



et

oia

secula sclozū **A**m.

Dominus uobisc̄

Et cum spū tuo.

Sursum corda **V**a

temus ad dñm.

Gincias agamus

domino deo nostro.

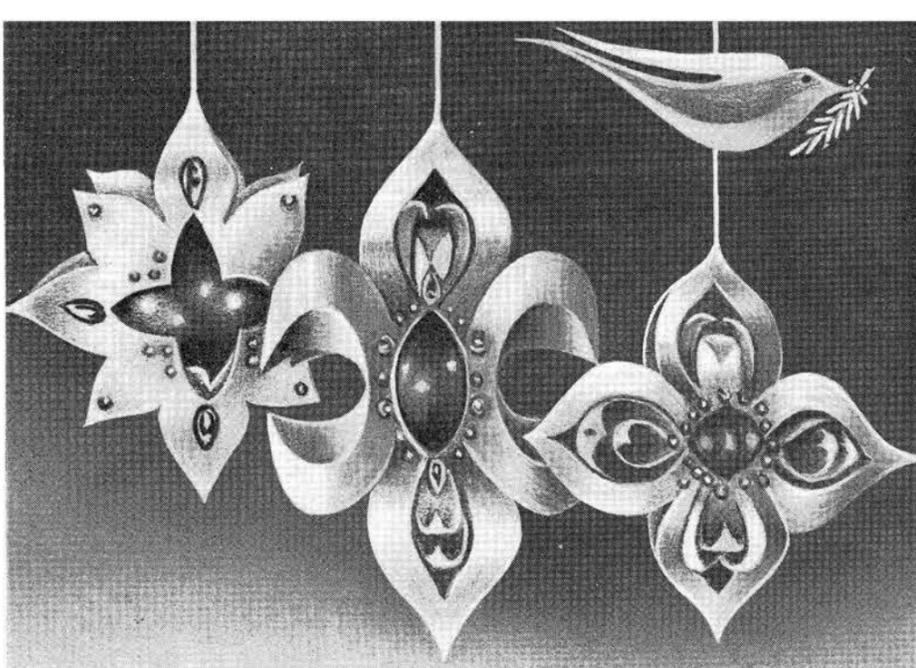
Dignum et iustum

Usc̄ et.

digni et iusti est

equum et salutar

Dos nbi sempra



Our best wishes for Christmas and the New Year!



J. A. Hornbeck W. Howard Paul Johnson B. S. Biggs P. B. Bee



Bluma Fuchs R. C. Helcher R. Paul R. Campbell C. P. R. J.

Christmas Projects Underway By Unions, Other Organizations

You can tell it's Christmas around Sandia Laboratory. In addition to lights and decorations there is that nebulous thing defined as "Christmas of the heart."

This involves donating gifts, clothing, money, or food to recipients who may be needy or just "down on their luck." There's also the donation of time to collect, wrap, and deliver gifts, and to purchase staples for deserving families. It's all done in lieu of sending cards to other Sandians you see every day.

One of the oldest organized drives within the Laboratory is Military Liaison's "Shoes for Kids" project. Last year more than \$400 was received from slightly over 80 contributors and was used to purchase some 100 pairs of shoes for underprivileged children at Riverview Elementary School. The recipients this year will be children of Longfellow Elementary School as well as Riverview School. Richard H. Collins (7530) is chairman of the drive with R. Eugene Church (7510) and Donald J. Hosterman (7520) serving as co-chairman.

The largest project underway is the seventh annual Riverview School Christmas

Party, sponsored by the United Unions (International Brotherhood of Electrical Workers—Local 1988, International Association of Machinists—Local Lodge 1689, and Office and Professional Employees International Union—Local 251).

Large boxes placed in major buildings of Sandia Laboratory have been collection points for gifts, each of which bears a personal greeting to one of the 315 youngsters at the school. School Principal Desi Baca submitted the names of the children (ranging in age from 6 to 12 years) to union officials, who in turn assigned them to Sandia employees.

The first event was a Christmas dinner at the school cafeteria yesterday. Tomorrow, at the Christmas party, the children will receive their gifts plus toys distributed by Santa Claus, sacks stuffed with peanuts, candy, oranges, and apples, and there will be ice cream and cookies for all.

Coordinators for the project are Robert C. Jaramillo (4234), William E. Seaburn (4253), and Byron L. Stewart (4234).

Technical Information Department 3410 has decided to repeat their project of two years ago. At that time they assisted a needy family living in the Manzano Mountains by donating cash, goods, clothing, and hardware (namely chicken wire to fence in the family's chickens). This year's requirements include clothing, staples, and money for dental work urgently needed by one of the six children. In addition to above items, employees are asked to donate both hard cover and paper back books which are being sold from a stand in the lobby of Bldg. 802. Any surplus items will be given to a rummage store in Torron. John Shunny (3411) is committee chairman and the division representatives are Bruce Hawkinson and Lovella Montoya (both 3411), Marge Mancuso (3412), Sandy Barera and Bill Swiss (both 3413), Porter Grace (3414), Nick Tarnawsky (3415), Ray Smelich and Ada Kozlowski (both 3416).

Middle Ages Manuscript Inspires Gene Lloyd's Christmas Cover Art

The striking Christmas cover on this issue of the LAB NEWS is the work of Gene Lloyd of Technical Art Division 3463. The Latin words are from a Gregorian Chant and the design is based on an illuminated music page from the Middle Ages.

The text on the cover consists of various words and phrases from the chant. The translation of the lines on which the cover text is based reads "The Lord be with you and with thy spirit. Lift up your hearts. We lift them up unto the Lord."

"This expresses the idea of Christmas to me," Gene says. "Christmas always brings reinforcement to religious feelings."

Gene has been a technical illustrator at Sandia since September 1955. He holds a Bachelor of Fine Arts degree from the University of New Mexico and currently is working on a Master's degree. He has studied architecture at the University of Denver.

Gene's oil paintings have been exhibited at the UNM gallery, the Museum of New Mexico, and at the William Rockhill Nelson Gallery in Kansas City. These were primarily non-objective oils. He is currently working during off-hours in mixed media and striving for an abstract realism.

The SANDIA LAB NEWS cover expresses a feeling of Christmas in the manner of the manuscripts of the Middle Ages, Gene says. He likes the words but doesn't know how the music would sound.

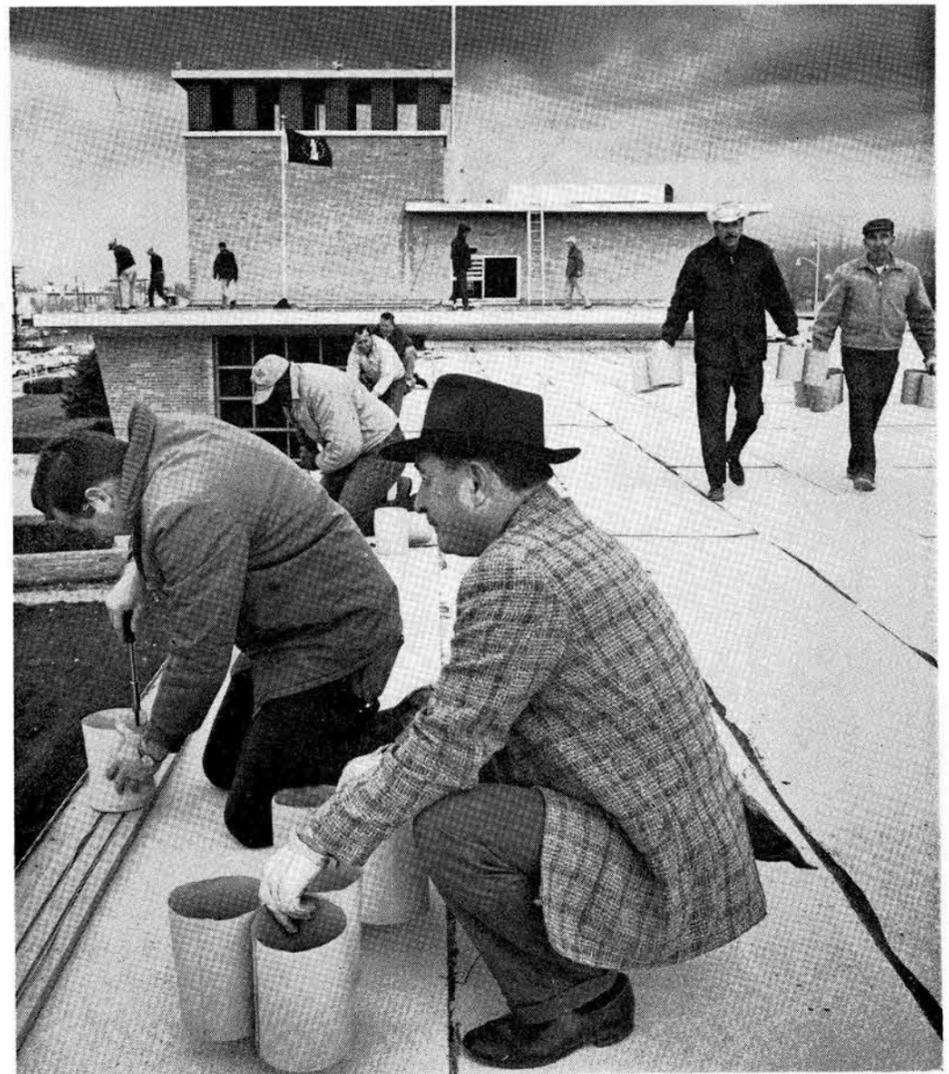
"I don't sing," he says.



COVER ARTIST Gene Lloyd (3463) checks engraving proofs at the printing plant. The art is based on an illuminated music page from the fourteenth century.

Events Calendar

- Dec. 16-17—"Oh Dad, Poor Dad, Mamma's Hung You in the Closet and I'm Feeling So Sad." Old Town Studio, 1208 Rio Grande NW. For reservations tel. 242-4602.
- Dec. 18—Las Posadas, traditional procession, Old Town Plaza, 7 p.m.
- Dec. 18—Antoni's movie "Il Grido" followed by discussion. Newman Center, 1815 Las Lomas NE, 7:30 p.m., admission 50 cents at door.
- Dec. 24—Luminaria tour of Albuquerque, including Country Club, Lee Acres, and Los Altos areas.
- Dec. 24—Torchlight procession, Taos Pueblo, 7 p.m. to midnight.
- Dec. 24-25—Ceremonial dances following midnight mass at San Felipe and Laguna Pueblos.
- Dec. 24-25—Arrival of Santa Claus.
- Dec. 25-28—Ceremonial dances at most Indian Pueblos.



INSTALL LUMINARIAS—Sandia electricians and maintenance personnel place rows of "prefab" luminarias along the roofline of Sandia Laboratory's Administration Bldg. 800. The same luminarias, made in the Sandia maintenance shops with electric lights and plastic instead of candles and paper sacks, have been used as Christmas decorations since 1959. Along the left side of the roof are, from front to back, Bill MacDowell, Willie Smith, Robert C. Garcia, and Frutoso Gurule (all 4513). In the center foreground is Manuel Romero (4575), and bringing luminarias, on the right, are Seledon Jaramillo and Jose Valdez (4575).

SANDIA LAB NEWS



SANDIA LABORATORIES
ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

Operated for the United States Atomic Energy Commission by Sandia Corporation

Editorial Offices, Albuquerque, New Mexico
Employee Publications, Rm. 112, Bldg. 800,
Tel: 264-1053

Editor: Robert C. Colgan

Staff: Cherry Lou Burns, Robert P. Gall,
Donald E. Graham, Bill Laskar

Public Information, Livermore, California
Rm. 138, Bldg. 912, Tel: 447-5100, Ext. 2387

William A. Jamieson, supervisor
Staff: Matthew J. Connors, Lorena Schneider

Permission to reprint material herein for other than governmental use may be obtained from the Editor, Sandia Lab News.



PAGE TWO

DECEMBER 16, 1966

SANDIA LAB NEWS

Paul Ager, AEC-SAO, To Retire on Dec. 29



Paul W. Ager will retire Dec. 29 after more than 20 years of service with the atomic energy program. He has been the AEC/SAO Resident Representative at Livermore Laboratory since October 1964.

Mr. Ager was first associated with the AEC in 1946 when he was assigned as consultant on budgets with headquarters in Washington, D. C. He was the Commission's Director of Budgets from 1947-48, when he transferred to the AEC's office at Los Alamos, N. Mex., as Special Assistant to the Manager and later as Director, Production Coordination.

He transferred to Albuquerque when the headquarters organization moved there in 1961, and served as Assistant Manager for Program Planning and Coordination, 1954-56, and Assistant Manager for Advance Planning, 1956-64.

Before joining the AEC, he was employed with the Tennessee Valley Authority in Knoxville, Tenn., for over 13 years.

Following retirement Mr. Ager and his wife plan to travel extensively for about a year to Mexico, Hawaii, Alaska, New England, and the southeast part of the country. Upon return, they expect to make their home in Santa Barbara, Calif.

Livermore Notes

Beryl Hefley, supervisor of Library Division 8232, was a guest lecturer at the Introduction to Library Practices class at Chabot College in Hayward on Nov. 30. His presentation was entitled "An Introduction to Automation of Libraries."

Beryl serves as a member of the curriculum committee for the Library Technology Department at Chabot College.

Members of the winning team in the 1966 Sandia Twilight Golf League included Al Baker (8154), Charlie Duffey (8153), team captain Frank Kay (8147), John Liebenberg (8156), Jerry McNutt (8155), Bob Reese (8147), Mike Stephenson (8132), and Don Yearout (8156).

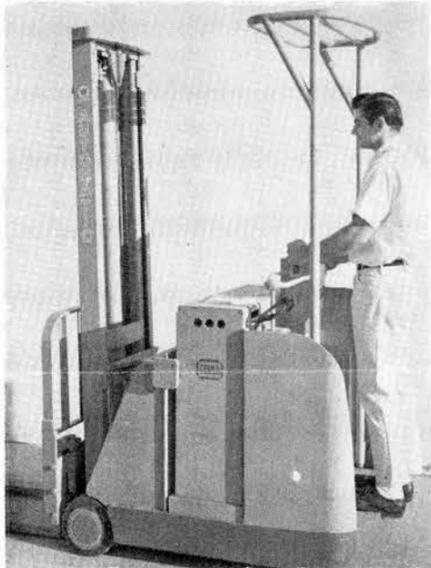
Ten teams played in the nine-hole straight handicap league at the Springtown Golf Course on Wednesdays after work for 18 weeks.

Congratulations to Paul Dominguez (8161) for bowling a 248-246-247 scratch series recently, the best series ever shot at the Granada Bowl in Livermore! He chalked up the fantastic 741 three-game set during Sandia Mixed League competition.

Paul won a wrist watch and becomes a member of the American Bowling Congress "700 Club," entitling him to an ABC patch and certificate. To be eligible for club membership a bowler must attain a total of over 700 pins in a three-game series of a sanctioned league tournament. Paul bowls on the "Question Marks" team in the Sandia League.



ART FESTIVAL WINNER Evelyn Bachman (8233) sits with her exhibit "Jamaican Lady" (on wall), and muses over other sketches she created after vacationing in Jamaica. "Jamaican Lady" won first place in the graphics category of the Livermore Art Association's Invitational Fall Festival of Art.



BEFORE MODIFICATION, A FORKLIFT SAFETY COVER offered little protection for operator Bob Tirnetta's (8245-3) head and back (left picture). After modification, the new cover and platform (right) provide maximum protection for Bob.

Department Safety Committees Are Effective in Identifying Hazards

It sometimes helps to use a "fresh" approach to identify problem areas.

With this in mind, Department Safety Committees are appointed to inspect safety conditions throughout the organization's work areas.

As members of the Committee, appointed by the department manager, employees of one division tour the work areas of other divisions searching for unsafe practices or potential hazards.

Gladys Kimberling (8245-4), John Barnhouse (8245-2), and Chairman Stan Serpa (8245-3) of Department 8240's Safety Committee recently found two unsafe conditions in an 8240 warehouse area. They reported the findings to their department manager for review and appropriate action.

The first was observed while a warehouse employee was operating an electric

forklift. It was noted that the operator platform on the forklift was too small for safety, and the operator's head and back were exposed to possible injury when working in limited aisle space.

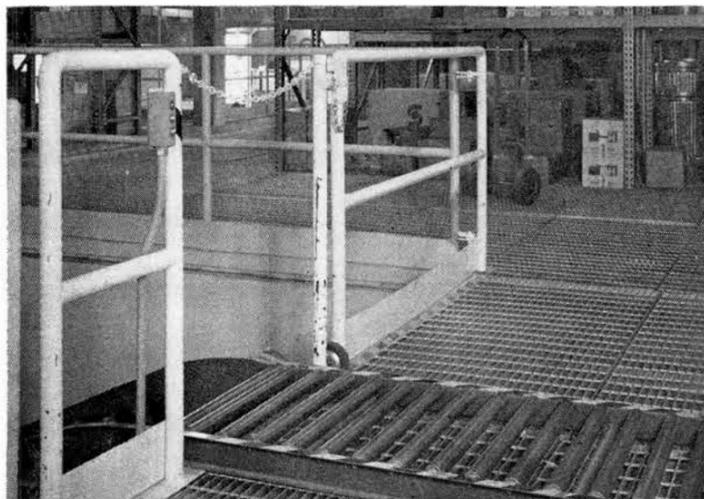
Plant Engineering was asked to design a new platform and protective shielding for the operator.

The second condition concerned a set of rollers at the top of a conveyor belt in the warehouse. The rollers were near floor level which made it all too easy for personnel to step on them. Installation of a guard railing on both sides of the rollers effectively channels traffic around the hazard and reduces the possibility of an accident.

Both modification jobs were designed by R. L. Siglock of Plant Engineering Design Division 8254 and approved by the Safety organization.

UNPROTECTED ROLLERS at the top of a warehouse conveyor belt (left picture) presented a safety hazard. Guard railings on both sides of the

rollers located at the top of a warehouse conveyor belt (right) channel traffic around a potential accident area.



LIVERMORE NEWS

Welcome Newcomers

Nov. 7 - Dec. 2

California	
Elijah J. Davis, Hayward	8222
Thomas R. Halleck, Hayward	8235
Richard Lee Jones, Willits	8156
*Hamilton L. Landers, Tracy	8253
Pete Oliver, Jr., Livermore	8134
*Karen K. Poor, Livermore	8235
*Juavana Stark, Livermore	8245
*Kenneth L. Tschritter, Livermore	8252

*Denotes rehire.

In Wet Weather Driving, the Rubber May Not Meet the Road

California's rainy season has arrived. And with it our front tires leave the road.

On wet or slushy highways the front wheels of a car actually climb up on a tough film of rain, and the car hydroplanes.

Experiments have shown that at speeds around 30 mph, front tires (carrying 24 pounds pressure) begin to lose contact with the pavement. At about 50 mph they're lifted up on a tough film of water and only the outer ribs are touching. At about 55, the front tire loses all contact.

Hydroplaning may begin when you can hear splashing from your tires. A warning clue is when you see clear reflections of other cars or poles, or you notice rain-drop "dimples" appearing in the road.

What can you do?

Best thing in rainy weather is to SLOW DOWN. It's also worthwhile to stop and put more air (30-40 percent more) in your tires. (Decreasing the air pressure increases the chances of skidding.)

Most new tires have deep tread grooves through which water pressure can escape; otherwise, they may go completely out of control on water. Most new treads are about 11/16-inch deep. If the mid-treads are worn 80 percent—or to about 1/8-inch—either buy new tires or do not drive until the hard rain stops because, according to findings, you have almost zero traction.

Never add weight to the car in the belief it will give your tires more traction on water.

Another safety measure is to drive in the "tire wipes" left by cars or trucks ahead. On busy turnpikes at 50-55 mph these usually leave a fairly wide track where little water remains.

Congratulations

Mr. and Mrs. Charlie DeCarli (8169) a son, Robert Charles, Nov. 29.

Sympathy

To Ben Turpin (8223) for the death of his mother-in-law in Livermore, Nov. 13.

To Bobbye Goodman (8135) for the death of her father-in-law in Seattle, Wash., Nov. 10.

To Tom Wieskamp (8155) for the death of his mother in Medford, Ore., Nov. 23.



DURING A VISIT TO A CONVENT on the outskirts of Lima (photo at left), John Kuruzovich (9232) attempts to repair the nuns' car as he gets some advice from M. M. Robertson (1122). Later, Mert Robertson



met with a teacher and some of the students at the adjoining missionary school (photo at right) after he described the eclipse and the purpose of the expedition to a group of fifth grade students.

Sandians Return From Eclipse Studies

South American Experiences Related

Scientific data obtained from two different Sandia eclipse study groups are still being processed, but the results of human relationships between the Laboratory participants in the expedition and the people of Brazil, Argentina, and Peru were known immediately.

Sandia personnel are praising the exceptional cooperation of the government officials of the South American countries and the fine hospitality of the businessmen, ranchers, gauchos, Indians, and other citizens of the three areas.

Equally important, Sandia personnel were excellent ambassadors of good will according to reports of their helpfulness, South American newspaper stories, and the comment "Sandia Si," which was frequently heard in those countries.

"Our relationships with Brazilian officials, newspapermen, and the general public were excellent," comments William E. Walker (9224), Sandia project manager for the rocket program that Sandia and Los Alamos Scientific Laboratory conducted at Rio Grande, Brazil. "These people went out of their way to be helpful."

"The Brazilian space agency not only provided the range and associated services, such as visitor control and aerial surveillance for range safety, but they even placed a couple of Brazilian Air Force planes at our disposal to expedite the movement of some Sandia equipment and personnel. Everyone was friendly and the Brazilian press was very complimentary," Bill adds with enthusiasm for the South American neighbors.

Farther south, members of Sandia's flying laboratory were experiencing a similar reception according to Merton M. Robertson (1122), scientific commander of the Sandia plane.

During a pre-eclipse press conference for the Argentine news media, the director of the government's space agency (del Instituto Nacional de Investigaciones Especiales) translated Mert's English explanation of the various scientific experiments aboard the aircraft into Spanish for the newsmen. Newspapers in Buenos Aires and throughout the country carried extensive stories with pictures of the three diagnostic aircraft.

The informal people-to-people experiences of Sandia personnel during their off-duty eclipse hours stretched from the Atlantic to the Pacific and from the northern to southern countries in South America.

Traditional annual parades normally held in September were rescheduled for November for the benefit of the visiting scientists, engineers, and technicians. They were invited to homes, offices, convents, and lectures.

When the Sandia aircraft landed at Lima, Peru, on its return trip, John Kuruzovich (9232) visited a Sisters of Charity convent on the outskirts of the city. The visit was suggested by several Albuquerque nuns who are members of the same order.

While there, John was asked if he could fix a four-cylinder foreign car used by five of the nuns. John said that he'd give it a try, so one of the nuns got in the car and tried to start it. Although the starter worked, the engine didn't "catch."

The nun turned off the ignition, removed the key, gingerly stepped out of the car, and slammed the door. The starter kept grinding away.

The nuns accepted the unusual behav-



A POPULAR EATING SPOT for many Sandians was a gaucho ranch on the outskirts of Buenos Aires. Here a gaucho is shown cooking lamb, chicken, ribs, steaks, and a variety of sausages over an open pit fire.

ior with knowing aplomb. However, John pressed for details on how they stopped the starter. It would stop, they replied, if they threw the gearshift into reverse and let out the clutch or merely waited for the battery to run down.

John devoted almost two days to repairing the car. He used the cover of a matchbook as a feeler gage to adjust the points. Water that a local handyman had poured into the air cleaner on the carburetor was replaced with oil. After other similar repairs, the car was in working order. "It was like Christmas for them," John reports.

At the nuns' request, Mert Robertson accompanied John to the convent and adjoining missionary school the second day. During the visit, Mert explained the purpose of the eclipse study to some 25 fifth grade students of the missionary school. The nuns and teachers were honored by the visit, John reports. John and his family are now looking forward to having one of the nuns as a houseguest when she visits in Albuquerque in the near future.

Other members of the Sandia group reported that the spirit of Christmas giving came early for John. When the plane was still based in Buenos Aires, he contributed almost all of the clothing and other personal items he had taken with him on the trip to a needy priest.

During that same stay in Lima, other members of the Sandia group visited an Indian village high in the Andes. There some 200 Indians, who were mainly engaged in mining, lived in long auto-court type structures. Members of one family approached the Sandians with the request that they take a picture of their infant who had recently died. Dale Fastle (7226) took a picture of the parents and children grouped around a draped table and gave them the photo. In deep appreciation, the

PAGE FOUR

DECEMBER 16, 1966

SANDIA LAB NEWS

Retiring . . .



Pancrasio Gonzales of Janitor Service Section 4574-5 will retire Dec. 30. Pan has worked in the same organization since he joined Sandia Laboratory in August 1953.

Mr. and Mrs. Gonzales have a small ranch in Tijeras which will now occupy most of his time. Prior to his retirement, Pan says he only had time to care for a small garden. His future plans include increasing the size of his garden, adding more fruit trees, and perhaps acquiring some livestock.

They have five children, all married and living away from home. "I have 16 grandchildren—I don't think I skipped any," Pan says, "and four great-grandchildren."

Sandia Speakers

J. E. Schirber (5151), "Study of the Fermi Surface Under Hydrostatic Pressure," Carnegie Institute of Technology Physics Seminar, Nov. 18, Pittsburgh, Pa.

J. N. Shinkle (1332), "Cylinder Escape Performance," Symposium on Timers for Ordnance, Nov. 15-17, Washington, D.C.; "Environmental Sensitivity of Detached Lever Escapements," ASME Winter Meeting, Nov. 27-Dec. 1, New York City.

J. A. Corll (9332), "The Effect of Hydrostatic Pressure (14 kbar) on the Ultimate Compressive Strength of Various Sintered Materials," ASME Winter Meeting, Nov. 27-Dec. 1, New York City.

R. G. Luckey (4100), "Accounting for a Non-Profit Organization," University of New Mexico Accounting Association, Nov. 22, Albuquerque.

R. W. Harris (5241), "Plasma Conductivity and Temperature in a Theta Pinch," Division of Plasma Physics, American Physical Society, Nov. 2-5, Boston.

B. L. Gregory (5212), "Radiation Damage in Silicon," University of New Mexico engineering colloquium, Dec. 6, Albuquerque.

D. W. Sasser and M. L. Slater (both 5262), "The Tchebycheff Inequality and the Van der Waerden Permanent Conjecture," American Mathematical Society, Nov. 25-26, Mexico City.

K. J. Touryan and D. F. McVey (both 9326), "A Program for Investigating the Response of Graphite (Carbon) Nose Cones to Severe Reentry," Air Force Ballistic Systems Division, Nov. 16, San Bernardino, Calif.

F. L. English (5142), "Electron Mirror Microscope Observations of Barium Titanate," American Physical Society, Dec. 1-3, Nashville, Tenn.

J. R. Garcia (3133), "Supervision and Motivation," New Mexico Sheriff's and Police Association, Dec. 7, Albuquerque.

L. S. Nelson (5234), "High Temperature Reactions of Pulse-Heated Microspecimens," University of Chicago seminar, Dec. 5, Chicago.

C. H. Purdue (2442), "Computer Aided Design and Analysis," University of Missouri Electrical Engineering Department, Nov. 18, Columbia, Mo.

Indian family gave Dale a treasured piece of ore.

There were also humorous incidents associated with the trip. Returning to their hotel one evening, a group of Laboratory personnel were engulfed by a group of demonstrators. As the Sandians approached the hotel they saw it was rimmed with armed and helmeted militiamen. One Sandian asked Dick Vigil (7222), "What do we do now?" Dick countered, "What do you mean 'we,' gringo?"

Also in Lima, C. A. (Kip) Blossom (2554) went to a movie. While he was straining to hear the English soundtrack, other members in the audience suddenly started leaping to their feet. The usher instructed them to be calm. Kip didn't know what had caused the frightened reactions until the next morning when the newspapers reported a slight tremor. The people living in this earthquake area apparently are more sensitive to earth tremors, Kip reports. "What bothered me was that I didn't feel a thing."

In Rio Grande, Brazil, the local society for the preservation of the gaucho tradition conducts an annual parade in September which is similar to the New Mexico State Fair parade. In honor of the eclipse participants, they rescheduled the parade for the Sunday before the eclipse. Included in the parade program was the playing of "The Stars and Stripes Forever."

The Brazilians, Argentinians, and Peruvians impressed the Sandians very favorably. Many will be long remembered for their friendship and hospitality.

Sanado Art Exhibit Set

The Sanado Art Associates will exhibit paintings and crafts in the New Mexico Art League Old Town Small Gallery, 400 Romero NW, for one week beginning Saturday, Dec. 17. Gallery hours are 10 a.m. to 9 p.m.

A reception will be held on Sunday, Dec. 18, from 2 to 5 p.m. The public is invited.



OFFICIALS of the Atomic Energy Commission visited Sandia Laboratory recently to attend technical briefings. Shown with R. A. Bice (left), Sandia Vice President 7000, are (from left) Brig. Gen. Delmar L. Crowson, USAF, Director of the AEC's Division of Military Application; Glenn T. Seaborg, AEC Chairman; and Gerald F. Tape, AEC Commissioner.

Sandians Participated in Recent Project Sterling Nuclear Experiment

Seven Sandians participated in an underground nuclear experiment, called Project Sterling, near Hattiesburg, Miss., recently.

The Project Sterling nuclear device (350-ton yield) was detonated Dec. 3 in the cavity formed in the Tatum Salt Dome by a previous underground nuclear explosion, the Salmon event of Project Dribble, detonated in October 1964.

The current experiment is part of the Vela Uniform program to develop techniques for improving methods of detecting, identifying, and locating underground nuclear detonations. It was conducted by the Atomic Energy Commission for the Advanced Research Projects Agency of the Department of Defense. Lawrence Radiation Laboratory was responsible for technical direction of the project.

Arming and firing systems support was performed by John H. Fuqua and Jim L. Lovell of Arming and Firing Field Support Division 7262.

Ken B. Kimball and Dean B. List of Blast and Earth Motion Division 7242 were responsible for the Sandia instrumentation which made close-in measurements of earth motion resulting from the detonation. William R. Perret of Underground Physics Division 5232 was scientific officer for Sandia's participation in the pro-

ject. J. L. Martinez of Test Data Division 7267 was responsible for data reduction. C. B. Taft of Support and Logistics Division II 2554 handled administrative support.

The earlier nuclear experiment at the site, involved the detonation of a five-kiloton device tamped at the bottom of a 2700-foot hole. A tamped emplacement is one in which the explosive device is fired in a completely enclosed small hole essentially in direct contact with the surrounding earth.

The second nuclear experiment, Project Sterling, called for detonation of a 350-ton device (about 1/15th the yield of Salmon) in a decoupled emplacement. In a decoupled emplacement the explosive is centered in a large cavity within the earth mass. In this case, the device was emplaced at the center of the 110-foot-diameter cavity formed by the Salmon event about 2700 feet below the surface.

Past Experiments

Experiments using chemical high explosive detonations in small, spherical, mined cavities in salt, were conducted by the AEC beginning in late 1959 in a salt mine near Winnfield, La., under the project name, Cowboy. The experimental results supported the decoupling theory and the prediction that the seismic signals from a fully-tamped explosion would be about 100 times larger than those from the decoupled explosions of equal energy yield.

Firing the 350-ton Sterling device in the Salmon cavity (and consequently at the same depth, 2700 feet, in the same salt environment, Tatum Salt Dome) will permit correlation of seismic instrument readings with those from the Salmon event to evaluate decoupling of nuclear explosions.

Although the high explosive decoupling experiments in Louisiana demonstrated validity of the theory, decoupling effects of a nuclear explosion at the center of a large sphere created by a previous detonation are not well understood.

The difference in the effects stems from the fact that the walls of mined cavities (used in the high explosive tests) are relatively undisturbed, while walls of explosively formed cavities (such as the Salmon cavity) are radically deformed and fractured. This condition may result in less decoupling from the Sterling event in the Salmon cavity than would occur in an mined cavity of the same size.

Testing Experience

So far in the United States, all underground nuclear detonations have been in tamped or semi-tamped positions in tunnels and drilled holes. All but four (the Plowshare experiment, Project Gnome near Carlsbad in December 1961; Project Shoal near Fallon, Nev., in October 1963; the Salmon event of Project Dribble; and Project Long Shot at Amchitka, Alaska, in October 1965) have been within the AEC's Nevada Test Site some 65 miles northwest of Las Vegas.

Project Gnome was a part of the Plowshare program for developing peaceful applications for nuclear explosives. The Gnome device of about three kilotons was detonated approximately 1200 feet below the surface in bedded rock salt.

About 190 nuclear devices have been announced as having been detonated in shallow or deep underground emplacements at the Nevada Test Site since the Soviet Union resumed nuclear testing on Sept. 1, 1961, and the U.S. resumed testing as a consequence on Sept. 15, 1961. Of that number, the AEC has announced about 100 underground tests at the Nevada Test Site since the signing of the limited test ban treaty on Aug. 5, 1963. All of these detonations and the seismic signals resulting from them have been studied as part of the continuing Vela Uniform research program.

The information obtained has provided United States negotiators with technical data for talks bearing on test ban matters in Geneva, Switzerland; Washington, D.C.; New York City; and other locations since 1958. These talks have been conducted in an effort to reach international agreement to ban all nuclear weapons tests.

PAGE FIVE

DECEMBER 16, 1966

SANDIA LAB NEWS



FIFTY-SIX TEACHERS listen to a talk on reactors by R. M. Jefferson (5224) during a recent one-day science seminar at the Laboratory.

Sandians Substitute for Regular Teachers During One-Day Science Seminar

Forty-nine Sandians served as junior high school science teachers for a day while 56 teachers from Albuquerque public, parochial, and private schools attended a one-day science seminar at the Laboratory recently.

Sandia conducted similar seminars for local senior high school teachers in 1962 and 1965. At the conclusion of the seminar last year, school and Sandia officials expressed interest in expanding the program to the junior high school level. This year 47 of the teachers were from public schools, eight from parochial schools, and one from a private school.

The Laboratory program began at 8 a.m. and consisted of lectures in the Sandia Theater (Bldg. 815), lunch at the Coronado Club, and a tour of Technical Areas III and V.

B. F. Murphey, manager of Atmospheric and Underground Sciences Department 5230, opened the seminar with a talk on the role of science at Sandia. Robert Gresham, coordinator of secondary education, Albuquerque Public Schools, then discussed advances in science and the need for better communications between industry and the schools.

Other Sandia speakers and their subjects were J. D. Shreve (5234), "Aerospace Challenge"; R. L. Schwoebel (5123), "Surface Physics"; C. H. Karnes (1115), "Shock Wave Effects"; M. M. Robertson (1122), "Eclipse"; and R. M. Jefferson (5224), "Reactors."

In the technical areas, the group toured the reactor, sled track, and centrifuge facilities.

W. H. Trump (3132), Sandia coordinator for the program, reports that comments from teachers who attended the Laboratory seminar are very favorable. Letters from school principals and teachers praised the contributions made by the 49 Sandians who served as teachers during the day.

Promotions

Mary M. Ames (3126) to Secretarial Typist
Mildred G. Arvin (9411) to Tabulating Equipment Operator
Bertha A. Barnes (2122) to Data Reduction Clerk
J. B. Baskett (2232) to Senior Clerk
Doreen Bevans (3126) to Steno Clerk
Hazel L. Boyden (2122) to Data Reduction Clerk
Camel J. Chavez (3415) to Mail Clerk
William A. Cole (8253) to Reproduction Equipment Operator
Paul R. Coronado (8133) to Staff Associate Technical
Mary E. Courtney (5230) to Secretary
James C. Curtin (8121) to Technician
Bonnie Lou Dana (5630) to Secretary
Oliver W. Davis (3415) to Mail Clerk
Thomas W. DeHaan (3415) to Mail Clerk
Thomas D. Drago (3415) to Mail Clerk
Charles E. Drury (8253) to Service Clerk
Judith A. Dvorak (3126) to Typist Clerk
Demetrio P. Gallegos (3415) to Mail Clerk
Judith A. Gaunce (3463) to Chartist
Joan E. Gentz (3126) to Typist Clerk
Norman R. Grandjean (5141) to Staff Assistant Technical
Hellen M. Grobner (2122) to Data Reduction Clerk
Ted L. Hebebrand (8245) to Receiving Clerk
Roy P. Jaramillo (4233) to Wireman
Jerry T. Meloche (4233) to Wireman
Jerry G. Campos (4631) to Technician
Alfonso Lujan (4631) to Technician
Reuben Villanueva (4631) to Technician
Victor Gabaldon (4631) to Technician
K. W. Campbell, Jr. (3415) to Mail Clerk
Mary K. Beard (3421) to Library Assistant
Patricia E. Jones (3126) to Typist
Joan E. Keith (2211) to Staff Assistant Drafting
Roma S. Kessler (2125) to Data Reduction Clerk
Hermionio P. Molina (4574) to Janitor
Nancy J. Nelson (2211) to Staff Assistant Drafting
Terry L. Otero (3415) to Mail Clerk
Froilan L. Paler (8235) to Messenger
Charles R. Peoples (4233) to Helper
Manuel R. Sanchez (4575) to Laborer
Thomas A. Sandlin (3415) to Mail Clerk
Ruth C. Scates (2125) to Data Reduction Clerk
Henry E. Schoeppe, Jr. (8168) to Staff Associate Technical
Frank Speakman (2554) to Order Detailer
Evelyn L. Stewart (3152) to Administrative Clerk
Donald C. Stoner (8127) to Staff Associate Technical
John J. Strascina (3415) to Mail Clerk
Ferdinand F. Thome (8244) to Order Analyst
Boney Vigil (9411) to Staff Assistant Administrative
Emelia Vigil (4631) to Helper
Robert E. Treharn (4574) to Janitor
Mary R. Houston (3421) to Librarian
Barbara L. Barney (3421) to Librarian
Clara M. Gearhart (3421) to Librarian
Dorothy Ham (3421) to Librarian
Janey Johnson (3421) to Librarian
Marian Tillman (4233) to Wireman
Gwen C. Redding (3411) to Editorial Assistant
Louise S. Winner (7521) to Typist Composer
Donald E. Yearout (8156) to Staff Associate Technical
Betty J. Ingram (4233) to Wireman
Adolpho Sanchez (4233) to Wireman
Roy J. Hart (4224) to Welder
J. Dennis Rex (4224) to Welder
Dennis C. Loblely (4233) to Platemaker

Supervisory Appointments



FRED A. GROSS, JR., to supervisor of the newly created Experimental Systems Division 9235, effective Dec. 1.

Fred has worked on advanced systems since he joined the Laboratory in April 1963. He has been primarily concerned with the development of tactical weapon systems and with weapons effects.

Fred completed 21 years of service with the Air Force before coming to Sandia. During WWII, he served with heavy bomber groups in Italy and the Pacific. After the war, he was engaged in research and development work for the Air Force. From 1952-55, he was with Field Command, DASA. He was assigned to Kirtland Weapons Laboratory from 1958-63, during which time he was deputy chief of the Physics Division and later chief of the Applications Division. He retired as a lieutenant colonel in March 1963.

Fred received both a BS and MS in nuclear physics from the University of Wisconsin in June 1951 and February 1952 respectively.

He is a member of the American Physical Society and American Ordnance Association.



LOUIS C. BALDWIN to supervisor of Technical Information Division II 3412, effective Dec. 1.

Lou joined Sandia in the business methods group in September 1958 where he wrote systems and procedures reports. One year later he transferred to technical information as a technical writer. He has been principally concerned with the publication of Sandia's Quarterly Report.

Before coming to Albuquerque, Lou was in industrial relations and supervisory training at a utility company in Chicago from 1952-58. Before that he was an assistant professor of English at De Paul University for six years.

He was a cryptographer in the Army Signal Corps from 1943 to 1946.

Lou and his wife co-authored a book entitled "To Marry with Love," which was published in 1958.

He received a BA degree in English from De Paul University in 1941 and an MA in English from the University of Chicago in 1948.



WILLIAM J. WAGONER to supervisor of Technical Report Illustrations and Presentation Art Section 3463-2, effective Dec. 1.

Bill joined Sandia as an artist in a manuals section in May 1960. Seven months later he transferred to the Commercial and Animation Art Section.

He studied general art at the John Herron Art Institute in Indianapolis from 1950 to 1952 and then enrolled in Hamline University. From 1953 to 1955 he served with the Army as an instructor at Redstone Arsenal and as an illustrator at White Sands Missile Range.

In 1955 he returned to Hamline University where he received a BA degree in art education in June 1957. He was awarded an MA in art history from the University of Chicago three years later.



BUZZ BABCOCK displays his award-winning painting with certificate and bronze medalion. His work was judged tops in recent National Association of Industrial Artists exhibit.

Buzz Babcock Receives Industrial Art's Top Award of Excellence

Top award in the recent National Association of Industrial Artists exhibit in Washington, D.C., went to C. D. (Buzz) Babcock of Technical Art Division 3463.

His intricate, colorful, precision-drawn, tempera painting of a weightlessness switch took a first Award in the NAIA exhibit and was selected also for a Bronze Medallion Award for excellence by INDUSTRIAL ART METHODS.

Six other Sandia technical artists submitted entries and the judges selected 13 of these to be part of the exhibit.

Gordon Snidow was awarded a second place in the visual aids category, Gene Lloyd received a third place in continuous tone, black and white illustration category, and Leo Ortiz and Rusty Ganzerla received a third place in the continuous tone, color category. Honorable mention awards went to Janet Jenkins and Jim Walston in the visual aids, posters category.

Buzz feels pretty good about his award—about the highest recognition a technical artist can receive. The competition was nationwide and included work by top artists of the nation's leading industrial and government agencies. Although he has been preparing technical illustrations for Sandia for 17 years, all of his previous work has been classified. He does the intricate cutaway illustrations of Sandia systems used in technical training and military briefings.

Buzz is a graduate of the Denver Art Institute. He completed the commercial art course in June 1949 and came to work at Sandia the following month.

Stu Browning Is Sandia's Man at New Las Vegas, Nev., Field Office



STU BROWNING (2554) provides administrative and logistics support to Sandians conducting company business in Nevada. Sandia's new field office was opened Aug. 1 at McCarran Airport in Las Vegas.

J. S. (Stu) Browning of Support and Logistics Division II 2554 operates Sandia's newest field office in Las Vegas, Nev. The office, an extension of the services of Nevada Test Site Staff Section 7261-1, is located in the terminal building at McCarran airport. Travel and reservations for Sandia personnel and special shipments of equipment into the Nevada Test Site and Las Vegas Area Office of the AEC are important concerns of the new office.

Previously, the travel reservations portion of the work was handled by the NTS Staff Section.

In the few months of operation, Stu has found a continuing flood of details to take care of. These range from making, changing, cancelling, and rescheduling travel reservations to conducting a survey of available housing. He coordinates Sandia requests with airline personnel, handles special shipments, helps Sandians make local contacts with REECO, EG&G, AEC/NVOO personnel, makes rental car and lodging reservations, and makes local purchases for Sandia test site use.

The office, located upstairs over the rental car agencies in the terminal building, serves as Sandia headquarters for the many Sandians who travel through the Las Vegas airport each week. Along with the personnel services, they can use the phones and teline service, stash their luggage, hold conferences, or use the reading and work areas in the Sandia office.

"I see the office as an extension of the mission of Sandia Logistics and Administrative Support organizations—freeing technical people to concentrate on the technical job. Anything that we can do to help, we do," Stu says.

To contact Stu from Sandia Laboratory, dial 87-122-3860. From Livermore Laboratory, dial 8-702-734-3860.

Invention by John B. Noe Issued Patent

A patent in the name of John B. Noe, Telemetering Development Division 7211, has been issued to the Atomic Energy Commission for the invention of a circuit which provides a method of automatically charging and discharging batteries connected in parallel.

Useful in telemetry applications, the new circuit provides automatic isolation and equalization of batteries connected in parallel. Using the circuit package, it is possible to remotely apply a charging current and have the batteries charge. When the charging current is removed, the batteries will perform as a power source when connected to the load, which can also be done remotely on the same wire.

The invention, called "A Multiple Battery Charging and Discharging Circuit Means" was awarded U. S. Patent No. 3286152 Nov. 15.

Sandia Tech Papers At American Chemical Regional Meeting

A number of Sandians presented technical papers at the Southwest Regional Meeting of the American Chemical Society held Nov. 30 - Dec. 2 in Albuquerque.

The meeting was attended by some 700 persons. The main address at the banquet was given by Dr. Glenn T. Seaborg on the topic "Present Status of Transuranium Elements."

The high temperature chemistry sessions included the following papers: J. G. Eberhart (1123), "A Functional Equation for the Estimation of Entropy Data"; R. A. Sallach (5234), "A Study of the Beta-Phase Zirconium-Hydrogen Solid Solutions"; H. S. Levine (5234), "Mechanisms of Metallic Oxidation at High Temperatures"; and L. S. Nelson (5234), "High Temperature Reactions of Pulse-Heated Microspecimens."

Other papers presented included R. K. Traeger and A. A. Armstrong, Jr. (both 1111), "Short Time High Temperature Effects on Plastic Foams"; Kathryn E. Lawson (1121), "Polarized Absorption Spectra and Photoluminescence of Hexa- and Tetra-Coordinated Manganous Ion"; F. J. Conrad and B. T. Kenna (both 1121), "Neutron Activation Analysis of Manganese in Polysulfide Adhesives" and "The Application of Neutron Activation Analysis in an Analytical Laboratory"; P. E. Cassidy (1111), "An Investigation of Metallo-cene-Containing Polymers"; P. E. Cassidy and Judith Carlson (both 1111), "The Preparation and Identification of Phenolic Lead Compounds."

Division 2563 Will Conduct Round Of VE Workshops for AEC Areas

As Value Engineering and Cost Improvement Division 2563 starts a round of Value Engineering workshops for AEC and AEC contractor personnel throughout the country, the program continues to reap recognition for Sandia Corporation.

Recently, Sandia President John A. Hornbeck received a letter from L. P. Gise, manager of the AEC's Albuquerque Operations which said in part:

"... In September Sandia Corporation conducted two one-week VE sessions which were attended by persons from throughout the AEC contractor and field office complex.

"On Nov. 10, I received a memorandum from R. E. Hollingsworth, General Manager of the Atomic Energy Commission, expressing his appreciation for the excellent job which was done by your people in arranging and carrying out these sessions. . . . I would like to add my personal congratulations for a job well done in an area which promises to be a significant contributor to the Cost Improvement Program in years to come."

Division 2563 is currently conducting a Value Engineering Workshop for AEC and AEC contractor personnel at Richland, Wash. The session, presented by K. A. Sarason (2563), will close today. Some 45 persons are attending.

Also at Richland on Dec. 14, Elmer Devor, Division 2563 supervisor, presented a summary briefing and Value Engineering orientation to members of the top management of the AEC and contractor firms.

The workshops augment traditional cost reduction activities by applying new techniques to determine the basic function and functional worth of a product. Goal is to provide the required product function at the lowest sound cost without compromise of quality, reliability, or safety.

In the past the workshops have pinpointed areas of significant savings. The sessions are designed to use actual work in progress as cases for consideration. Teams of personnel with different specialties and backgrounds consider the projects, apply VE techniques, and make recom-

Rose Hainlen (4152) emerged Sandia's top woman golfer at the close of the season recently. She was the low gross champion of the Women's Golf Association while Ann Michele (4510) was runnerup. Rosalie Crawford (1) was the low net champion.

In the short nine competition, Pat Anderson (7216) emerged low gross champion while Rose Hainlen was runnerup for this one. Nancy Ross (2412) was the low net champion in the short nine league.

* * *

Top horseshoe pitcher at Sandia Laboratory is John Hiller (7513). He won the 1966 singles tournament defeating Peter Peshlakai (4212) in the Class A final competition.

In Class B, Oren Worden (7513) took the championship while Stan Eastman (4212) came in second.

In Class C, Robert Evans (2133) defeated F. G. Gabaldon (1512) for the championship.

In Doubles competition, the dynamic duo of J. E. Taylor (4224) and P. A. Peshlakai (4212) took the Class A championship from Fonzo Cossell (4514) and L. A. Eversgerd (4513).

In Class B competition, L. H. Bressan (2412) and J. G. Brooks (7332) came out on top with L. B. Flores (7332) and D. J. Padilla (2131) taking second place.

F. G. Gabaldon (1512) and T. V. White (2213) took the championship in Class C while J. S. Reed (4221) and F. B. Grey (4224) came in second.

* * *

Christmas trees are on sale on Sandia Base to Sandia employees. The tree lot is located on the east side of the Base Exchange Main Store at F and First Streets. Hours are Mondays through Saturdays, 8:30 a.m. to 5 p.m.; Sundays, noon to 5 p.m. Proceeds will be used for youth activity programs on Sandia Base.

* * *

The undefeated Colts, a composite team from 1500, 3400, 4100, 4600, and 9400 organizations, took the 1966 Sandia Laboratory flag football championship. The Colts finished with a 10-0 record, the best in the six-team league.

Members of the team include manager Sonny Sanchez (9411), Tom Bratcher (5263), Ernie Chavez (4152), Leo Chavez (4615), Bobby Collins (9411), Dave DeMattos (4112), Steve Fish (9413), Neil Gholson (9413), Dennis Gutierrez (2232), Art Hardeman (9426), Bobby Jaramillo (9411), Gary Mauth (1515), Terry Otero (3415), Dick Reed (4122), Pat Sanchez (3415), Buddy Sanchez (9411), Steve Van Hauen (4152), Carl Wersonick (3465), and Larry Wilhelm (9411).

Sympathy

To Juan A. Sanchez (4574-4) for the death of his brother at Los Lunas, Dec. 1.

To Billy D. Thompson (4511-1) for the death of his father-in-law at Irving, Texas, Dec. 4.

Take Note

Warren B. Miller (7267) became the state chess champion by winning the New Mexico Open Chess Tournament at Los Alamos last month. Playing five games during the three-day event, he scored four wins and one draw. The closest competitors had three wins and two draws.

A chess player since 1952, Warren held the state title in 1962 and the city crown in 1963. He also participated in the national, city, and various club tournaments this year. Currently he is playing in a seven-game tournament at the Albuquerque Chess Club after just completing a Sandia ANAF (Army, Navy, Air Force) Club tournament.

Warren is a member of the U. S. Chess Federation and president of the Albuquerque Chess Club.

* * *

Three Sandians will judge local entries in an international peace essay contest sponsored by the International Association of Lions Clubs. H. E. Lenander, director of Manufacturing Development 2500, and W. F. Carstens, manager of Technical Information Department 3410, will judge the entries for the Paradise Hills Lions Club. A. Y. Pope, director of Aero Projects 9300, will be one of the judges for the Northeast Lions Club.

The contest, which is open to young people 14 to 22 years of age, is designed to focus attention on the desirability of searching for ideas and developing a plan toward making world peace a reality.

Initial judging will be made at the local club level. Winning entries will then progress through sub-district, multiple district, world geographical, and finally international levels. U. S. Savings Bonds, plaques, and cash will be awarded to the winners. The grand prize winner will receive a \$25,000 personal education and/or career assistance grant which will be administered by the International Association of Lions Clubs.

H. L. Anderson (2546) is president of the Northeast Lions Club. Paradise Hills Lions Club officers include Sverre Johannessen (2541), first vice president, and W. C. Colborne (4120), third vice president.

Sandia Authors

R. A. Graham (5133), D. H. Anderson (5132), and J. R. Holland (5133), "Shock-Wave Compression of 30%Ni-70%Fe Alloys—The Pressure Induced Magnetic Transition," January issue, JOURNAL OF APPLIED PHYSICS.

R. L. Schwoebel (5123), "Growth of Close Packed (III) Plane of Gold Single Crystals," January issue, JOURNAL OF APPLIED PHYSICS.

C. D. Taylor (1425), "On the Velocity Distribution of Electrons Scattered from a Metal Slab by the Gamma Flux from a Nuclear Explosion," November issue, NUCLEAR SCIENCE.

G. W. McClure (5121), "Proportional Counter for the Detection of Ions and Atoms in the keV Energy Range," November issue, REVIEW OF SCIENTIFIC INSTRUMENTS.

Deaths



E. C. Temple

A. B. Metzger

Elmer C. Temple of Plant Systems Division 4511 died Nov. 24 after a long illness. He was 64.

He had been employed at Sandia Laboratory as a fireman, power and heating, in the steam plant since January 1952.

He is survived by his widow, a son, and three grandchildren.

* * *

A. Burton Metzger, former manager of Safety Engineering Department 3210, died Dec. 3. He was 70.

He retired from Sandia Laboratory in July 1961 after guiding the Company's safety engineering efforts for 11 years. He came to Sandia from Western Electric Company where he had served in a number of supervisory positions. He worked 39 years for the Bell System.

He is survived by his widow and one granddaughter.

Service Awards

15 Years



Helen Allen
3465



Theresa C De Baca
2234



E. L. Drake
4543



L. E. Dumond
4511



B. J. Guerrero
4135



M. O. Guest
4514



Dorothy Ham
3421



M. W. Hansen
4631



C. L. Hawk, Jr.
3463



J. A. Johnson
2552



J. W. Labrier
2554



P. L. Lopez
4212



Victorino Lopez
4212



R. P. McCann
9232



Shirley Meloche
4613



B. H. Moss
3242



George Neufeld
4518



P. A. Pino
2551



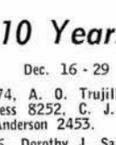
Orlando Sanchez
4573



Josephine Sandusky
7320



T. E. Smart
7335



Hazel Smeltzer
3462

10 Years

Dec. 16 - 29

T. J. Montano 4574, A. O. Trujillo 4622, J. M. Munyon 8152, Alyce J. Loveless 8252, C. J. Wiseberg 1332, D. W. Sasser 5262, W. F. Anderson 2453.
G. L. Riggins 7216, Dorothy J. Saiz 9413, Lida V. Stover 3126, Rosie M. Cruz 4314, G. M. Haycock 4518, and G. W. Dawson 8223.

Welcome Newcomers

Nov. 14 - Dec. 9

Albuquerque	Mary E. Abeita	3153
	Judith A. Apodaca	3126
	John P. Boyd	4543
	Ida L. Burch	4613
	Leona M. Chosa	3153
	Adelico C. Cordova	4574
	*Jean Ann Davis	4574
	Robert L. Edinger, Jr.	3126
	Judy E. Eslinger	3126
	Margaret R. Fortner	1432
	Floyd P. Ganyard	1433
	Jerry A. Hood	4574
	Joseph Harris	7216
	Devra A. King	9412
	Judith I. McMillan	3126
	Gerald Montgomery	4574
	Profeso Padilla	3413
	Donny H. Rhoden	4623
	Hilda G. Roche	3126
	Anita M. Roybal	3154
	Susan K. Walsh	3154
	Karl W. Ward	2213
	George I. Williams	9413
	Eufimia R. Zubia	3153
California	James B. Kyser, Palo Alto	9321
Colorado	John W. McKelvey, Littleton	9315
	Earl E. Rush, Jr., Littleton	4542
Iowa	Wayne B. Vine, Decorah	2565
Minnesota	James A. Doppelhammer, Glenville	1424
New Jersey	Sanders R. Dolce, Piscataway	5222
Ohio	Raymond C. Patrick, Youngstown	5121
	Martin H. Wempe, Cincinnati	4542
Tennessee	Wesley L. Holley, Concord	9315

*Denotes rehire

Fred F. Eichert Named to Advisory Group at Southern Colorado State College



Fred F. Eichert, manager of Design Definition Department 2210, has been selected to serve on an advisory committee to the Department of Engineering Technology of Southern Colorado State College. The committee will

assist in the development of a four-year program in Mechanical Engineering Technology.

In acknowledging Mr. Eichert's acceptance, Dean Leland Benz of the College's Trade-Technical Division wrote last week that they "... hope the efforts of this committee will be of value to both industry and education. Industry needs adequately trained technicians, and technical education must serve these needs to survive."

Some of the topics to be discussed at the first meeting of the committee on Jan. 13 at the Pueblo, Colo., campus include guide lines for program development, needs of industry not being met by two-year programs, and ways in which the new four-year program can better fill these needs.

Mr. Eichert has been manager of Sandia's Design Definition Department since 1956. He came to the Laboratory in November 1949. Currently he is a member of the advisory committee to the Albuquerque Technical-Vocational Institute. The committee assists in the review of the Technical Drafting curriculum, making suggestions wherever appropriate from the industrial viewpoint.

Mr. Eichert is also a member of the United States of America Standards Institute Committee Y14.5 on "Dimensioning and Tolerancing of Engineering Drawings"; the American - British - Canadian Committee on Unification of Engineering Drawing Standards; and the United States Review Committee on the International Standardizing Organization's "Engineering Drawing Standards."

Junior Ice Hockey Gains Popularity

Ice hockey for youngsters has caught on in a big way in Albuquerque.

Last year Rol Hewitt (7255) and other hockey enthusiasts held an ice hockey clinic for boys and helped to organize a Pee Wee League. There are now three teams in the Pee Wee League—boys 7 through 11 years—and three teams in the Bantam League—boys 12 through 14 years.

The teams practice mainly on Saturdays and their league games are played prior to the Iceland Arena. (There are three senior amateur teams in this league in Albuquerque.)

"We usually have openings for boys with some skating ability," said Rol. Those interested should contact Rol at tel. 256-6483, or George Vaughan at 299-0753 for further details.

SHOPPING CENTER

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

RULES

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

FOR SALE

FORD Econoline wagon w/built-in camper unit, new tires, wheels and battery, low mileage, \$950. Cleveland, 298-0218.

JEMEZ, 3 acres w/water; Cedar Crest, 2-bdr., unfinished house, take house trailer for unfinished house. Aaron, 282-5803.

'53 PLYMOUTH 2-dr., one owner, new tires. Drive in peace (no radio), \$100. Colgan, 243-4882.

MOUNTAIN HOME, 3-bdr., 2 baths, GE kitchen, excellent water, 2 acres on pavement. Flowers, 282-3458.

'58 CHEVROLET Impala V8 sport coupe, 2-dr., 71,000 miles, Turbo glide drive, silver blue, white top, one owner. Makal, 436 Gen'l. Patch NE, 298-0912.

SPRING HORSE, 1 yr. old, 28" high, \$8, originally \$15. Wemple, 298-2048.

CABIN FOR YOUR LOT, 12'x28', can be added onto to make 2 bdrs. and family area of 16'x24'. Villella, 298-7955.

'53 CHEVY 4-dr., best offer. Bernard, 243-3481.

AKC registered, 5 wks. old, German Shepherd puppies, male \$50, female \$40. Silva, 877-2021.

SEARS' amplifier and foot control reverbator, for electric guitar, used 2 mos., cost \$110, sell for \$75. Sweatman, 2017 Cagua NE, 296-0300.

APACHE transmitter w/SB10 SSB adapter; Mohawk receiver w/speakers; 450MC Motorola FM gear w/6' rack. Day, 256-6360.

CAMERA, Praktika FX, single lens reflex F1.9 lens, carrying case, \$40. McWhirter, 268-4862.

COMPLETE amateur radio station; Viking II transmitter, HQ-140-X receiver plus accessories, everything for \$250. Jones, 268-4954 after 6.

FIVE ACRES, Frost Road, two miles east Hwy. 10. Lovato, 299-3293.

THE Albuquerque Preschool Co-op has a vacancy for a 4 to 5 year old. Otts, 268-1407.

WARD'S record player, automatic, \$10; 7' pool table w/accessories, \$30. Scott, 299-3412.

GIRL'S Schwinn racer, 26", 2 yrs. old, \$40. Rodocovich, 299-3123.

ELECTRIC TRAIN layout mounted on hinged wall mounting, diesel engine and 8-car freight, many extras, \$75. Stover, 256-2459.

10" TRICYCLE; doll house and furniture; toy refrigerator and stove; doll playpen; bicycle, butterfly handlebars; misc. items. Lowe, 11404 Bellamah NE.

SCHWINN 20" bikes: boy's red, hi-handles, banana seat, stud tires, thorn tubes; girl's blue, basket, thorn proof tires. Lynes, 268-0144.

26" SCHWINN boy's bicycle. Heidrich, 344-7669.

SEARS' glass fireplace screen, adjustable 30" to 38" wide, 27" to 31" high, see and make offer. McReynolds, 255-2615.

TWO TIRES, size 8.55x14, w/w, \$7.50 each. Pierce, 255-7923.

SOLID OAK BUNK BEDS, complete; 16" bicycle w/coaster brake; B-flat clarinet, used 3 mos. Duimstra, 299-9278.

'66 DODGE 1/2-ton pickup, custom cab, wide bed, V8, automatic, custom paint, full set chrome wheels, 7000 miles, heavy duty everything, take over payments. Hindi, 344-6239 after 6.

H.O. TRAIN SET and accessories; H.O. road racing set, sell or trade, make offer. Causey, 299-0089.

'57 BUICK HT, AT, PS, PB, R&H, \$325. Lewis, 296-4422.

AMF 10-speed bike, \$35; Brunswick bowling ball and bag, \$11; folding baby carriage, \$5; Lionel train set. Finley, 299-0739.

'60 RENAULT, \$275; Kenmore portable dishwasher, \$60. Truby, 299-0577.

CRIB, \$25; bassinet, \$6; Teeterbabe, \$10. Perea, 255-7831 after 2 p.m.

GIRL'S 26" bicycle w/basket and thorn proof inner tubes, \$15. Schneider, 299-6243.

TIRE CHAINS, fits 6.50x13, 5.60x15 and many other size tires, new, \$6. Coleman, 299-2377.

AKC Dachshund puppies, ready for Christmas, bred for type and temperament, pet prices. Simon, 299-0703.

EPHONER-Pacemaker, w/2 input jacks for microphone, instrument, loudness, frequency controls, never used, \$100; Bogen amplifier, 2 input jacks, tone & volume controls, \$35. Ryan, 299-3318.

'55 MERCURY Montclair, HT, AT, R&H, power seat. Dumond, 898-3155 after 6.

HO scale model train layout, 4x8 board, 2-level, locos, cars, structures, scenery. French, 255-7676.

'61 FORD 4-dr. Galaxie, white, seat belts front-r. rear, factory air, PS, 300 HP, 390 cu. in. motor, new tires, one owner. Cavanaugh, 255-7912.

LARGE bleached bull skull complete w/horns, 34" spread, \$5. Summers, 299-4674.

EARLY AMERICAN maple desk, 6' high w/upper shelves, 30" wide, \$40. O'Meara, 299-1080.

3-BDR., 2 baths, many fine features, no closing cost, qualifying or waiting, 5 1/4% interest, 2709 Greta NE. Martin, 299-7045.

'62 T-BIRD, \$1250; '61 Triumph T20SL. Campbell, 1114 Princeton NE, 256-3214.

'66 CHEVELLE Malibu, 327-V8 eng., AT, R&H, tinted glass, w/w tires. Magruder, 255-2078.

'51 4-cyl. JEEP engine complete w/generator, starter, clutch, etc., \$50. Cashion, 242-3345.

SIAMSE KITTENS, right age for Christmas present, \$15. McIlroy, 8907 Los Arboles NE, 299-4977.

CATERPILLAR tractor model TR-15, dozer blade but needs hydraulic pump and cylinders, recent engine overhaul. Foster, 282-3975.

ENCYCLOPEDIA AMERICANA w/bookcase; Brunswick bowling ball w/bag; 2 occasional chairs; Viltrom electric foot massager; 2 pr. drapes, 72x80"; misc. games. Brown, 255-0566.

ZENITH TV, 23" console w/remote control. Nielsen, 345-0213.

AKC white miniature poodles, 1 adult male, \$50; 1 adult female, \$50; 1 puppy, runt of the litter, \$70. Buccheri, 255-8028.

STEEL CASEMENT WINDOW, glazed, 52" w x 51" h w/2 crank-outs, \$15. Roberts, 255-4527.

GIRL'S 26" 3-speed English racer, \$25; 3/4 size violin, case and extras, \$40; cartop carrier, \$5; guitar, \$10. Taggart, 268-0963.

CAMERAS, Polaroid 100 w/flash, \$85; Super Dollina II pocket 35mm, \$45; amateur gear, DX-40, VFD, Balun, SX-24, Ass't. chassis and parts, \$75. Bachand, 299-5176.

2-BDR., hardwood floors, right for young married or retired, 2833 Madison NE. Dawkins, 242-3507.

'58 FORD station wagon, 4-dr., small V-8 engine, overdrive, \$200. Kavet, 299-1793.

HOUSE PLANT, oleander, approx. 6 ft. tall, \$15. Nelson, 255-2364.

HAM BAND RECEIVER, Hammarlund HQ-170-C, 160-6 meters, with matching S-200 speaker, both \$200. Moore, 298-8909.

'64 PLYMOUTH Sport Fury, black, 383 cu. in., 4 speed, PS, PB; new mirror, still in carton, gold frame, 27"x39", cost \$26, sell \$20. Cronk, 299-6401.

'60 CORVETTE, 38,000 miles, two tops, 4-speed, 3:70 posiraction, new paint. Moore, 268-1683 or 256-0529 after 5.

OIL-FIRED space heater, Duo-therm 60,000 BTU; overload springs Chev. pickup; 5' sink cabinet, counter; 3 sliding window, 34"x55"; 3'x6"8" storm door. King, 282-3186.

GIRL'S 24" bicycle, \$15; steamer type trunk, \$10; HO gauge track, 10c/length; automatic switches, \$2.50; 3 Santa Fe freights, \$15 each; passenger train, \$16. Rayner, 299-7429.

TYPEWRITER, Remington Quiet-Riter 111 portable w/many standard size features incl. large keyboard, w/case, \$50. Everett, 298-3994.

HUMIDIFIER, portable cabinet model, 13-gal. capacity, automatic controls, \$40; 5 gal. green paint; Cushman wheel and tire. Lotz, 299-2804.

POODLES, miniature, AKC registered, 6 weeks old, \$75. Heaston, 242-4655.

AUTHENTIC Louis XVI day bed; Herman Miller chest and swivel chair; Mexican jewel chest; lamps; other decorator items; weaving loom. Scheer, 265-1983.

SIMPLEX GO-KART, Westbend 580 engine, centrifugal clutch, \$60. Irving, 1915 Inez Dr. NE, 299-1969.

SKI BOOTS, children's; size 5, \$5; size 4, \$3. Illing, 299-7378 evenings only.

REPOSSESSED 3-bdr., den, 2 1/2 baths, fireplace, SE, well below appraisal. Claassen, 255-4347.

CHILD'S SKI boots, size 2, Gastein, used twice, \$10. Kidd, 299-0035.

TUXEDO, worn once, 42-44 regular, \$35; tan suede cloth sport jacket, 40-42, \$10. Grant, 255-0576.

PREP BOY'S collarless sport coat, 36-38, gold w/black braid trim, worn once, \$8. Devor, 298-9743.

ROOM GAS heater; aircraft seat belt; Jeep tow bar; 2 folding patio chair frames; 21" reel power mower. Pliner, 256-1907.

WELSH PONY, \$150; 2 year old half-Arabian gelding, \$200. Edwards, 877-2799 or 242-1587.

ROLLEIFLEX, Zeiss Tessar, 3.5 lens, new Rolleik adapter, GE exposure meter, Kaligaur auxiliary lenses, leather carrying case, \$145. Prohaska, 298-8497.

FIRE DETECTOR and alarm system for home or shop, 6 Vanguard units, spring operated, no maintenance, \$200 on time payments. Roberts, 344-3780.

'64 VOLVO 122S, 4-dr. sedan, Michelin X tires, R&H, \$1495. Kjeldgaard, 296-2212.

LEASE OR SELL: 2-bdr., AC, Country club area, large den, dual fireplaces, carpets, covered patio, available around Jan. 1. Puett, 877-5348 after 6.

'60 FORD sta. wgn., Cruisomatic, PB, PS, \$585; 5-hp outboard, \$53; cartop rack, \$8; B-flat Bundy clarinet, \$65; lawn mower, \$9. England, 299-0464.

'56 FORD w/full race Lincoln engine, just overhauled, total invested \$800, take half price or best offer. Coleman, 255-6850.

RCA 21" color television, walnut cabinet, \$225. Bricker, 255-3786.

'62 VOLKSWAGEN Microbus or '63 Renault Dauphine, if sincerely interested in real bargain, phone Ray. 299-6345.

FORMALS: 7 thru 11 and subteens; 26" round mirror; short unlined drapes; assorted large toys; ice skates; 26" boy's bicycle. Dickason, 299-8125.

27" 10-speed Schwinn, thornproof tires w/carrier, \$50; 4 place settings and extras, Dirilyte flatware. Merillat, 242-4873.

HAWTHORNE bicycle, girl's 26", \$20. Risk, 299-7205.

8 MM movie camera w/3 turret lens, light meter, indoor light bar, \$40; station wagon luggage carrier, \$14; 6-volt battery charger, \$6. Hart, 299-8832.

BROWN, 60" couch, Flesteel, sturdy structure, but needs some flexing, \$35; doll buggy, new, \$3; baby blankets, \$1, \$1.50 ea. Siska, 298-5756.

AQUARIUM, 5-gal., filter, pump, heater, lamp, thermometer, fish, food, \$16. Eagan, 298-0196.

PAINT compressor, 60-lb., \$50; electric jig saw, small table model, \$35; bar-b-que bronze, ro-tisserie, \$25; electric hedger, edger, \$15 ea. Wallace, 877-4428.

'61 CHEVROLET V-8, stand. trans., 2-dr. hard-top, \$600. Pearlman, 242-6020 after 6.

MODERN SOFA, 6'6", nylon frieze upholstery, parchment brown, matching chair. Forsythe, 299-2785.

FENDER "ESQUIRE" electric guitar w/new case and cord, \$85. Rufsvold, 268-5970.

3-BDR., pitched roof, AC, 836 Claudine NE, appraisal \$12,500, price \$10,800, payments of \$89 with \$800 down. Workman, 298-8201.

UPRIGHT CARRIER freezer, 20 ft. Jiron, 242-9092.

HO GAUGE model train on 4x8 board, scenery partially built, 5 switches, transformer, separate outlets for trains and accessories. Make offer. Mikkelsen, 3421 Dakota NE.

35mm MAMIYA rangefinder camera, built-in light meter w/either auto, or hand settings, hard leather case, \$35. Yuhus, 268-6269.

'62 THUNDERBIRD \$1150, power and air, NADA \$1590. Smith, 299-1665 after 5 and weekends.

APPALOOSAS, young, good blooded stock, \$200 up or trade for camp trailer or two-horse trailer. Harker, 282-3435.

WINCHESTER .30-30 rifle, mod. 94, long barrel, \$30; boy's Schwinn bicycle, hand brakes and coaster brake, \$10. Barber, 299-4287.

BICYCLES: girl's 26", \$20; boy's 24", \$15; two pine chests of drawers, both for \$25. Freyermuth, 299-2053.

SACH JB motorcycle, 125cc, low mileage; small tape recorder. Miller, 255-6838.

BICYCLE, girl's 26", spotlight, bell, basket, \$25. Savage, 256-7263.

BABY CRIB and mattress, \$15. Garcia, 243-3473.

ROLLAWAY BED w/inner spring mattress, \$15; dumb cane house plant, 5 ft. high in redwood planter, \$10. Farley, 298-0208.

'57 OLDS 88 convertible, \$275. Swink, 255-1367.

'57 PONTIAC Starchief, 2-dr. hardtop, AT, AC, \$295; American Flyer train, steam loco, 8 cars, 36 sections, trestle, S-gauge, cost \$75, sell \$35. Mocoleski, 256-7609.

AKC PEDIGREE miniature poodle puppies, born Nov. 8, three males, one female. Davis, 296-4672 after 5.

TWO JALOUSIE windows, 30"x40" w/screens and storm windows, \$10 each; plain matching window and storm window, \$5. Allen, 243-7085.

WANTED

RIDE to vicinity Bldg. 806 from 2625 Quincy NE, 3 blocks west of San Mateo off Menaul Blvd., will share expenses. Buccheri, 255-8028.

RIDE from Quiet Lane SW to Bldg. 880. Puett, 877-5348.

NEED DISS and brass for .45 cal. ACP rim and .25-20 cal. Windham, 256-9455.

RIDERS on Coal or Lead from Country Club area to parking lot No. 5. Checchio, 5620 Esperanza Dr. NW.

TRADE '61 International Scout 4-wd for 4-spd. truck of equal value. Griego, 298-9617 after 6.

SIX-to-eight-week-old, long haired kitten, either sex. Bear, 298-2744.

ASTRONOMICAL telescope, prefer 4" to 6" reflector w/equatorial mount and clock drive. Knudsen, 299-6005.

CHEST of drawers, 5-drawer. Colgan, 243-4882.

9'x9' umbrella tent. Scully, 299-9373.

CAR POOL MEMBERS: from Princess Jeanne or Coronado Crest area to Bldg. 880/892. Adkins, 296-1284 or Dunbar, 299-2686.

BOY'S ski boots, size 6. Kidd, 299-0035.

BORROW manual or schematic for Heathkit HW-29A "Lunch box" 6 meter transmitter. Huddle, 265-6248.

7" DIAMETER aluminum tubing for telescope. Bowen, 255-8195.

CAR POOL from northern part of Bellhaven to Bldg. 802 or 836. Ewing, 298-1404.

CANOPY bed frame, Savage, 256-7263.

AQUARIUM. Westman, 255-6048.

RIDE from vicinity 3431 Anderson SE (near Cyn-lisle and Gibson) to Bldg. 806. Will share expenses. Helton, 256-0023.

FOR RENT

UNFURNISHED 3-bdr. home, 1 1/2 bath, utility rm., garage, family rm., conveniently located in NE Heights, available Jan. 1. Laster, 344-3378.

2-BDR. apt., furnished kitchen, drapes, carpeting, utilities furnished, individual heating, AC thermostat, laundry facilities, storage, carport, recreation room, swimming. Haygood, 296-3863.

LOST AND FOUND

LOST—car key; blue crystal earring; SC 5-yr. pin; brown rimmed safety glasses; dark brown leather gloves, smoking pipe, flower-shaped silver filigree pin. LOST AND FOUND, Bldg. 610, tel. 264-2757.

FOUND—pale blue scarf; gold circle earring; safety glasses; St. Christopher medal; keys with SC Credit Union tag; colored glasses; 2 Chrysler keys; gold and onyx ring; turquoise ring; gold chain and pearls bracelet; black rimmed glasses; black and red scarf; pocket knife. LOST AND FOUND, Bldg. 610, tel. 264-2757.



BELLRINGER Jean Hill (5241) invites you to ring in the New Year at the Coronado Club's gala party Dec. 31. Dance upstairs and downstairs with McCoskey's All Stars and Tommy Kelly's combo. Breakfast and champagne are included in the \$3.75 admission tab.

Debutante Ball Tomorrow at Club; New Year's Party Scheduled Dec. 31

The holiday season will reach its peak during the next two weeks at the Coronado Club. In addition to as many as three organization parties per night, the Club will present the Debutante Ball tomorrow night, a teenage go-go Dec. 29, and the party to close out the year — New Year's Eve Party, Dec. 31.

A dozen young ladies, daughters of Sanado Club members, will make their debut tomorrow night at the Debutante Ball. The Club will be festively decorated for this Christmas dance. Social hour begins at 6 p.m., the roast beef buffet will be served at 7 p.m., and dancing is scheduled from 9 to 1 a.m. The Lamplighters will play. Tickets, which must be picked up before 9 p.m. tonight, cost \$7 per couple.

The monthly teenage go-go will blast off at 7:30 Thursday evening, Dec. 29, with the Deacons on the bandstand. Admission is by ticket only and must be picked up at the Club office by member parents prior to 5 p.m. Dec. 29. Admission is two-bits for members, 50 cents for guests. End of orbit is 10:30 p.m.

Ring in the New Year at the Club's gala New Year's Eve Party Saturday, Dec. 31. The Club will furnish hats, noise makers,

and confetti. Included in the admission price are a bottle of champagne and breakfast after the New Year is welcomed at midnight. Upstairs, McCoskey's Dixieland All Stars will keep things lively while Tommy Kelly and his group will keep them moving downstairs. Tickets are on sale now at the Club office — \$3.75 for members, \$5 for guests.

Bridge

ACF Bridge, open to all Club members, will meet at 7 p.m., Wednesday, Dec. 21.

R. W. Gray Shares Home-Centered Crafts Activities, Results Win Prizes

A beautiful home can be more than a showplace when it is the center of a family's activities and its furnishings have meaning for the members of the family. Add a key ingredient of creativity and you have described the home of Robert W. Gray of Engineering and Control Division 1415.

The family's activities are centered around creating beautiful things for their home, although with the holiday season here, they are also producing a number of personalized gifts.



GLASS TILE TABLE and other handiwork of the R. W. Gray (1415) family provide custom decorative effects for their home at 7725 La Condesa NE.

Friendship and Social Activities Aims of Sandia TDP Wives Club

There's nothing more welcome than a friendly hand when you're new in town.

In the case of college graduates hired by Sandia to participate in the Technical Development Program (TDP), that symbol of friendship is extended to their wives well in advance of their arrival in Albuquerque.

The TDP Wives Club was organized in 1964 to provide assistance and offer friendship to TDP students and their families. When the names are available for forthcoming TDP classes, the members write letters to the future newcomers offering help in getting settled. Mrs. Glen (Pat) Belden, newly installed president, explains, "It's sort of a 'Big Sister' program and we try to pair women from the same school or same locale."

The TDP Wives send information about the city, recommend housing areas close to the University and/or Sandia, and will make motel reservations, if desired. When possible, an already established family often will invite the new employee and his wife or family to stay in their home a few days until permanent housing is obtained. Pieces of furniture and linens are often loaned to apartment dwellers.

"We're all about the same age and have about the same interests. Our mutual problem is that our husbands are gone all day at work or at the University, yet evenings and weekends they must have time to study. It can be lonesome and the wives could be homesick," Pat explains.

The club meets monthly and program topics have included fashion shows and talks by Peace Corps members, a test pilot, and a representative of a modeling school. Interest groups meet at regular intervals. Their activities include bridge, cooking,

knitting, physical fitness, golf, flower arranging, and music.

There is a welcome tea in September for the new TDP wives who have arrived during the summer. This year the calendar included both Halloween and Christmas parties. In May or June there is an "after comp" dance, to give the men an opportunity to let off steam after taking their final examinations. During the summer plans often include an evening swimming party and a family picnic (last summer it was held at the country home of Ed Servis, 3134, who assists with the TDP).

Each year the club sponsors a Christmas project for a charitable institution—this time they collected gifts, cookies, candy, food, and clothing for more than 100 children at San Felipe Pueblo.

The present membership is about 35, which is small enough to allow everyone to become well acquainted, yet large enough for the club to function smoothly and efficiently.



Take A Memo, Please

Judy Scheihagen (3151) who holds a string of lights instead of a "memo" pad notes that Christmas tree lights are lovely, but they can be dangerous. Be sure to check for frayed wires before stringing the lights on the tree.

PAGE EIGHT

DECEMBER 16, 1966

SANDIA LAB NEWS

BULK RATE
U. S. POSTAGE
PAID
Albuquerque, N. Mex.
Permit No. 232

SANDIA CORPORATION

P. O. Box 5800
Albuquerque, New Mexico 87115
Return Requested

"We were extremely proud," Mrs. Gray says, "when our table took first premium at the State Fair crafts competition."

In the junior division, Cindy took honors with a Thunderbird collage while Diana took a first place with a Venetian glass trivet.

"The girls help with our projects," Bob says, "and really excel when they conceive their own projects and execute them. As parents, we didn't push any particular art training, it sort of evolved. I don't think you can teach enthusiasm, it has to happen."

Bob's projects include making frames for the many wall hangings and sand paintings which decorate the house, completing a unique redwood picket fence around the back yard, building a large playhouse for the girls, and construction of some free-form planter boxes.

Mrs. Gray's crafts interests stem from decorating needs of the house—wallhangings, sand paintings, a design in bright colors for the glass doors to the patio, and beautiful poly-resin "grapes" for table decorations.

For these table pieces, Jean mixes the resin with pigments and catalyst and pours the liquid into glass Christmas tree balls. The plastic creates its own internal heat as it cures. The glass mold is broken off, and the round translucent shapes are then mounted with a green plastic foliage. The resulting piece is a tailor-made decoration with just the right color to accent a room.

The family has made many of these as gifts for friends.

Jean's other interests include cooking and sewing, but these are private projects. "Togetherness can sometimes go too far," she says.