

\$298,618 Total Pledged in Current ECP Campaign

Final tabulation of the results of the recent Employees Contribution Plan campaign shows a total of \$298,618.45 pledged by Sandians to support the Albuquerque Community Fund and nine national health and welfare agencies.

Average gift of the 5437 Sandians who contributed to ECP is \$54.90, an increase of \$3.90 over last year.

Some 2826 Sandia employees contributed a fair share—one hour's pay per month—or better. A total of 2043 employees increased their deductions for ECP while 169 new participants signed up.

All in all, Lou Berry (5500) is pleased with the results of the drive.

"Fifty-four dollars as an average gift is an impressive figure," Lou says. "We appreciate this generous contribution. Sandians can be proud of their record of community service. My appreciation also goes to all the committee members, coordinators, speakers and other drive workers. They did a tremendous job."

LAB NEWS Announces Sandia Photo Contest

Amateur photographers, take note.

The LAB NEWS announces the first Sandia photo contest. Open to Sandia and AEC employees, the contest offers cash prizes for winners, publication in the LAB NEWS, and display in the lobby of Bldg. 802.

Entries will be divided into two categories, and three cash awards (\$25, first; \$15, second; \$10, third) will be made in both categories. The categories are (1) people and abstracts and (2) animals and scenics.

Only black and white photographs will be considered in sizes no smaller than five by seven inches. The LAB NEWS staff, Division 3432, will be judges. Professional photographers are not eligible to enter.

Deadline for submission of the photographs is Friday, Dec. 12. Winning photos will be published in the Jan. 2 issue of the LAB NEWS and will become the property of the publication.

At Sandia Laboratories in Albuquerque, submit entries to Division 3432, Bldg. 802, Rm. 133. At Livermore, submit entries to Division 8216, M04.

After display in Albuquerque, the winning photos will be shown at Livermore. Entries should be marked on the back with the photographer's name and organization number plus type of camera and film used.

John Todd Appointed to Metropolitan Crime Board



John Todd (3114) was recently appointed to the City-County Metropolitan Crime Commission. Appointment to the group was made by the Albuquerque City Commission. Chairman of the nine-man Crime Commission is James Black.

The Crime Commission was authorized in early October in a resolution which states, in part, "... representatives of residents ... can be helpful in focusing attention on the needs of the community, in recommending action to be taken by all agencies of government, ... and can influence and formulate public opinion to support action necessary to protect the public from criminal activities ..."

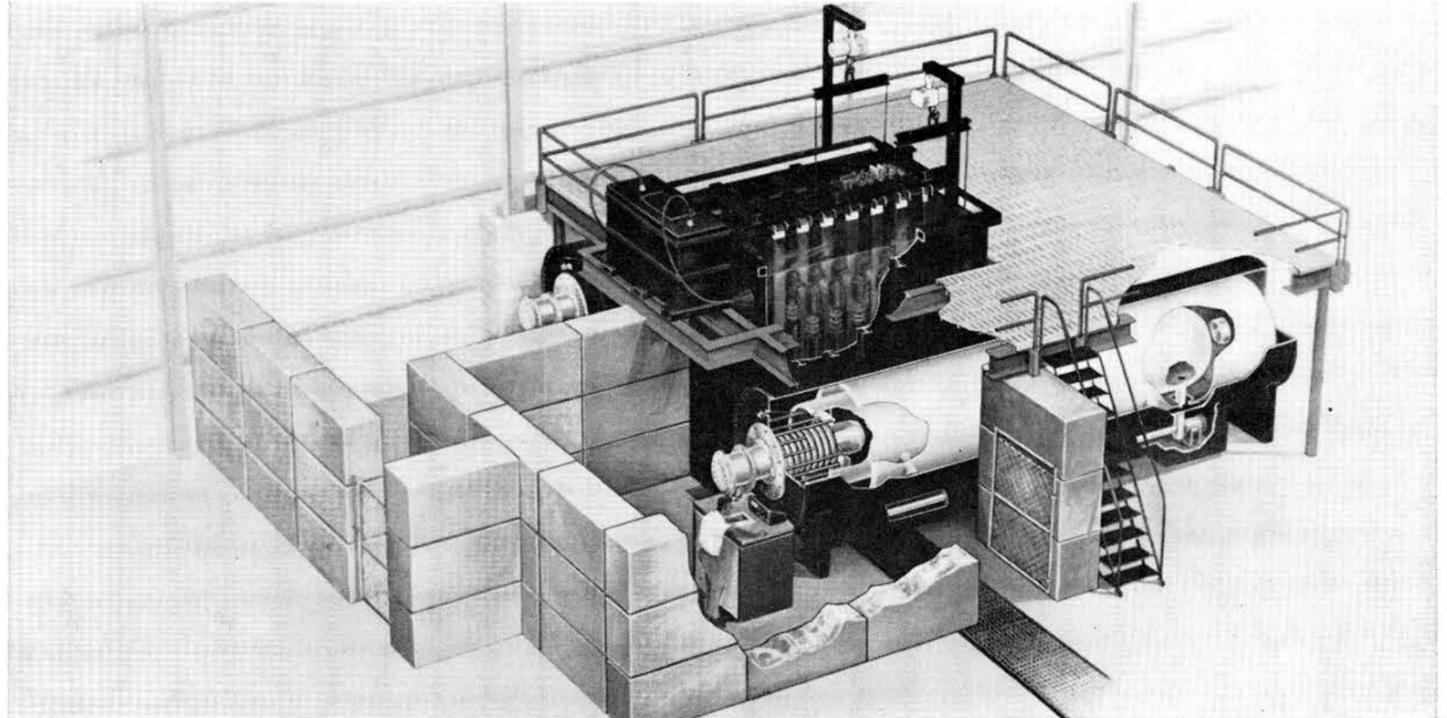
John's background should enable him to take a knowledgeable view of the problem of crime in this area. He is an alumnus of the FBI and worked with that agency as a special agent in the New York area. He came to Sandia in July 1959.

Why get involved in this activity? John's reply: "Everyone's against crime, but most citizens view it as strictly the policeman's problem. This view is excessively narrow. Crime is a severe problem that deserves as much attention by citizens as pollution, poverty, or any other major problem."



SANDIA LAB NEWS

VOL. 21, NO. 23, NOVEMBER 7, 1969



REBA (for Relativistic Electron Beam Accelerator) facility is now undergoing operational testing in Area V. The machine produces a four-inch diameter beam of electrons traveling at almost the speed of light. Energy of 3.25 megavolts at 50,000 amperes can be re-

leased in a pulse of 70 nanoseconds duration. The facility features two experiment target areas. A central Marx generator can alternate firing through two Blumlein transmission lines.

New Electron Beam Accelerator

REBA Gives Flashy Performance

A new test facility that incorporates a new machine called REBA (for Relativistic Electron Beam Accelerator) is now undergoing operational testing in Area V. REBA produces a beam of electrons about four inches in diameter traveling at almost the speed of light. Energy output of the machine — 3.25 megavolts at 50,000 amperes — is released in a pulse of about 70 nanoseconds duration.

REBA complements existing facilities in Sandia's radiation effects program and

provides an additional tool for materials properties studies and for research in electron beam propagation. REBA replaces the old Hermes I flash x-ray machine which was first built to prove the principles now incorporated into the giant Hermes II facility. After initial design testing of Hermes I, the machine saw considerable use in laboratory experiments.

The REBA facility provides a "two-headed" access which will speed up the rate at which experiments can be conducted.

Through use of two Blumlein transmission tubes charged from the same Marx generator, the two separate target areas were made possible. Scientists may conduct an experiment on one side while the other side is being set up for the next experiment. Heavy concrete shielding separates the two areas.

The Marx generator for REBA is the same one used in the old Hermes I machine. It consists of 38 100-kilovolt capacitors. This capacitor bank, which can store 95 kilojoules of energy, is contained in a tank of 23,000 gallons of mineral oil (for electrical insulation). Overall length of REBA is 28 feet, width is 24 feet.

REBA operates in three stages:

First, the capacitors are electrically charged in parallel.

Second, the capacitors are discharged in series via spark gaps into the Blumlein transmission line.

Third, when a switch is closed, energy in the Blumlein transmission line is discharged into the output tube to produce the high-current electron beam.

Design of REBA permits its additional use as a flash x-ray machine. With the addition of a tantalum target, where the interaction of electrons with atoms produces x-rays, REBA can generate 25 rads (H_2O) at one meter.

However, the electron beam mode is anticipated to be the primary method of operation. To gain a more concentrated energy level, the four-inch diameter beam of electrons can be "pinched" down to a smaller target area.

Electron Beam Physics Division 5245 will use REBA to investigate design features of low-impedance pulsed electron accelerator tubes.

Design of REBA was centered in Division 5245 under Tom Martin. Dave Johnson, project leader, had assistance from Don Butel, Ken Prestwich and Ray Klein. Components of the machine were built by local suppliers and assembled by Sandia.

Radiation Source Applications Division 5221 under Bob Jefferson is now responsible for operation of REBA and scheduling of experiments. REBA operator is Doug Dugan.



GROUND BREAKING CEREMONY for the new Sandia Laboratories Federal Credit Union was conducted last week by (l to r) Art Dekker, architect; Doug Ballard (7361), Credit Union president; Alan Pope (9300), Credit Union director; Virgil Harris (9133) first Credit Union President in 1948-49; Charles Campbell (4000), sponsor representative; John Tessman, contractor for new building; and Laddie Otoski, manager, AEC/SAO. The new building, containing 4300 sq. ft. of space, will be completed in February. Construction cost is \$125,000.

Voters Decide

New Constitution or Old?

On Dec. 9, New Mexico voters will go to the polls to make a decision that is likely to have a profound effect on the state for years to come. They are being asked to approve or reject a new constitution. If they approve, the state will be provided with an instrument for change and modernization and with sufficient flexibility to meet governmental complexities undreamed of when the original constitution was written 59 years ago.

The proposed constitution represents considerable change in a number of important areas: governmental organization, the judiciary, education, finance, and human and natural resources.

LAB NEWS, in this and coming issues, will point out some of the significant changes in the proposed constitution. You are urged to become familiar with the provisions of the proposed constitution, a copy of which will be mailed to every registered voter, probably in late November or early December. Newspapers throughout the state are publishing it and it will be discussed widely on radio and television. So read the constitution, and compare its provisions with those of the present constitution, so that you can vote intelligently on Dec. 9.

Two Sandians have played an active role in the drafting of the document. Bob Esterly (9414) was vice chairman of the Constitutional Revision Commission which worked out details of the Constitutional Convention and prepared a draft constitution. Bill Warren (1721) was among 70 delegates elected to rewrite the constitution. Bill was a member of the Education, Natural Resources, and Style Committees of the convention.

The original constitution, according to the Constitution Revision Commission is "... among the longest of any of the state constitutions, is replete with archaic provisions, restrictive amendatory and procedural requirements, numerous details of a statutory nature, and contains a multitude of express checks on the exercise of governmental powers." It has been amended 72 times in the past 59 years and, in the view of the commission, often conflicts with federal law and the United States Constitution.

During a 60-day session the Convention succeeded in reducing the number of constitutional articles from 24 to 14 and in making the document more consistent with its federal counterparts.

Here are some of the more significant provisions of the proposed constitution:

Government reorganization, Articles III and IV — elect state senators to four-year term (instead of the present six years); but continue two-year terms for representatives;

—mandatory reapportionment of the legislature after each 10-year census;

Sympathy

To Harry Kinney (1222) for the death of his wife on Oct. 28.

To Pat Maurer (4363-1) for the death of her father in Wheeling, W. Va., Oct. 27.

To A. E. Randall (4332) for the death of his mother in Fayetteville, Ark., Oct. 20.

To Arsenio Montoya (2342) for the death of his wife, Oct. 31.

To Loren File (4252-2) for the death of his mother in Illinois, Oct. 30.



—move the legislature's convening date from January to February to allow the governor time to prepare programs and recommendations to be presented;

—extend the legislative session from 60 days during each odd-numbered year and 30 days during each even-numbered year to a total of 115 days to be structured to fit the circumstances;

—adopt a more realistic compensation plan for lawmakers. In addition to the present per diem allowance, legislators would receive a salary "not to exceed an amount equal to 15 percent of the average salaries of . . . the governor and the chief justice of the supreme court."

Article IV, pertaining to the executive branch, contains the most far-reaching changes. Chief among these is the so-called "short ballot" under which only four governmental offices would be elective — governor, lieutenant governor, state auditor and state land commissioner. The offices of secretary of state, attorney general, and treasurer would be appointive.

Governor Cargo and a number of previous governors asked the convention for this provision in order to strengthen the executive branch by making key cabinet positions responsible to the governor instead of to the electorate. Under the present system elected officials of a governor's cabinet can be, and often are, at variance with his policies — an arrangement the governors felt that was not conducive to good administration.

Other features of Article IV:

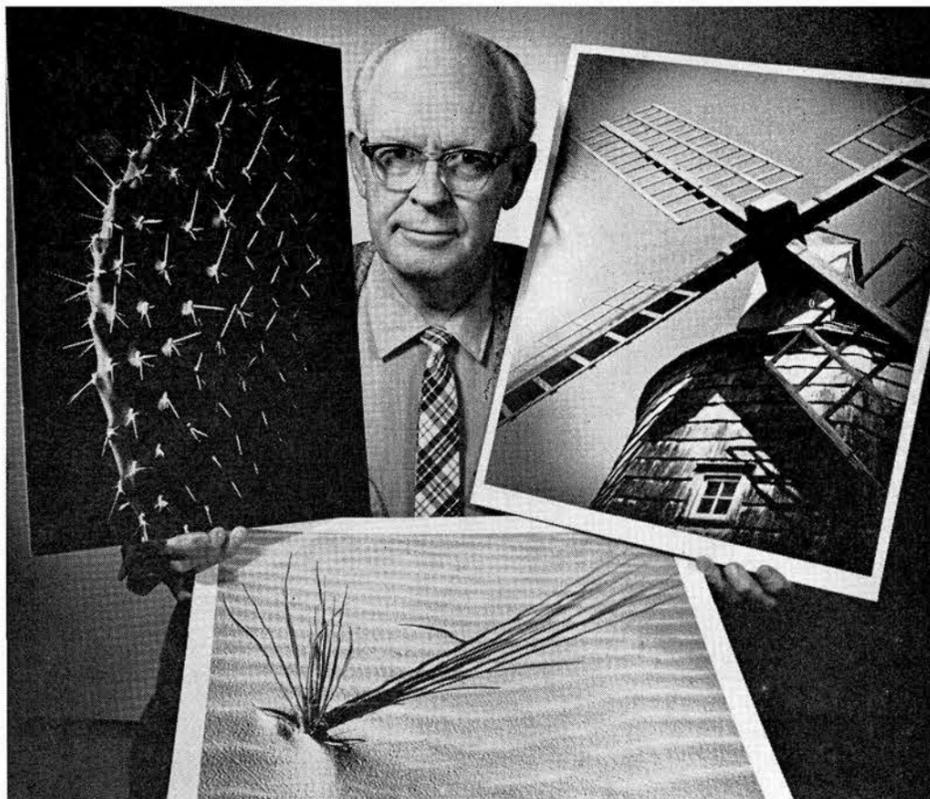
—retain the Bureau of Agriculture under the board of regents of New Mexico State University;

—establish a Human Rights Commission;

—change the terms of office for governor, lieutenant governor, state auditor, and land commissioner from two to four years.

Article V, which pertains to the judiciary, differs chiefly in length from the present version. Its most significant feature establishes a unified court system under the direction of the New Mexico Supreme Court. Moves to make judgeships appointive rather than elective failed to pass.

NEXT: The Bill of Rights, education, human and natural resources, and the elective franchise.



FAVORITE SUBJECTS for Willard Converse's 35mm camera are located on hikes throughout New Mexico, but the fine quality of his enlargements comes directly from his darkroom.

Photo Hobby Leads to Scenic Spots And Varied Technical Challenges

No one was surprised when Willard Converse (5300/5500) began taking first prizes for his black and white photographs at the New Mexico Fair four years ago. Willard is a very thorough person and the composition as well as printing would first have to meet his own high standards.

"I'd been interested in photography all along, but had always been too busy with other activities. Four years ago I decided to make it my principal hobby," he explains. This led to his setting up a darkroom to process his own film, purchasing back-packing equipment so that he can take New Mexico Mountain Club trips to scenic places, and studying cacti — one of his favorite photographic subjects.

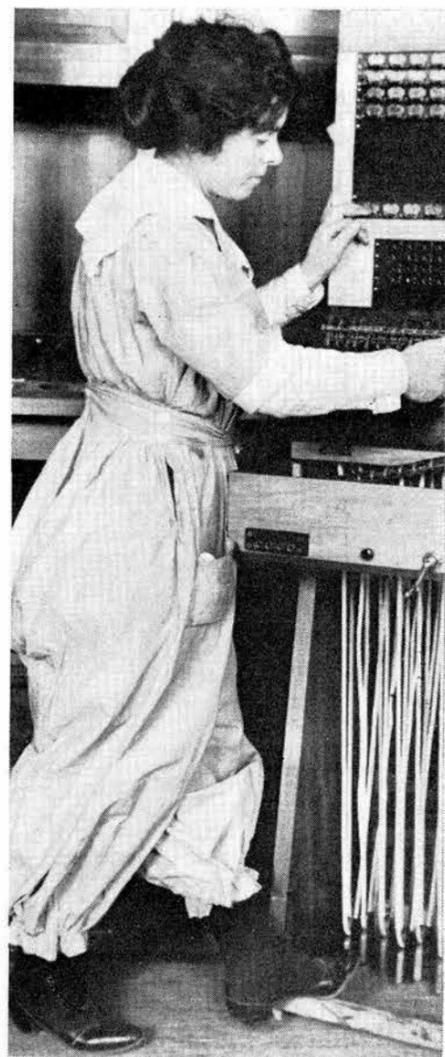
A follower of Ansel Adams, Willard admires this famous photographer's mastery of technique and his ability to perceive moods and to control conditions. "My approach is to master the techniques first," he says. Willard prefers realism rather than highly contrived situations.

Because of the many variables in the photographic process, Willard limits these as much as possible, using only one camera (a Swiss-made Alpa 35mm with a 50mm lens) and one film. Until recently that preferred film was Panatomic-X, but now it's a high contrast copy film such as that used in microfilming. He sets his light meter at about half the recommended ASA emulsion rating and uses a special low contrast developer to counteract the high contrast of the film. The result is an extremely fine grain negative from which a 16" x 20" enlargement of superior quality can be printed.

Willard found a neat solution to the ever-present problem of airborne dust in Albuquerque darkrooms. "I knew the prin-

ciple of the Whitfield laminar airflow cleanroom and adapted it to a corner of my darkroom," he says. I purchased some filters at the salvage yard and installed a fan between the ceiling beams to force the air blown into an enclosure I had placed around the enlarger. It's a big help and eliminates having to touch-up spots on prints."

As to favorite scenic locations, Willard likes White Sands National Monument. "There's a different vista around every corner — but it's easy to get lost there," he says. The most challenging spot is Tent Rocks near Cochiti Pueblo. "I've been there three or four times in summer and in winter, but I still haven't found the canyon under the right light. I'll probably have to camp there overnight," he concludes.



Take Note

Charlie Chavez (4335) emerged the champ of the recent Sandia Laboratories tennis tournament. Doubles winners were John McKiernan (9521) and Bob Clark (2343).

Runnersup were Bill Poole (9252) in singles competition, Bill Villeneuve (7513) and Lou Sisneros (4152) in doubles.

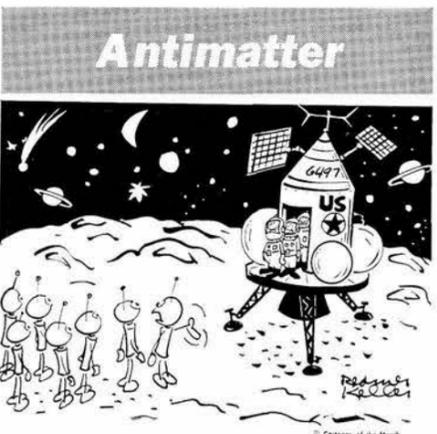
Anyone interested in joining in tennis ladder play should contact one of the members of the committee — Tex Windham (7521), Bill Poole (9253), Andy Kyzar (7363) or Herman Smith (AEC/ALO).

Round Robin team tournaments in two Sandia table tennis leagues were completed recently. Winners of A league are Daril Gutscher (1213), Jarvin Bumgarner (1611), Al Maes (1612) and Gloria Toland (4623). B League winners are George Perkins (2613), Earl Morris (1553), Larry Kiefer (7325) and Billy Duggin (7342).

Eight teams competed in A league, seven in B league.

Congratulations

Mr. and Mrs. John Sisneros (4153), a daughter, Christine Marie, Oct. 15.



"What can we do to entertain them? They spent millions just to visit us!"

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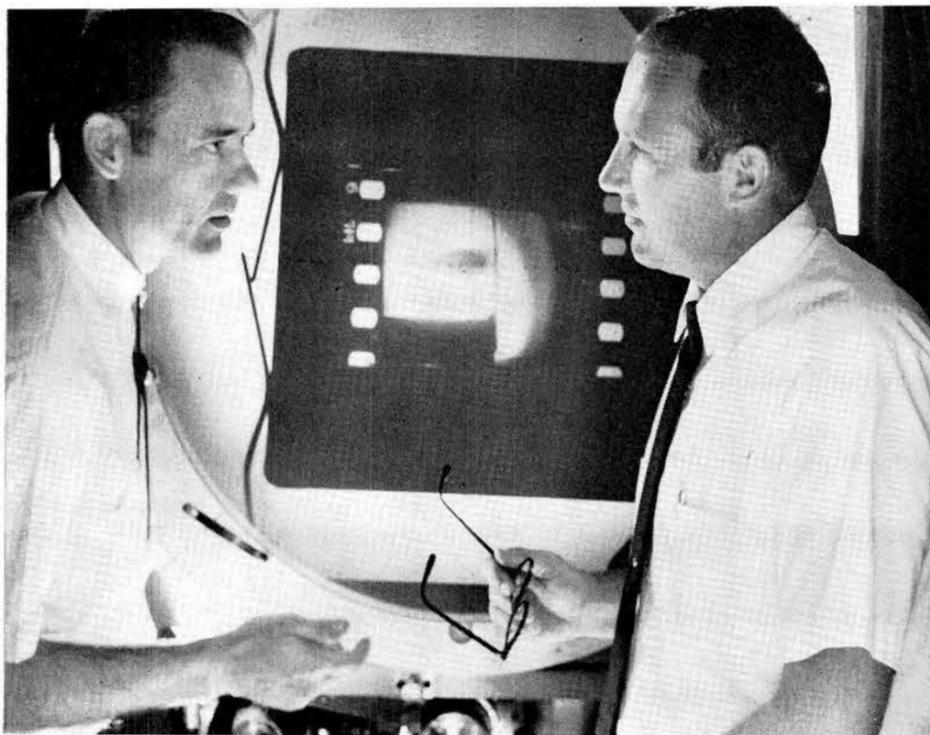


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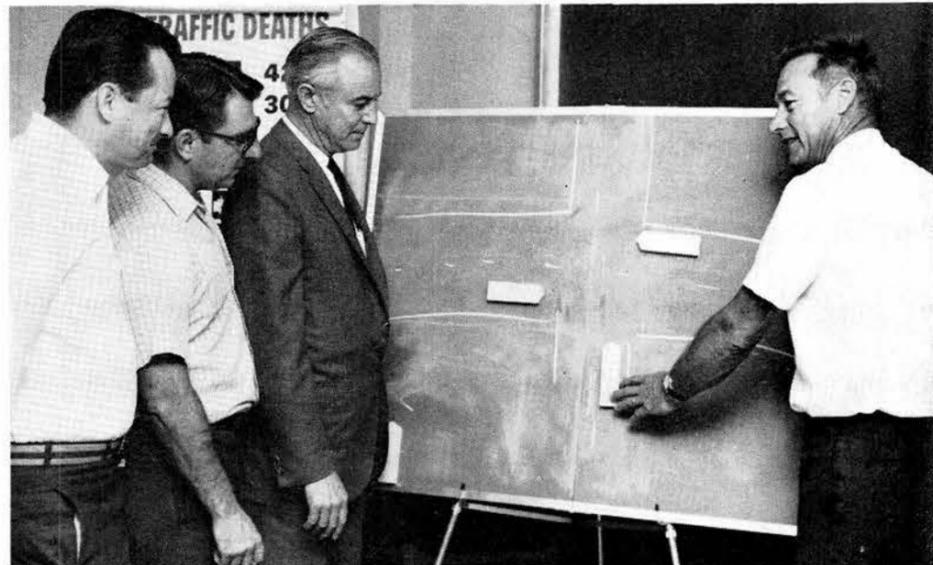
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REACTION OF METAL TO ELECTRON BEAM IRRADIATION is measured and analyzed by Paul VanDyke, left, (8233) and Dave Dean (8343). Data obtained from photos include the velocity of the expelled metal, visible characteristics of the blow-off plume and the bending of the test sample as a function of time.



DEFENSIVE DRIVING INSTRUCTION—National Safety Council instructor-trainer Paul Ven DeMark (right) illustrates a common traffic problem to (from left) Don DuBose (8223), Norm Sirnic (8254), and Gil Rhodes, supervisor of Safety Engineering Division 8262. The course was attended by nine people from Sandia Laboratories Livermore who are, in turn, instructing other Sandians in defensive driving.

Electron Beam Effects on Materials

Irradiating material with a pulsed electron beam and photographing the reaction as it occurs is an effective technique used by Sandia Laboratories Livermore to analyze how very rapid heating affects the material.

"In a typical test," says engineer Dave Dean (8343), "a material sample is heated with a short (less than 40 nanoseconds) burst of electrons. The energy of the electrons is absorbed near the surface of the test sample, and if the intensity of the electron fluence is great enough, the material in the irradiated region is almost instantaneously melted and vaporized. Forces created by thermal expansion expel this material from the rest of the test sample at very high velocities."

The sequence of pictures (below) taken 4, 40 and 80 microseconds after the electrons hit a metal sample shows how the melted portion of the material is expelled from the rest of the sample. The plume of

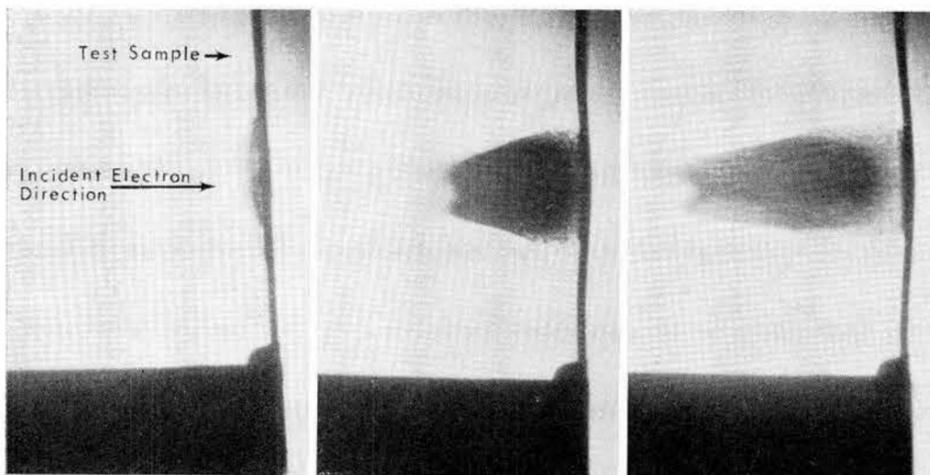
material is being blown back toward the source of the electron stream. Enough energy was deposited so that the metal was heated only into the melt phase.

The plume lengthens with time because the material at the leading edge of the plume goes faster than the material at the trailing edge. Again, this is a reflection of the way energy is deposited in the material by the electrons.

Other points of interest in the pictures are the appearance of streamers in the blow-off plume at later times and the bending of the test sample. Bending is caused by a recoil reaction between the test sample and expelled material.

The photographic apparatus — adapted for the experiments by Paul VanDyke (8233-3) — employed a Cordin framing camera which can operate at speeds between 250,000 and 2,000,000 frames per second.

Effect of electron beam on metal test sample



4 microseconds: blow-off plume begins to form

40 microseconds: metal plume separates from sample

80 microseconds: plume breaks into streamers; test sample is bending

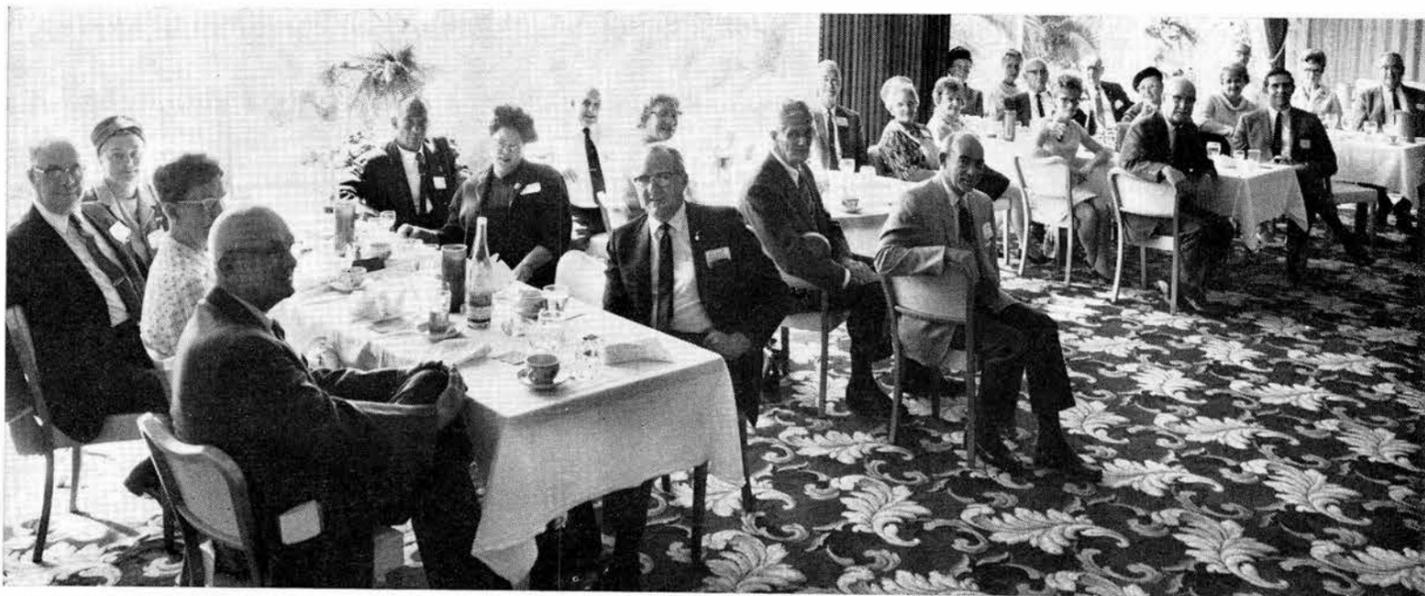
Laser Raman Spectroscopy At Nov. 11 Colloquium

Laser Raman spectroscopy will be the subject of the Nov. 11 colloquium at Sandia Laboratories Livermore. By means of this technology, individual gaseous species can be distinguished by the shift of wavelength of the light scattered from a high power monochromatic light beam.

An explanation of the Raman effect as well as several of its applications will be given by Danny Hartley, a staff member in Aerothermodynamics Division 8351. Associated with Sandia since 1968, Danny has applied laser technology to Raman spectroscopy and has proposed a unique flow visualization technique for which a patent has been applied.

Danny received his doctorate in aerospace engineering from Georgia Institute of Technology in 1967. He was later awarded a research fellowship at the von Karman Institute for Fluid Dynamics in Belgium where he became familiar with electron beam fluorescence spectroscopy. He is a member of the American Institute of Aeronautics and Astronautics and Sigma Xi.

Tickets are required. Alec Willis (8351) is host.



SANDIA RETIREES—Speakers from the district office and the Livermore Chapter of the American Association of Retired Persons (AARP) recently addressed this group of Sandia retirees

and their spouses who reside in the Bay Area. Subject was local chapter of the association. Luncheon meeting was fourth annual get together for the group.

LIVERMORE NEWS

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SANDIA LAB NEWS

NOVEMBER 7, 1969

Supervisory Appointment



GLEN OTEY to supervisor, Project Engineering Division 8157, effective Nov. 1.

Glen joined Sandia Laboratories Livermore in September 1966 as a staff member in a project engineering division, where he was responsible primarily for vulnerability testing and mechanical design. About three months ago, he transferred to the preliminary design group and at the time of his promotion was involved in systems evaluation and design.

Before joining Sandia, Glen was employed as a mechanical engineer by Boeing in New Orleans, doing analytical work in heat transfer and fluid mechanics in support of the development of the Saturn 5 rocket.

He has a BS degree in nuclear engineering from Mississippi State University and an MS in mechanical engineering from Tulane University.

Glen served in the Navy as a pilot from 1955-60. Since then, he has been in the Naval Reserve and currently is executive officer of a squadron at Alameda Naval Air Station.

He is a member of the American Institute of Aeronautics and Astronautics and is a registered engineer in Louisiana.

Glen and his wife Barbara live at 471 Ontario Drive, Livermore, with their three children, two boys and a girl.

Sympathy

To Jerry Starr (8222) for the death of his mother in Okemah, Okla., Oct. 9.

Don Veca Awarded Master's Degree in EE



Don Veca of Acceptance Equipment Division 8151 received a master of science degree in electrical engineering recently from Louisiana Polytechnic Institute.

His thesis was entitled "A Product Simulator for Functional Check of a Pulse Code Modulator Product Tester."

Don joined Sandia Laboratories Livermore in October 1966, and was assigned to Electrical Subsystems Division where he worked on the design of firing sets. For the past two years, he has been designing product testers in Acceptance Equipment Division.

Previously, Don was an electrical engineer with the Thiokol Chemical Corporation in Louisiana. While at Thiokol, he completed the course work requirements for his master's degree. His thesis was based on work completed at Sandia.

He received his BS degree in electrical engineering from Tulane University in 1952.

Take Note

Marvin Glaze, manager of Security, Safety Engineering Environmental Health Department 8260, discussed Deployment, Supervision and Training of Contract Guards at a recent Western Electric Security Investigator Training Program. The program was held at WE's Corporate Education Center near Princeton, N.J.

With Sandia at Amchitka

MILROW SUCCESSFULLY DETONATED

On Thursday, Oct. 2, the weather was "good" for a change. It was relatively clear and winds were quiet. Usually the temperature hangs around 35° and the place is socked in with fog or rain. Amchitka in the Aleutians has been described as the place with the worst weather in the world.

The nuclear device—equal to one megaton of TNT—was detonated at 12:06 p.m. It registered 6.5 on the Richter scale as had been predicted. As a matter of fact, everything went about as predicted.

Only a rock slide and earth slumps occurred along the cliffs of the island. There were no water wave effects, only a slight ripple not exceeding two inches which was noted near the

island. A few stacks of vertical rock (sea stacks) tumbled, but eagles and other birds were seen perched on the stacks about three hours after detonation.

All went well in the pens of sea otters. They were heartily eating fish four hours after detonation and were subsequently released into their natural habitat. Predictions of no damage to the ecological systems at Amchitka were verified.

The Sandians packed up their gear and came home. Wasn't much to do there except fish anyway.

Sandia provided instrumentation for the earth and underwater measurements of the shock wave created by the detonation. Sandia scientists are evaluating data collected.



SANDIANS struggle up steep bank from beach through the tundra. Entire island, except for wind-swept rocks, is covered with this dense growth.

BELOW—Mel Merritt (9150), Tests Effects Evaluation Scientist for Project Milrow, feeds sea otters held in a pen some 4500 yards from ground zero. Frisky animals were unhurt by the underground detonation.



CLOSE UP VIEW of a young sea otter makes him appear more serious than he is. The animals are very playful, adapted easily to their short stay in captivity.



LARRY LARSEN (9123) adjusts cables on a telemetry tower. Sandia provided instrumentation for measuring ground and underwater shock from the detonation.

Supervisory Appointments



PAUL PLOMP to supervisor, NC Programming Section 4251-1, effective Nov. 1.

Paul came to Sandia in 1965 and worked in the Engineering Practices Division where he was a computer programmer designing systems software for numerical controlled machines. Last year he transferred to the Numerics System Division 7624. In this division he continued designing systems software but also worked on engineering analysis programs.

He has a BS degree in mechanical engineering from the University of Denver. His MS, also in mechanical engineering, was earned at UNM under Sandia's Technical Development Program.

Paul is a member of the American Society of Mechanical Engineers.

Paul, his wife Sharon, and their two children live at 12312 Pine Ridge Ave. NE.



JANET WILLIS to supervisor, Secretarial Services Section 3256-2, effective Nov. 1.

Jan joined Sandia in 1959 as a secretary - stenographer and worked in various organizations until she left the Laboratories in 1962.

She was rehired three years later and, in 1966, was promoted to secretary of the Advanced Systems Research Department. She subsequently has been secretary to the Physics and Mathematics Research Directorate 1700, and since the beginning of this year has been secretary to Vice President Solomon Buchsbaum (5000).

She has a BS degree in business administration from New Mexico State University where she also earned a secretarial certificate.

Jan, her husband Jim, and their two children live at Canoncito Estates in the Sandias.

Promotions

Doris Aguilar (4623) to Record Clerk
 Dwight Allensworth (5133) to Staff Associate Technical
 Jim Armijo (3428) to Mail Clerk
 Helen Ballard (3256) to Secretarial Steno
 Dorothy Black (3416) to Service Clerk
 Dewey Bolton (3428) to Mail Clerk
 Joseph Brazil (8322) to Computer Operator
 Richard Campioni (8129) to Technician
 S. D. Carrillo (7635) to Order Analyst
 Cathleen Casper (3256) to Steno Clerk
 Helene Chavez (3256) to Steno Clerk
 Robert Chavez (4613) to Stockkeeper
 Timothy Cody (8322) to Computer Operator
 William Cole (8245) to Stock Analyst
 Joseph Cowham (4233) to Technician
 Jeanette Diamond (4622) to Control Clerk
 Louise Dow (9230) to Secretary
 Bernard Dunne (8222) to Service Clerk
 Hermann Folkendt (8121) to Staff Assistant Technical
 Kathleen Gabaldon (4135) to Typist Clerk
 Paul Gallegos (3428) to Mail Clerk
 Roque Gallegos (4221) to Assembler
 Reynaldo Gonzales (4613) to Receiving Clerk
 Juan Griego (7632) to Reproduction Service Clerk
 Rita Gutierrez (3256) to Secretarial Steno
 Virginia Hagan (3251) to Employment Clerk
 Cynthia Harris (7653) to Staff Assistant Drafting
 Joseph Harris (7294) to Staff Assistant Technical
 Mercedes Ipiotis (3256) to Steno Clerk
 Robert Jaramillo (7615) to Staff Assistant Drafting
 Thomas Kenyon (8216) to Mail Clerk
 Melvin La Gasca (8129) to Technician
 Eugene Lewis (4613) to Service Clerk
 Richard MacGibbon (3428) to Mail Clerk
 Gertrude Martin (8161) to Service Clerk
 Dora Montoya (3256) to Steno Clerk
 John Murphy (3428) to Mail Clerk
 Connie Myers (4371) to Steno Clerk
 Esquival Narvaez (4574) to Janitor
 George Nunez (7632) to Microfilming Equip. Operator
 Linda Parmeter (3256) to Steno Clerk
 C. L. Pedroncelli (7632) to Reproduction Service Clerk
 Doris Poward (8161) to Service Clerk
 Patricia Pruett (8171) to Secretarial Steno
 Martin Quintana (7631) to File Clerk
 Donald Rich (8322) to Computer Operator
 Roger Rinkalla (3428) to Record Clerk
 Annabelle Sanchez (3256) to Steno Clerk
 Jesus Sanchez (3428) to Mail Clerk
 Joe Sanchez (4613) to Receiving Clerk
 Damacio Sandoval (4232) to Foundryman
 Don Sandoval (2491) to Record Clerk
 Frances Santillanes (4333) to Teletypewriter Operator
 Robert Seiber (4316) to Staff Member Administrative
 Arthur Sena (9411) to Computer Facilities Clerk
 Dick Shead (7612) to Staff Assistant Drafting
 Kip Stanley (7653) to Staff Assistant Drafting
 Dolores Sireater (4620) to Secretary
 Ellen Sweazy (8217) to Service Clerk
 Joseph Thomas (8253) to Service Clerk
 Magdalene Vigil (3256) to Steno Clerk
 Sharon Voorhees (3256) to Secretarial Steno
 Ormand Williams (7532) to Technician
 Margaret York (8100) to Secretarial Steno
 Deborah Duncan (7652) to Staff Assistant Drafting
 James Werker (7652) to Staff Assistant Drafting



JAKE GONZALES to supervisor, Apprentice Section 4253-5, effective Nov. 1.

Jake started his Sandia career in 1955 as a machinist helper in the machine shop. In 1958 he joined Sandia's machinist apprenticeship program and was a member of the first graduating class in 1960. He worked as a machinist until 1965 when he was promoted to staff assistant and programmer in the NC Programming Division. In 1967 he became an apprentice instructor in the Employee Training and Education Division 3132.

A graduate of St. Mary's High in Albuquerque, Jake has been taking courses in Sandia's Technical Institute Equivalency Program and will complete the program in February.

He was a member of the New Mexico Air Guard for 12 years.

Jake, his wife Dina, and their three children live at 8805 Robin NE.

Jim Walston Exhibits Art

An exhibit of drawings by Jim Walston (3417-3) is currently hanging in the Lasser Memorial Laboratory Building at Lovelace Clinic. Included are 15 drawings of Indians, many of them from Cochiti Pueblo. The exhibit will remain through Nov. 20. The building is open from 7:30 a.m. to 5 p.m. Monday through Friday and 7:30 to noon on Saturday.

Retiring



Norman Nichols, a staff assistant in Project Design Definition Division 7613, will retire the end of this month. He was employed by Sandia in September 1957 and has been with the drafting organization the entire time. Before joining the Laboratories he worked at the U.S. Navy Electronics Laboratory in San Diego.

Mr. and Mrs. Nichols have no children but "lots of nieces and nephews," Norman says. Both are native Californians — Norman lived there for more than 50 years — and have many friends and relatives living in the state. "We plan to visit with people in California, Florida and Iowa after I retire," Norman says.

"I have a variety of hobbies and don't really know if I'll have time to do all the things I want to." One big item on the agenda is to remodel their home at 2715 Santa Clara Ave. SE. "We sold our former home and bought this smaller place, thinking that it would take less care and time to maintain," Norman says. "But I didn't realize how much work was involved when I started planning to fix the house up — so I saved it all to do after I retire."



James Southall, a precision welder in Assembly Section 4232-1, is retiring Nov. 10. He has been at Sandia almost 17 years — since December 1952.

His retirement plans are somewhat indefinite except for one idea — "I will not sit and be idle," he says. Mr. Southall says he will make his retirement home either in Albuquerque or Santa Fe — he lived in Santa Fe for 14 years. "I may open a small maintenance shop for appliances," he says. "I like to keep busy and I enjoy that sort of work." Other plans include travel — just to look around and visit with relatives in Colorado, Oklahoma, California and Washington.

Mr. Southall is active in volunteer church work. "I expect to continue this activity. I also spend a lot of time at the Veteran's Hospital running errands, writing letters or doing anything I can to help."



AERIAL VIEW of Sandia's recording trailer park shows the post perched on the tundra above rocky shore line. Both hard wire and RF telemetry link was used in recording data from detonation.



FISHING was one of the few recreational activities available on the island, but it was great according to Sandians who participated in Project Milrow. At left, Dale Breeding (9123) displays a sea trout while Bob Howard (EG&G), Bob Holt (9123) and Ben Benjamin (9123) display a prize catch of freshwater Dolly Varden trout. The fish were cooked in the mess hall, made a fine evening's meal.



HARRY HOLMES (9123) had a little difficulty with this "tundra buggy" but the tracked vehicle was the only thing that could cross open tundra.



BALD EAGLES, some with seven-foot wingspread, abound on Amchitka.



CABLE from underwater instrumentation to recording trailer park is being strung by a crew from the "Sea Tender." The instruments recorded shock wave in the sea around the island resulting from the Milrow detonation.

On Island of Hawaii

Sandians Helping Dig Harbor With Conventional High Explosives

Four Sandians are on the island of Hawaii this week assisting in an Army Corps of Engineers project to dig a harbor with conventional high explosives. Luke Vortman of Underground Physics Division 9111 is scientific officer for the project with responsibility for making air blast predictions and measurements.

Phase I of the project is being conducted now. This is a safety calibration series. Several small yield high explosive cratering charges are being detonated to provide air blast and ground shock data in the vicinity of the project site.

Gerry Laursen and Dean List of Instrumentation Fielding Division 9123 are

Fall Golf Tourney

Winners in recent Sandia Employee Golf Association tournaments were Jerry Smith (7263) who took the low gross crown in the Fall Classic tournament with a 72, and Bill Stacey (AEC/ALO), who won the low net trophy with a net 65.

SEGA team championship was won by Dale Jones (2642), Don Fjelseth (2315) and Lewis Fjelseth (1516) with a total net score of 204.

Don Longcope (1222) won the low net trophy for the SEGA Overflow Tourney in an 18-hole playoff with Rick Blose (7652) after the two tied with 70. Jim Leonard (7521) took low gross with a 74.

Big Snow Job?

Ski Movie, Ski Swap Prelude to White Stuff

Entertainment, an opportunity to buy or sell ski equipment, and a chance to help the volunteer Sandia Peak Ski Patrol. All this and more is in store the next two weekends.

Tomorrow evening the Patrol sponsors a showing of Warren Miller's new full-length feature movie "This Is Skiing." Opening the program will be previews of improvements at Sandia Peak, Taos, Angel Fire, and Purgatory ski areas. Activities get underway at 7:30 p.m. at the Civic Auditorium. Tickets are \$1.25.

On Friday, Nov. 14, doors of the Flower Building on the State Fair Grounds will be open from 2 to 9 p.m. to receive ski equipment and clothing to be sold Nov. 15 and 16 during the Third Annual Ski Swap. Sale hours will be 9 a.m. to 6 p.m. There

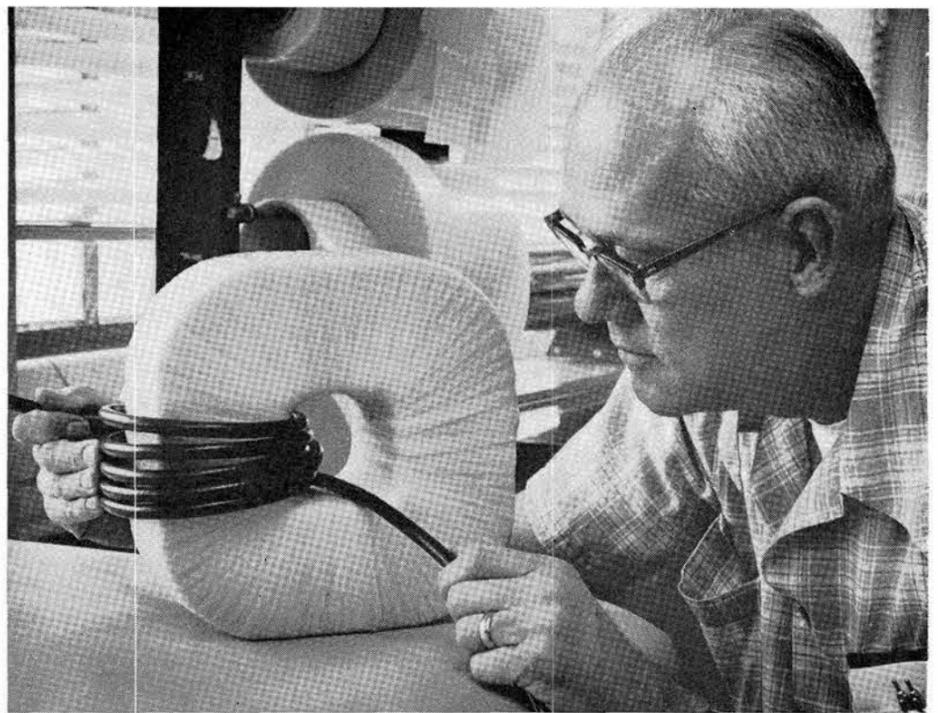
will also be movies, refreshments, and displays. John Shunny (3432) is chairman for both activities. Other Sandians assisting him are John Davenport (2344) and Keevin Moriarty (4121).

Skiers visiting Sandia Peak this winter will be able to see where Ski Swap profits have gone. This summer, Patrolmen spent weekends building a warming hut at the top of Exhibition run. It is primarily for use of Patrolmen standing a "top watch," but will also provide shelter for treating skiers injured near the top. The Patrol's rescue toboggans can be stored under the structure to keep them snow-free.

The Sandia Peak Ski Patrol has 40 volunteer members and last season treated 384 accident victims, including 75 fractures.

responsible for the air blast instrumentation system. Mel Gallegos of Data Engineering and Development Division 7291 is responsible for on-site data reduction. Site of the proposed harbor is Kawaihae Bay on the northeast coast of the island. Aim of the project is a harbor for shallow draft boats. Explosive cratering techniques for producing a harbor basin in shallow water will also be demonstrated.

Data from the current series will be used to determine the maximum safe detonation yield. In addition, the series will provide crater dimension data from underwater detonations in coral which will be used for design of the remainder of the project. Experience gained from this project may be useful in Project Plowshare — the AEC's program for developing peaceful uses of nuclear explosives. Since 1962, the AEC and the Army Corps of Engineers have been engaged in a joint research program to develop technology for use of nuclear explosives in large-scale civil engineering projects.



80-POUND CORE, wound by Ralph Dalby with coaxial cable, will become part of a capacitor bank. A wide variety of windings is carried out by Transformer Section 4231-5. Mylar (on rolls in background) is used to separate layers of bare wire.

Minute Cores Wire-Wound In 4200's Transformer Shop

It's almost like working with your imagination. How else could you explain winding a copper wire, so thin you can't feel it, around a doughnut shaped core, so tiny you can scarcely see it.

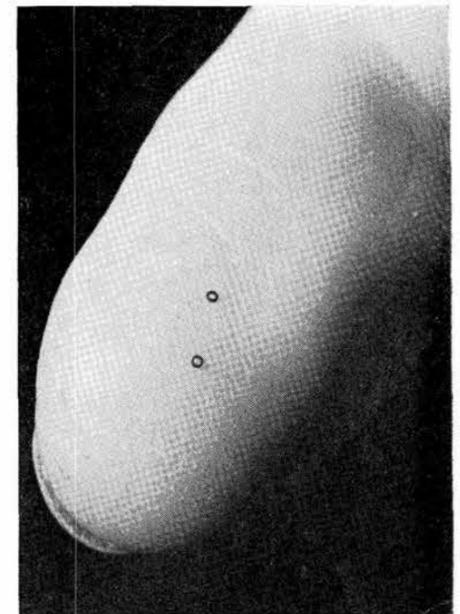
This is one of the latest jobs tackled by the men and women in Jim Reck's Transformer Section 4231-5. In this instance, the engineer's specifications required 140 turns of wire on the core. The No. 55 wire is .00025 of an inch in diameter and costs \$2800 a pound. Because of its thinness, the wire can only be wound through the core's center by hand with tweezers under a magnifying glass. A trial run of 50 turns took four hours; usually when the wire breaks it's necessary to start over as a splice could cause a possible breakdown.

By using a holding fixture, the winding is sometimes made without a core. A liquid epoxy is applied to the wire with a fine brush as the turns are made, the finished product is cured in an oven. It is then self-supporting and requires no further "potting" in plastic.

Much of this work comes from Circuit Components Division 2632. Almost all of the transformers are prototypes, and after the design is proven a commercial manufacturer does the production work. The Transformer Shop also has the capability of rewinding, repairing or replacing transformers on an emergency basis to keep the maintenance and electronic organization on a minimum breakdown status.

When the transformer core is unavailable from a commercial source, Sandia's Pattern Shop or Machine Shop will make one to the engineer's specifications. Roughly 80 percent of the transformers are round, but last month the group wound some antenna coils which were four feet square. A current job used an 80-pound core to be wound with coaxial cable 3/4-inch in diameter. Four of these transformers will be used in a 150,000 volt capacitor bank.

Normally one thinks of petite women with high dexterity as being best able to perform such tasks. The Transformer Shop has such, but it also has Ralph Dalby, layout operator, who claims to be the tallest man at Sandia — he's 6 foot 10. He also has some 20 years experience with transformers. "We've always been able to do a job for an engineering organization," he says with pride. "A transformer or coil meeting requirements for which it was designed is of high concern and reflects a pride in our craftsmanship. We will wind any size or shape of coil or transformer requested by the design engineering organizations."



RIDGES in Helen Agats' finger seem large compared with these transformer coils which will receive 140 windings of ultra-fine copper wire.

Film Unit Named Winner of Cindy

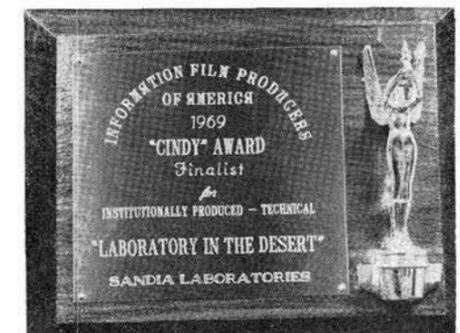
Sandia Laboratories has been named winner of a "Cindy" award for the film "Laboratory in the Desert: the Story of Tonopah Test Range." The award was won in a competition of the Information Film Producers of America, an association of governmental and industrial agencies who produce technical, scientific, and educational documentary films.

The 23-minute sound/color film was produced by Motion Picture Production Division 3454 and is now available for distribution within the Laboratories. The film was made for public relations and recruiting purposes outside Sandia and, internally, for briefing of persons interested in Range capabilities.

The silver "Cindy" plaque which Sandia received is the second highest award. Certificates were presented to individual members of the production crew: Bob Colgan (3454) — producer, Chuck Cockerleas (3454) — writer/director, Bill Mahaffey (3454) — cinematographer/editor, Ken Miller (3417) — art director, Bill Geck (3454) — second cameraman, Howard

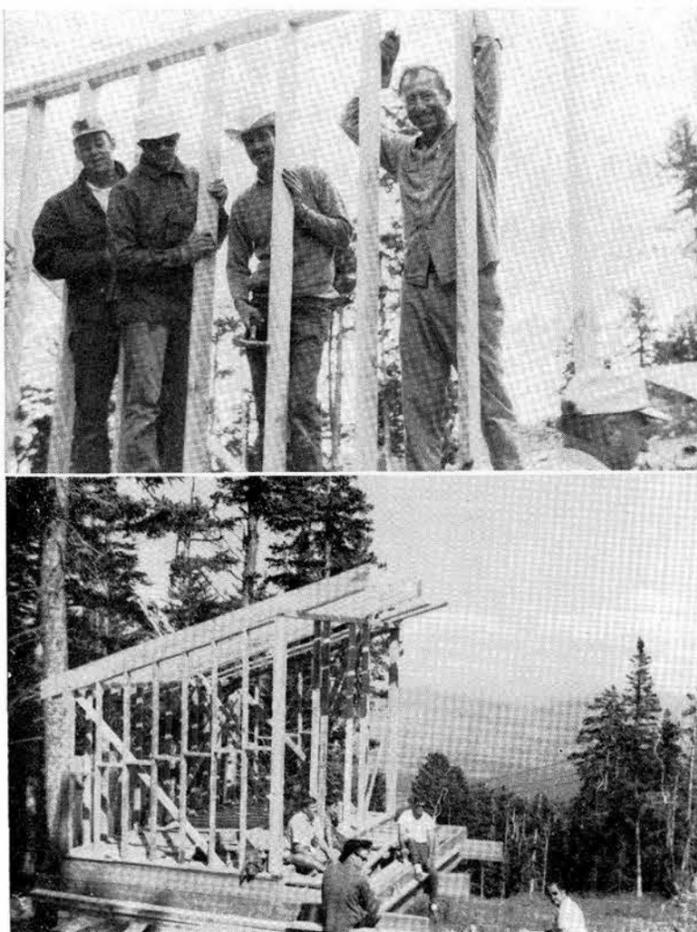
Hayden (3454) — sound, Joe Flanagan (3455-2) and Wayne Gravning (3454) — special photo effects.

Contact Division 3454 if you wish to schedule a showing of the film.



"CINDY" AWARD won by Motion Picture Production Division 3454. The award was won for a 23 minute sound/color film on Tonopah Test Range. "Cindy" awards are given by an association of institutional film producers.

NOW COMPLETED Ski Patrol warming hut at the top of Exhibition run at Sandia Peak is the result of volunteer labor and profit from the Ski Patrol's annual Ski Swap. Another Ski Swap will be held Nov. 15-16. Patrolmen who helped build the hut included (l to r), Jack Cyrus (2325), Pete Stirbis (1542), Don Bush (2343), and Navy Commander Bill Horton.



Service Awards

20 Years



William Chown
9425



Arthur Cordova
4231



Edward Heath
7514



Leigh Hendricks
9424



Barcus Keller
4513



James Meikle
7410



Roland Millican
7262



William Seelbach
4253



William Sharp
4222



Cliff Taylor
4252

15 Years



Salomon Baca
4614



Roy Dell
7623



C. M. Laskowski
4213



Joseph Lobato
7621



Pablo Maes
7532



Ralph McRae
7612



Paul Montano
4623



Robert Norvill
8233



Richard Preston
2352



Willard Scranton
7614

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NOVEMBER 7, 1969

SANDIA LAB NEWS

10 Years

John Windsor 7325, Paul Shoemaker 7652, Kenneth Chappell 8129, William Kampfe 7325, Esther Martinez 4613, Jack Cyrus 2325, Ronald Clouser 7511, Dwayne Mohrman 8172, Bernadine Ross 3455, John Madsen 8330, Richard Shimada 8252, Wanda Cupp 4333.

Authors

John Marcon (2451), J. R. Rosborough (2451), and L. O. Cropp (9522), "Master-Slave Computer Linked by Telephone Lines," October issue, CONTROL ENGINEERING.

L. W. Davison (5133) and D. E. Amos (1722), "Dissipation in Liquid Crystals," Vol. 183, No. 1, PHYSICAL REVIEW.

Albert Narath (5100), "Magnetic Properties of Dilute Gold-Vanadium Alloys:

Nuclear Magnetic Resonance in AuV and Au(Ag)V," Vol. 183, No. 2, PHYSICAL REVIEW.

J. M. Peek and T. A. Green (both 5232), "Improvement in the First Born Theory of Electron Scattering by Molecular Systems. I. Theory. II. Example" and "Angular Distribution of Protons from Collisional Dissociation of H₂+I," Vol. 183, No. 1, PHYSICAL REVIEW.

Visits to Research Laboratories Added Plus to Japanese Conference

You don't find many of our technical conferences that begin with a concert, but the first item on the program of the recent International Meeting on Ferroelectricity, held in Japan, was three selections by the Kyoto Youth Symphony. Cecil Land (5153) reports, "They played Bach like they were born with it."

Cecil and George Samara (5132) were among 300 scientists from 12 foreign countries who presented papers at the Kyoto meeting. As is frequently the case, visits to university facilities and the laboratories of industrial firms in the host country were of great interest.

En route to Japan, the two Sandians visited the laboratory of Professor M. H. Manghni at the University of Hawaii. He is studying the effects of very high pressure on the physical properties of natural and synthetic materials using ultrasonic techniques.

The first evening in Tokyo, on their way to a restaurant, Cecil and George walked right into several hundred demonstrators. The Japanese students were chanting and formed a snake dance, but it was all under the eye of the police and quite orderly.

After the Kyoto meeting Cecil and George visited the Institute for Solid State Physics of the University of Tokyo. Some of the work in ferroelectricity, ferromagnetism, and high pressure research is related to Sandia projects and they found it useful to exchange ideas.

Another visit was to the Electrical Communications Laboratory, the Japanese equivalent of Bell Telephone Laboratories. Cecil gave an informal talk on optical properties of ferroelectric ceramics before a large group of staff members, many of whom saw a number of possible applications. Electrooptics research underway there is in laser transmission channels, image transmission, modulation schemes for lasers, high density electrooptic memories, and magneto-optic devices using manganese bismuth thin films. "We saw research along the same lines as that underway in America, and the results appeared to be parallel," Cecil says. "We were impressed with their efforts in crystal growing. They had some of the best electro-optical crystals we had ever seen, and the crystals were apparently grown by standard techniques."

George stopped at the Electro-Technical Laboratory (the equivalent of our National Bureau of Standards) to meet scientists with whom he had corresponded who are interested in ferromagnetism and ferroelectricity. He also gave an informal talk there.

Cecil stayed on in Tokyo where he was among eight speakers invited to participate in a symposium on Applications of Ferroelectrics in the Fields of Electronics and Opto Electronics. This meeting, attended by about 200 persons, was held in a residence built for the Prince of Japan and, after World War II, occupied by the Prime Minister.

He was invited to visit the laboratory of Professors W. Kinase and K. Ohi at the



"TEA BREAK," during a recent technical symposium in Tokyo, found Cecil Land (5153) exchanging ideas with S. Banno (left), of the TKF Company in Nagoya, Japan. Building in background is former residence of the Prince of Japan.

Waseda University School of Science and Engineering. These men are concerned with single crystal ferroelectrics of antimony sulfur iodide crystals. Several graduate students are assisting them in theoretical studies of the physical properties of crystals with high polarization characteristics.

"Buildings at two of the three campuses of Waseda University have been occupied by rioting students and the structures have been badly defaced," Cecil relates. "The laboratory of these two professors was occupied for one day. Since they work closely with students, they found this especially disturbing."

George wanted to visit the laboratory of a friend in Osaka, but a telephone call disclosed that the professor's lab had been occupied by students for two months!

Both Sandians agreed that the Kyoto meeting was the best-organized conference they had ever attended. They were also impressed by the hospitality shown to the foreign visitors.

Take Note

Charles Barnes (5112) will present "The Effects of Co-60 Gamma Irradiation on Epitaxial GaAs Laser Diodes" at the 5100 Staff Seminar on Tuesday, Nov. 18. The talk will start at 8:30 a.m. in Bldg. 806, Rm. 201. Interested Sandia technical staff are invited to attend the seminar.

SHOPPING CENTER

CLASSIFIED ADVERTISING

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

RULES

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

FOR SALE

MISCELLANEOUS

'69 CHEVROLET 3/4 carryall seat w/seatbelt & hardware. South, 299-4060 after 5:30.
EARLY AMERICAN hutch, solid maple; lawn edger & trimmer. Pass, 256-9663.
DUAL pickup electric guitar & amp, used very little, not expensive. Hubbard, 299-7818.
ARISTOCRAT LO-Liner, 15' camper, '66 model, \$1350. Wyer, 255-8190.
ELECTRIC GUITAR & amplifier, Fender Kalamazoo 6-string w/reverb, 25w amp., cost \$350 sell for \$200 or make offer. Scott, 299-3412.
EIGHT PLACE SETTINGS Lennox china, cost \$40/set, sell for \$22/setting. Gasser, 255-4562.
HEATER, SAFETY, Coleman catalytic, flameless, adjustable 500-8000 BTU, for tents, trailers, etc., used 3 trips, \$25. Hunter, 296-2713.
ANTIQUE Victorian furniture, living room. Eagan, 298-0196.

COLLIES, AKC, show quality, males & females, sable & white, \$75 and up, terms to suit, available Dec. 1 or will hold for Christmas. Lotz, 296-2473 after 5.

EIGHT PIECE limed oak dining room suite, 6 chairs, table, buffet, 3 leaves, \$95, 2817 Espanola NE. Schneider, 299-3769.

PUPPY, male, choice of litter, AKC reg. German Shepherd from excellent blood lines, later stud use as part payment. Villella, 298-7955.

LANGE SKI BOOTS, size 8 1/2 medium width, used 5 times, \$70. Whiting, 298-6598.

'63 TRAVELEZE trailer, 23 1/2', tandem axle, self-contained. Cronk, 296-3183 after 5:30.

'57 ALLSTATE 125cc motorcycle, \$70; dog house, \$5. Weber, 298-1564.

DOUBLE BED w/box springs & mattress, \$45, w/matching dresser, \$75. Villa, 298-0435.

TWO hand carved chairs, \$30 ea., 2 for \$55; girl's winter clothes & coats, all sizes. Marsh, 243-2767.

GIBSON-LANCER AMP, 1 12" speaker, reverb, tremelo, foot pedal plus speaker box, 1 15" speaker, \$125 or best offer. Milesosky, 255-8904.

2 SNOW TIRES & RIMS, 8.25x14 Oldsmobile size, \$30. Stibis, 299-5363.

COUCH, white leather, \$25. Meekins, 298-6681 after 5.

GARAGE SALE: stove, refrig., misc. furniture, clothing, etc., Sat., Nov. 8, 11605 Rosemont NE. Clark, 296-8668.

DANISH MODERN couch, \$50; lounge chair & ottoman in brown naugahyde, \$75; bumper pool table w/professional slate top, \$100. Syme, 298-9167.

COMPLETE Purox Acetylene welding & cutting outfit, 6 welding tips, 1 cutting tip, gages & 25' of hose, \$65. Larsen, 265-0004.

BULOVA ACCUTRON WATCH, \$80. Powell, 299-8877.

20" SPYDER bicycle, w/speedometer, \$25; Whirlpool automatic washer, \$40; set of 4 soldier plaques, metal, \$20, cost \$30. Ferguson, 299-1501 after 5:30.

OFFICE DESK, ornamental, 4'x3', drawers on both sides; File filing cabinet, 4 drawers, 4'x2'x18", gray metal. Farley, 296-5732 after 6.

SMALL miniature black poodles, males & females, 6 wks. old. Johnson, 255-0262.

MAPLE double bed w/matching chest of drawers & mirror; walnut chest of drawers; TV & stereo combination; bed spreads. Chandler, 296-3323.

SKIS, Lund laminated hickory wood 205's, cable binding, safety straps, used 1 yr., \$40. Browne, 344-9675 after 6.

TOY POODLES, AKC champion lines, 3 silver, 2 apricot, very small. Chavez, 298-0674, 3316 Betts NE.

TWO CHESTS of precision tools; 21"x26" drafting board, equipment; rods, reels; man's suit, 2-pants, 32L-33W, charcoal, Dacron Polyester. Easton, 256-7717.

CAIRN TERRIER puppy, female, whelped Aug. 23, '69, AKC reg. litter, light brindle w/black mask, Mozey, 299-0349.

SOFA, white plastic, 78" long, \$50; child's chest of drawers, 14x32x47" long, \$15. Pope, 255-6702.

VOIT WET SUITS, men's size 44 & women's size 14, boots & gloves, all for \$100. Bolles, 298-5255 after 6.

BIRCH drop leaf table, 36"x56" & 4 matching chairs, Modern Planners group, make offer. Rickert, 296-2191.

RANGE, 36", lift-off cooktop, large griddle, \$85; 3-pc. sectional, \$50; dinette table, \$15. Roybal, 299-0938.

DISHWASHER, portable, deluxe model, 16-place setting, Formica top, aqua color, Whirlpool. Rose, 298-4849.

FOSTORIA CRYSTAL, Love Song pattern, 6 water goblets, never used, \$5/ea. Berthoff, 299-8549.

MOSRITE electric guitar, dual pickups, \$190; Olds trumpet "Recording" model, \$175. Bernard, 296-1385.

TOY POODLE, silver male, 6 wks. old, excellent pedigree, very small. Shipley, 298-2433.

ELECTROLUX tank vacuum cleaner w/accessories, \$20; photo tripod, \$5; Silvertone B&W TV, \$15; photo gadget bag, \$3. Alvino, 255-6339.

15 X 60 Sear's vari-power terrestrial telescope (also spotting scope), new \$25, never used, \$16. Schowers, 255-6048.

MAHOGANY drop-leaf table/buffet, \$40/ea., hide-a-bed sofa, \$75; 19" Emerson portable TV, \$30. 4 dinette chairs, chrome. Curkendall, 296-1339.

SONY 530 tape recorder, used a few hours, speakers & microphones included, will demonstrate, \$240. Phillips, 298-0541.

35,000 BTU/HR Coleman floor furnace, 24,000 BTU/HR Cozy floor furnace; 4 chrome wheels for Volkswagen. Campbell, 268-8445.

TRUCK TIRE CHAINS, 700-15, \$10. Stephenson, 299-3914.

CARS & TRUCKS

'58 MGA ROADSTER, engine & clutch completely rebuilt recently. MacDougall, 299-8496.

'64 VW 1500 sedan, radio, rebuilt engine, \$950. Everett, 264-9133.

'60 PORCHE CONV., rebuilt engine, clutch, suspension, new Pirellis Konas, AM/FM. Caldes, 242-3830.

'69 PLYMOUTH Road Runner, 383 engine, 4-spd., AC, road wheels, many extras, Fuller, 256-1593.

'66 BUICK LaSabre, 4-dr. sedan, PS, PB, AC. Troy, 298-3671.

'65 CORVAIR Monza, 110HP, 4-dr., 4-spd. Gabriel, 298-3355.

'64 DODGE motor home, 27', much extra equipment, low mileage. Watkins, 299-0411.

'66 CHEV. 4-dr., white, Positraction, factory air, PS, PB, \$1100 loan value, \$905. Westman, 255-6048.

'64 3/4 TON FORD pickup, V8 w/10 1/2" camper, 25,000 miles, steel belt Michelin tires 5000 miles. \$2500. Smailer, 299-8413.

'52 CHEVROLET, \$125. Jewell, 256-0414 after 5:30.

'62 VW deluxe sunroof sedan, 23,000 miles on rebuilt engine, new Dunlop tires, new interior, radio. \$650. Freedman, 298-2177.

'60 FORD RANCHERO, Hightower, 299-4528.

'61 VW bug, ball clutch bearing, new brakes, tires, 80,000 miles, \$395. Barbier, 299-1305.

'59 STUDEBAKER Lark station wagon, \$90. Murfin, 268-9252 evenings & weekends.

'55 PLYMOUTH station wagon, V8 engine, still good, original owner, \$95. Sundt, 256-3220.

FOR RENT

GUARDED storage available, store: camper, boat, car, truck or whatever, \$5/mo., near Base, 9201 Susan SE. Villella, 298-7955.

WANTED

GOOD SWING SET. Everett, 264-9133.

GAS FIREPLACE LOG, at least 24" long. Harrison, 296-3235.

FURNISHED house or apartment for 3 months this winter for my mother-in-law. North Valley preferred. Baxter, 344-7601.

SHARE RIDE from vicinity Indian School & Girard (Sandia Shadows Apt.), gate no factor. Devor, 255-4890.

BABYSITTER w/car 3:30 p.m. to 5:30 p.m. every school day at 712 Sundown Place SE. Swain, 265-0098.

Coronado Club Activities

Packed November Calendar Features Social Hours, Lobster, Soul Session

The Coronado Club calendar is packed for the next couple of weeks with some outstanding events.

TONIGHT, The Aristocrats will play for dancing at social hour while the Club's famous chuckwagon roast beef tops the buffet. The buffet costs \$1.75 for adults, \$1.50 for kids.

TOMORROW, the free football bus to University Stadium will leave the Club at 1 p.m. The Lobos will tackle Arizona State. The bus will return to the Club after the game where social hour prices will prevail in the main lounge for one hour.

TOMORROW NIGHT, teenage sons and daughters of members will assemble for the monthly teen go go. Something called "The Gertude Blues" will start writhing about 7:30 p.m. and keep it up until 10:30 p.m. Member parents should pick up tickets (25 cents for members, 50 cents for guests) by 9 p.m. tonight.

NEXT FRIDAY, Nov. 14, social hour will feature the big happy sounds of the Gappy Mestas orchestra while the southern fried chicken is spread for the buffet. Social hours get underway right after work on Friday evenings with special prices until 9 p.m. The buffet is served from 6 to 8 p.m. while the band plays for dancing from 6 to 9 p.m. Then the TGIF crowd moves to the main lounge where Yolanda Adent holds a sing-along with piano.

SATURDAY, Nov. 15, is another big day for Club activities.

The football bus will leave the Club at 1 p.m. for the Lobo Homecoming game with Wyoming. After the game, social hour prices in the main lounge.

At San Mateo Lanes that afternoon, the Club will conduct a bowling tournament for men and women's singles and doubles. Top bowlers will qualify as members of the Club's teams and will compete in the City tournaments. To enter the competition, contact John Nakayama (1514), director, tel. 299-8539.

On Saturday night, Nov. 15, the New England seafood dinner will be enjoyed by the 250 early-bird people who made their reservations in time. The event was sold out two weeks ago. Sol Chavez and the mighty Duke City Brass will play for dancing after the troops enjoy a free wine taste, Maine lobsters and cherrystone clams.

For those who missed out, take heart: another New England seafood dinner with the same menu is scheduled March 14. It's only a few months away and Club Manager Jim Noonan just might take your reservation now.

ON NOV. 11, the Club will take a holiday and facilities will be closed.

THANKSGIVING TURKEY LUNCHEON will be served as a 99-cent special on Thursday, Nov. 20. Rosario Ayres will present a Holiday Fashion Show during the noon hour.

SOCIAL HOUR on Friday, Nov. 21, will feature Tommy Kelly and the trio of smiling Irishmen on the bandstand while the New Mexican food buffet is spread.

ON SATURDAY, Nov. 22, a modern rock group — Rod King and the Knights — will return to the Club, by popular demand of the younger ones, to play for a "Pre-Holiday Soul Session." This is an evening of listening and dancing to one of Albuquerque's outstanding musical groups. Social hour prices will prevail from 8 p.m. until midnight. The event is free to members, 50 cents for guests.

DUPLICATE BRIDGE meets Mondays at 7 p.m. Coronado Ladies bridge meets Thursday, Nov. 20, at 1 p.m.

CORONADO SKI CLUB will meet Tuesday, Nov. 18, at 7 p.m. to hear a talk on Sandia Peak facilities and a safety talk by members of the Sandia Peak Ski Patrol.

GAME NIGHTS continue on Wednesdays at 7:30 with numerous prizes.

MID-WEEK SOCIAL HOURS continue on Tuesday evenings with special prices from 5 to 8 p.m.

Coronado Club FOOTBALL BUS

Leaves Club at 1 p.m.
Tomorrow—Lobos vs. Arizona
Nov. 15—Lobos vs. Wyoming
Return to Club after
Game for Social Hour

Betty Jo Espinosa is the Lobo fan.



Albuquerque Author Speaks At Sanado Meet Nov. 12

Sanado Club will meet Wednesday, Nov. 12, at 1:15 p.m. in the Coronado Club for a sherry luncheon. Guest speaker will be Lois Duncan Arquette (husband Don works in 2626) who will discuss "When the Housewife Writes a Book."

Mrs. Arquette sold her first story at age 13 and has since published more than 200 fiction pieces in national magazines plus 14 novels ranging from murder mysteries to preschool picture books.

Reservations for the luncheon should be mailed today to Mrs. Keith Smith, 1508 Valencia NE.

Speakers

P. J. Chen (1721), "Theory of Singular Surfaces as a Model for the Studies of Wave Propagation in Materials," Rice University Department of Mathematical Sciences, Oct. 16, Houston.

J. H. Graham (7624), "Numerical Results on Approximating Known Surfaces with Coons Surface Patches," 1969 Joint Conference on Mathematical and Computer Aids to Design, Oct. 26-30, Anaheim, Calif.

A. F. Witte (7324), "A Force-Acceleration Control Technique for Vibration Testing"; H. D. Arlowe (7345), "Noise Rejection in Strain-Gage Instrumentation"; J. V. Otts

and N. F. Hunter (both 7324), "Shock Reproduction on Shakers," 24th Annual Instrument Society of America convention, Oct. 27-30, Houston.

J. B. Gerardo and M. A. Gusinow (both 5243), "Electron-Ion Recombination in Helium at 77°K"; G. J. Lockwood (5235), "Total Cross Section for Single Electron Loss by Ne and Ar in Nitrogen Oxygen and Air"; J. E. Houston (5332), "Energy Distribution of Mo Ions Returning to the Sputtering Cathode in an Argon Glow Discharge." American Physical Society's 22nd Gaseous Electronics Conference, Oct. 29-31, Gatlinburg, Tenn.

L. S. Nelson and S. R. Skaggs (both 5224), "Heating and Vaporization of Basalts with a Carbon Dioxide Laser," International Meeting of the Meteoritical Society, Oct. 29-31, Houston.

D. G. Schueler (2633), "Optical Determination of the Space-Charge Region in Semiconductors by Ellipsometry," 1969 International Electron Devices Meeting, Oct. 29-31, Washington.

D. C. Williams (5321), "DWBA Analysis of the 40,44 (Ca(t,p) Reaction at 7.5 MEV," American Physical Society's Division of Nuclear Physics, Oct. 30-Nov. 1, Boulder, Colo.

A. C. Switendick (5151), "Calculation of Orbital Symmetry Contributions to Electronic Density of States of AuAl₂"; J. E. Schirber (5150), W. J. O'Sullivan (University of Colorado), and Switendick, "Fermi Surface Properties of the Noble Metals at Normal Volume and as a Function of Pressure," Electronic Density of States Conference, Nov. 3-6, Gaithersburg, Md.

P. D. Thacher (5153), "Ferroelectric Electrooptic Ceramics," Users of Automatic Information Display Equipment Meeting, Nov. 3-6, San Diego.

C. E. Land (5153), "Electrooptic Ceramics for Information Storage and Display," IEEE Northeast Electronics Research and Engineering Meeting, Nov. 5-7, Boston.

N. J. DeLollis (5333), "Aging of Adhesive Specimens and Mechanism of Bond Failure," AF Space and Missile Systems Organization, Nov. 6-7, Los Angeles.

M. A. McCutchan (3235), "Current and Future Development and Manpower Potentials for New Mexico," New Mexico Conference of Social Welfare, Nov. 6, Albuquerque.

Events Calendar

Nov. 7-9, 13-16—"The Subject Was Roses," Old Town Studio, 1208 Rio Grande NW.

Nov. 8—Warren Miller movie "This Is Skiing," sponsored by Sandia Peak Ski Patrol, Civic Auditorium.

Nov. 8—Rock musical "Your Own Thing," UNM Popejoy Hall.

Nov. 11-12—"Yo Soy Pablo Neruda," poetry reading in Spanish at Old Town Studio.

Nov. 12—St. James Day fiesta and harvest dances, Tesuque and Jemez Pueblos.

Nov. 13-14—Holiday Ideas Show, Civic Auditorium.

Nov. 14-15—UNM Homecoming Events, campus decoration tour, parade, UNM vs. Wyoming in football.

Nov. 15-16—Ski Patrol's Third Annual Ski Swap, 9 to 6, Flower Building, State Fair Grounds.

Nov. 15—Rowan and Martin Laugh-in, UNM Basketball Arena.

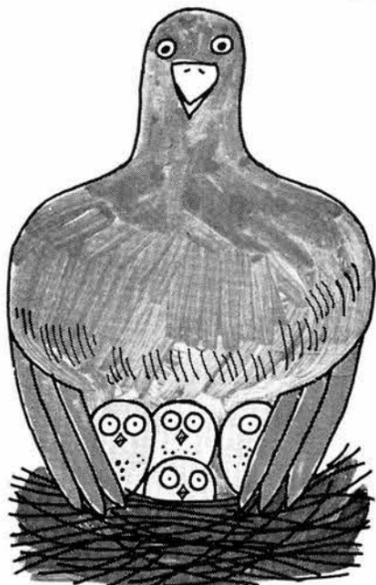
Nov. 16—UNM Chamber Orchestra program, UNM Recital Hall.

Variable Annuity Unit Value

Nov. 1, 1969	1.573
Sept. 1969	1.564
Average 1968 Value	1.647

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D. Thornbrough Accepts AEC Post In Las Vegas



"Director of the Office of Peaceful Nuclear Explosives" for AEC's Nevada Operations Office is Dean Thornbrough's new title. He has taken a leave of absence from Sandia's Systems Planning Staff 100 to accept the position.

The Office of Peaceful Nuclear Explosives will serve as a focal point for all activities in the Plowshare Program, including coordination with industry and the execution of Plowshare projects at other than the Nevada Test Site.

Dean joined Sandia's Field Testing organization in June 1952 after earning his degree in physics from Texas Technological College. He has participated in all of the full scale nuclear testing programs since that time, both in the Pacific and in Nevada.

He was test director for Sandia's Cypress shot. In addition, he participated in such Plowshare projects as Gnome at Carlsbad, Project Salmon at Hattiesburg, Miss., Cowboy in Louisiana and Project Chariot in Alaska.

Dean became supervisor of a full-scale testing instrumentation division in February 1965 and, in nuclear testing activities, was usually a test program director with responsibilities in management, systems planning, engineering and instrumentation. He joined the Systems Planning Staff in May 1969.

Currently commuting between Las Vegas and Albuquerque, Dean will establish a home in Nevada in January. His wife Peggy is teaching in the Albuquerque school system. Their son Mike attends the University of New Mexico, while daughter Cheri attends New Mexico State University.