacket, new, man's size 42, black, made by Schotts Brothers, heavy, \$49. Sims, 293-6153.

LEFT handed golf clubs w/bag, \$30; Colt Trooper .357 pistol, \$130; bolt action 45-70 rifle, \$200. Milton, 299-4586.

DYNACO FM-3 F/M stereo tuner, \$50; Radio Shack SA-350 amplifier, \$50. Garrison, 881-1851.

MACGREGOR tourney irons, 3-PW, new grips, \$30. Longcope, 821-8423.

13 FT. Cardinal Travel trailer, \$995. Padilla, 898-3115 after 5.

DINING table, wood, Spanish style, laminated top; French

provincial coffee table & corner table, leather top. Klintobe, 298-2315.

FRIGIDAIRE range, dbl/oven, pullout burners, cabinet stand, exhaust fan unit, \$110. Cockerleas, 256-7570.

COLT Detective Special, 2-inch barrel, 38 Special Cal., \$100; Browning 9mm, extra clips, \$175. Snodgrass, 268-8820.

WHEELS w/tires, ARA A/C for Jeep Wagoneer. Loescher, 296-3154.

WELSH convertible baby buggy stroller, \$15; fireplace screen & andirons, polished brass, \$15. Anderson, 294-8451.

WILSON 1200 clubs, regular shaft, '74 model, 2-9 plus p.w. irons, 1-3-4 woods, D-3 swing weight, \$290. Collins, 268-7144.

TWO TIER contemporary table, 29"x29", solid oak construction, \$15. Baxter, 344-7601.

ACCEPTING orders for Delta Mark 10 (\$32) and Mark 10-B (\$38) capacitive discharge ignition system until Jan. 31. Will order for 50% down and balance on delivery. Stuart, 299-9190.

17-1/2 FT. Red Dale trailer, complete w/equalizer hitch, '72 model; '74 model gas range, used 2 weeks, avocado, \$135. White, 293-2219.

ELECTRIC typewriter, Olivetti Praxis 48, dust cover, instruction manual, extra ribbons included, \$150. Hohimer, 298-1528.

SEARS Coldspot refrigerator, auto. defrost, 11.5 cu. ft., 20 yrs. old. Ostrander, 298-8374 after 5.

TWO overhead (Berry) steel garage doors, 8'x7', complete, \$40 ea. or both for \$75. Chavez, 506 Vermont NE, 881-3676 or 255-1585.

SNOW SHOES, Cross Country, lightweight, cold weather plastic, nylon bindings, cost \$30, sell for \$20. Jercinovic, 255-8027.

2 PIGS, Hampshires, 5 mos. old, \$35 ea., castrated, grain fed; 1 breeding boar, Hampshire, 1-1/2 yr. old, \$65, 285 pounds. Butler, 873-2867.

GARAGE SALE: Bicycle, Schwinn 10-spd.; stereo; TV; Black & Decker 1/4" drill; toys, Hot Wheels, Minikit, etc. Porter, 2708 Alcazar NE., 298-3623.

FURNACE, Carrier downdraft,

137,000 BTU, \$60. Sullivan, 298-0148.

PHOTOGRAPHIC enlarger (Omega D II) w/lenses for 4x5 and 35mm films, \$350. Related equipment also available for sale. Alexander, 298-4448.

SKIS, Skitique 180cm, \$25; rabbits, breeding & fryers, \$2/\$4; washer, needs pump impeller, \$18; portable washer, \$30. Bassett, 898-1840.

DUNE CAT, one seater, \$300; Smith & Wesson model 17.22 cal. pistol, 6 in. barrel & hunter holster, \$120. Lucero, 836-5375.

FOAM sleeping bags, home made, small & extra large. Edenburn, 265-5184.

OLYMPIA electric typewriter, elite type, \$95. Browne, 881-3772.

SEARS air compressor, 1 hp; 12 gal. storage tank; 3 gal paint pot, cup, gun, 2 hoses, \$200. Ridlon, 298-4729.

WALNUT 5-drawer chest & headboard, \$150; bed frame, \$15; Panasonic AM/FM radio, walnut cabinet, \$25. Padrick, 299-1815.

12 GA. pump, \$35; .22 auto rifle, \$29; H & R single shot .30-30 & 20 ga. mag. barrels, new, \$39. Allen, 299-8747.

R.C., 5 chan. Galaxy on 53.100 MHz, completely ready to fly with 4 servos, \$99; 5 servos, \$125, batteries & charger furnished. Lenz, 298-9121.

GARMISH buckle boots, man's, size 8-1/2, very wide, w/boot tree, \$75 new, will sell for \$20. Barton, 265-8607.

THERMOFAX copying machine, w/copy paper, \$70; Addressograph charge plate printer, \$5; stereo phono, needs some work, \$15. Schubeck, 266-2780.

MUZZLE loader, .58 cal. Zouave cap & ball rifle w/accessories, \$125 or best offer. Tucker, 877-1140.

FACTORY manual for '56 Dodge, automatic transmission parts, model A wheels, model T drive train, Wisconsin air/cooled engines, 6-10 hp. Brinkley, 344-5334.

SKI rack, Barrecrefter, attaches to luggage rack, locking up to 6 pair of skis, \$15; movie projector Brownie 8mm., \$9. Tischhauser, 293-9768.

UPRIGHT piano, \$175. O'Neal,

298-2859.

CAMPANIA Sport Touring bicycle, 24" frame, 10-spd., gumwall tires, lock & padded seat. Forsythe, 299-2785.

TRANSPORTATION

'71 SUPER BEETLE, low mileage, top rack, R&H. Skillern, 298-5150.

'73 YAMAHA 100 MX motorcycle, Akron rims, \$390. Krumm, 299-2279.

'67 CHEVY II, V8, one owner, \$750 or best offer. Bryan, 294-0045.

'73 DODGE Challenger, 340, 4-barrel, new ET slots, flared fenders, new tires all around, 20,000 miles, \$3200. Arvidson, 268-0400.

'69 CHEVELLE station wagon, 52,000 miles, AC, PS, AT, rack. Walter, 293-5020.

'66 PONTIAC Tempest, one owner, 52,000 miles, radio, AT, 2-dr. hardtop. Wetherholt, 299-5736.

'67 CHARGER, AC, PS, PB, 383 V8, \$600. Navratil, 293-5527.

'74 EXPLORER Special Ford pickup, 302, V8, AT, 9,000 miles, still under warranty, includes shell camper, \$3750. Archuleta, 898-3062 or 898-1197.

'66 IMPALA, 4-dr., V8, PS, PB, 348 eng., \$595. Hayes, 294-4563.

'68 FAIRLANE 289, std. trans. Jefferson, 266-0050.

'72 PLYMOUTH, Gold Duster, white, AT, PS, AC, VT, 20 mpg, 24,000 miles, \$300 below NADA average retail. Shock, 877-3728.

'73 SUPERIOR Motorhome, 20', low mileage, 413 cu. in., 4KW Onan, AC, radials, many extras, \$10,900. Roberts, 298-9163.

'66 BUG, engine rebuilt to 1600cc, new HD clutch, mag wheels, front fenders & hood damaged, \$775. Johnson, 298-1011.

REAL ESTATE

1/3 ACRE lot at Taos Ski Valley, water & electricity to lot, \$9000. terms available. Stevens, 299-6086.

FOR RENT

1 BDR. Mountain home, Sandia

Park, completely furnished, fireplace, utilities provided, dbl/garage, 4-wheel drive recommended, no outdoor pets, \$180/mo. Carnicom, 281-3421.

WANTED

RETIREES who can do electronic repair work, upholstering, roofing, contact Lab News Retiree Job Reference Service, 264-7841.

SKI RACK, roof type, to fit '65 Mustang. Schroeder, 344-1011.

SOFA BED & girl's 10-spd. or 5-spd. 24" bicycle. Nelson, 867-2746.

WATER SKIS, ski belts, boat steering wheel. Bentz, 299-3448.

POSITRACTION unit or complete positraction rear end for Chev. 1/2-ton pickup truck. Vollendorf, 293-7161.

STUDENT desk. Holloway, 898-2110.

WANT to buy lot at Conchas Lake. Kohut, 298-0695.

LARGE tall chest of drawers, maple or maple finish, will pay cash. O'Bryant, 268-9049.

OWNER of reading glasses found at Prince Kuhio Hotel, 880/A4.

ELECTRIC meat saw, 110V, single phase. Padilla, 873-1278.

DRILL press, bench model. Coleman, 299-2377.

WORK WANTED

RELIABLE 16 yr. old Manzano High student desires baby sitting assignments. NE Heights preferred. Call Brenda at 293-5037 after 4.

LOST AND FOUND

LOST — Glasses, in plaid case; Blue Air Force raincoat; \$40 cash; dark brown man's glove; silver hoop earring; pair of earrings, turquoise fetish birds and shell heishe; long tan chiffon scarf; 3 strand green serpentine heishe necklace; light colored hand-tooled key case.

FOUND — Porsche car key; large silver hoop earring. Bldg. 832 Lobby.

● MARDI GRAS ● C-CLUB ● FREEBEE ● MAGIC ● BLUE SNOW ● BAREFOOT EXEC ●

FRIDAY	SATURDAY
24 — HAPPY HOUR ROAST BEEF BUFFET Adults \$2.95 Under 12 1.95 <i>Glad Rags on Stage</i> PRISONERS	25 — TEEN DANCE BLUE SNOW 7:30 - 10:30 Members 25¢ Guests 50¢
31 — HAPPY HOUR ORIENTAL BUFFET Adults \$2.75 Under 12 1.75 <i>Denny On Stage</i> TESS & HER ALL GIRL BAND	1 — FAMILY VAUDEVILLE Magic by Larry Kent & Son <i>The Barefoot Executive</i> Food at 6 Show at 7 Free to Members

ILLITERATE? — Then ask someone who's been to a Friday Happy Hour Buffet to tell you how much fun you'll have, food you'll eat, friendliness you'll find. Mr. Freebee too! Tonight the magic number is 12 — and he'll draw numbers for the goodies until there's a winning ticket.

WRITE — right now on your February calendar: C-Club Mardi Gras, 15th, tickets by 8th. The month's biggy features New Orleans seafood, like baked Gulf grouper (that's a fish), fried shrimp (that's a crustacean), scallops Louisianne (so's that), and crab quiche Lorraine (that's delicious). Freddie Williams provides the dancing opportunities. And plan on a wild Mardi Gras (i.e., anything goes) costume; you'll have more fun, might even win the prize. \$5 members, \$6 guests.

C-CLUB — trips get you away from it all without getting it all away from you (translation: they're relaxing and economical). Deadline for the Grecian Fling has been extended — but it's your last chance to sign up for Greece-and-all-its-glory. See Athens and the islands by land, by sea, by air; by any standard, it's a great deal.

FOR — a more limited trip — in terms of time, distance, \$ — it's Las Vegas 28 Feb-2 March. Package (the works) only \$120.

FREE — to members: magicians and movie. The prestidigitators are Larry Kent



SWING WITH MARTY GRAH and his Dixieland Combo. That's Bertha Dee Blooze with her mike, Marty himself, Frenchy Kworter and sax, Burr Bunstreet and clarinet, and Ms. Sippy. Not shown, Nat Chester Mobeel. Join them, in costume, at Mardi Gras Feb. 15 (tickets by 8th).

and Son. The movie is *The Barefoot Executive* (required viewing for all Wall Street types these days). All at Family Vaudeville 1 Feb.

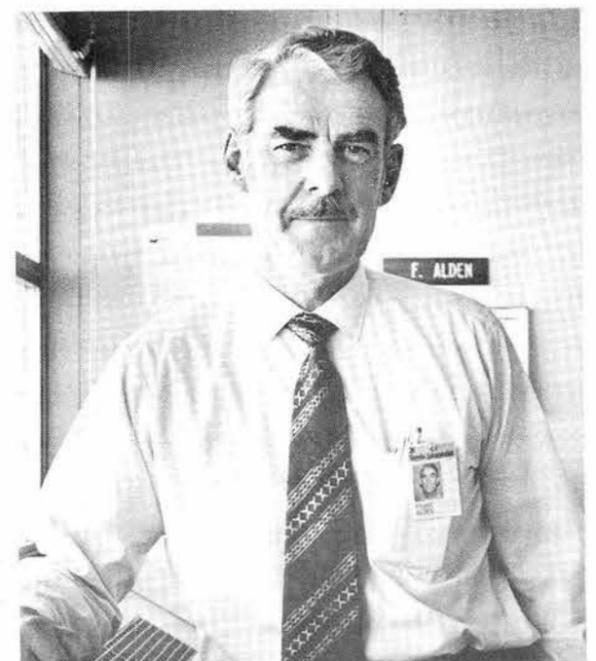
HELP — your kids survive the weekend; buy them tickets for the Teen Dance tomorrow evening. It's a *Blue Snow* ball.

QUICHE ● GROUPER ● VEGAS ● DENNY ● GREECE ●

Retiring



Stan DeVault (9542)



Frank Alden (2336)