SANDIA CORPORATION

LAB NEWS

PRIME CONTRACTOR TO THE ATOMIC ENERGY COMMISSION / ALBUQUERQUE, NEW MEXICO / LIVERMORE, CALIFORNIA

VOL. 16, NO. 24 / NOVEMBER 6, 1964

SEISMIC SYSTEMS SECTION personnel will be responsible for the development of a high-reliability Unmanned Seismic Observatory capable of continuous recording for periods up to 90 days. A new project for Sandia, development of the observatory is authorized by the Advanced Research Projects Agency. In front, from left, are Project Leader Charles G. Scott, J. L. Bloomquist, and I. E. Magerkurth. In the second row are, from left, P. A. Fjelseth, J. J. Baremore, R. S. Reynolds, and T. G. Banks. Not shown is J. R. Phelan of the section.

Sandia Lab to Design, Build Seismic Station for DOD

Following the outstanding success of the Vela Detection Satellites program, Sandia Corporation has been assigned a new project calling for utmost reliability performance. The Advanced Research Projects Agency (ARPA) of the Department of Defense has authorized Sandia to initiate a three-phase effort aimed at the design, construction, test and evaluation of a prototype Unmanned Seismological Observatory (USO) capable of continuous recording for 90 days.

Phase I of the ARPA order authorizes Sandia to design a USO system capable of operating unattended on land for at least a 90-day period in permafrost and other similar physical environments. Subsystems will include seismometers, amplifiers, recorders, timing device, power supply, and housing. Consideration will be given to use of multiple sensing elements in both borehole and surface vault configurations.

The design criteria finally arrived at will have considered potential uses to which such equipment might be put both under possible international test ban treaty terms and as a scientific instrument for obtaining data to enhance the state-of-the-art in detecting, locating, and identifying seismic sources.

Charles G. Scott, supervisor of the recently-created Seismic Systems Section in the Aerospace Programs Organization, estimates that Phase I of the USO program should be complete by mid-February.

Sandia's Phase I study will present a recommendation for the USO system and offer several alternatives for ARPA consideration. In the design of the USO, existing seismological systems and hardware will be used where possible.

Charles Scott was a member of the Sandia group which performed the early development work for Vela Detection Satellites. Assisting him in the USO program are T. G. Banks, Jr., J. L. Bloomquist, P. A. Fjelseth, J. R. Phelan, R. S. Reynolds, I. E. Magerkurth, and J. J. Baremore.

Phase II will be the development of two prototype Unmanned Seismic Observatories. Upon completion of the two prototype units, estimated to require about 12 months, test and evaluation (Phase III) will be performed. Current plans call for one test in a desert environment near Albuquerque and another test in Alaskan coastal terrain similar to that encountered in permafrost regions.

Extensive testing of components of the system is anticipated in Sandia's environmental test facilities.

ARPA has authorized $575,000 for the performance of the Phase I study. It is estimated that funds required to accomplish all phases of the USO project will not exceed $1,700,000.

ONE MILLIONTH DOLLAR, contributed through Employees' Contribution Plan to UCF by Sandia Laboratory employees since the inception of the Employees' Contribution Plan in 1957, was contributed during this year's fund drive. It was the occasion for a commemoration ceremony on Oct. 21 by members of the ECP committee (l to r) R. W. DeVore, R. H. Schultz, and R. N. Reed. They presented "One Megabuck" to Ed Black (right), who received it on behalf of the United Community Fund. "It was all made possible by the employees of Sandia Laboratory," Mr. DeVore said, "and by chairmen and members of the ECP Committees of past years."

Five-Year-Old Tonopah Test Range Tackles Increased, Varied Jobs

Tonopah Test Range has just completed five years of full-time operation, a period which has seen expansion from a part-time ballistics range to a fully instrumented outdoor laboratory.

Operations began at the range in 1957. A full-time staff was stationed there in mid-1959. Some 40 Sandia employees are now at the range, along with 20 Federal Services, Inc. security guards and 50 employees of Reynolds Electrical and Engineering Co., under contract for maintenance of the range.

Mission of Tonopah Test Range has shifted somewhat since its early years. Drops from aircraft to obtain data on ballistic behavior of weapons and operation of their internal components and systems are still a key part of range activities, but an increasing number of other projects are being carried out.

"Operations are more diversified than ever before," says Dick Browne, manager of the range since June 1. "We are conducting studies for Project Plowshare of air blast created by row charges, and the range was the site last year of Operation Roller Coaster (experiment to obtain radiological data on scattering of plutonium by accidental detonation of chemical explosives in nuclear weapons).

"High acceleration tests with rockets and artillery field pieces have been going on for some time, but have increased steadily in number and scope. I'd estimate that 40 per cent of our tests now call for rocket firings."

The field pieces, which include a rifle and two howitzers, are instrumented to permit remotely controlled high speed photography within a few feet of the muzzle. They are used for high acceleration and deceleration studies of weapon components.

The rockets are used primarily for propelling test shapes, including parachutes, to greater speeds and altitudes than would be possible by dropping them from aircraft.

There are five rocket launchers located near the north border of the range. Honest Johns coupled with smaller motors such as those used in the Nike are the largest rockets fired from the complex.

Actually, the Tonopah range is three ranges in one and is made up of some 50 instrument stations and substations. Within the primary target area are fixed cameras that provide ballistic coverage for test vehicles released from planes.

Further back from the target area and

(Turn to page three, please)

Sandia, Livermore Meetings Study Plan for Progress

Meetings for Sandia Laboratory supervisors were held today as part of the program to make even more effective Sandia's equal employment opportunity program. The meetings, also to be held at Livermore Laboratory, provide supervisors with information on the signing of Sandia's Plan for Progress by President Lyndon B. Johnson, on behalf of the President's Committee on Equal Employment Opportunity, and S. P. Schwartz.

Mr. Schwartz presided over the Albuquerque meetings. Special speaker was Dr. H. R. Northrup, Professor at the Wharton School of Finance and Commerce, University of Pennsylvania. Prof. Northrup, an authority on industrial economics, is also author of a number of publications on labor relations, employee relations, and economics.

The Company's Plan for Progress, which is one of hundreds signed by President Johnson, is aimed at the objective described by the President: "fair chance and equal opportunity not for some but for all people." Sandia is continuing its efforts to carry out this program to help the country reach the President's objective.

JOSHUA TREES, a form of Yucca, dot landscape near ME-16 tracking telescope and tracking antennae, right, on Radar Hill, nine miles from main drop target at Tonopah Test Range. Antennae locks on radio signals from telemetry packages in test vehicles, permiting receiving station to obtain strongest possible signal. Tracking telescope, usually equipped with both high and low speed cameras, is one of five used at the range. All were built at Sandia Laboratory.

Editorial Comment

School Dropouts – Still a Problem

The problem of school dropouts doesn't lessen. The National Education Association tells us that one out of every three children who started school last fall will drop out before he completes high school.

There are a number of reasons Americans should show concern over this condition and there are also a number of things both parents and non-parents can do to reverse the drop out trend.

First, why be concerned at all? One consideration should be based on the economic fact that education is necessary to get and hold any type of better job. Next, education is necessary to produce tomorrow's good citizen. Education makes it possible for these youngsters to grow into adults ready to accept the responsibilities of adulthood and citizenship.

There are other reasons. Many of them. But these should be enough to arouse to action today's adults. The mere thought ". . . one third of this fall's first graders will not complete public school education . . ." should make us want to do something.

There are some things we can do, according to educators.

Parents can do the obvious. Keep their children in school. Discuss with them the values of education, stimulate them to want education, help make the process of education a pleasant experience.

Parents can prepare their youngsters to anticipate education with pleasure. This can be done by working with children in their pre-school years. It produces great benefit to show the young that there is enjoyment in gaining knowledge.

Parents can also insure that children have the proper attitude toward work. Give them responsibility, then praise them when they do a good job. Parents are also advised never to criticize teachers or school administration in front of children. A careless remark can destroy carefully planned programs.

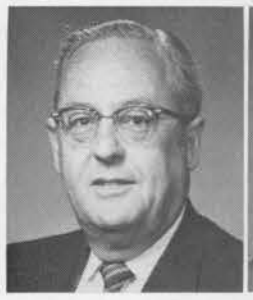
Who will be the one out of three who drops out of school? It may be yours or mine if we don't care and fail to do something about it.

Service Awards

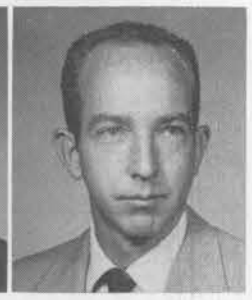
20 Years

Bell Telephone Laboratories
Walter C. Hunter
2410
Oct. 19, 1944

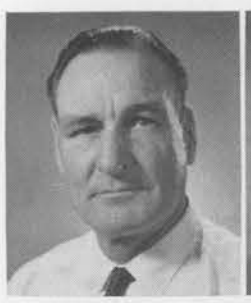
15 Years



Richard N. Browne
7221
Nov. 7, 1949



William H. Chown, Jr.
7253
Nov. 7, 1949

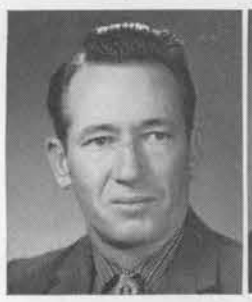


William S. Sharp, Jr.
4224
Nov. 7, 1949

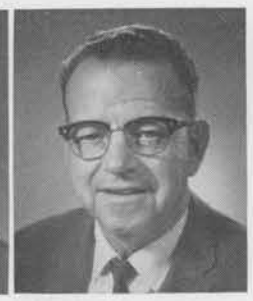
Edward D. Heath
7223
Nov. 10, 1949

Leigh Hendricks
7624
Nov. 10, 1949

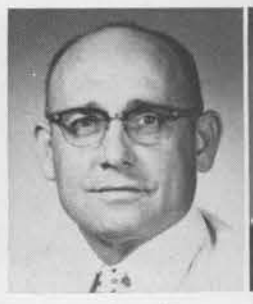
N. Arthur Cordova
4233
Nov. 14, 1949



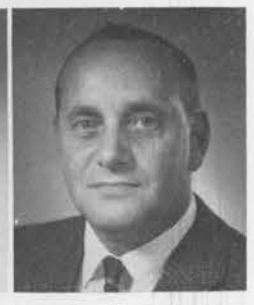
Barcus A. Keller
4513
Nov. 14, 1949



William Seelbach
4254
Nov. 14, 1949



Roland S. Millican
7252
Nov. 15, 1949



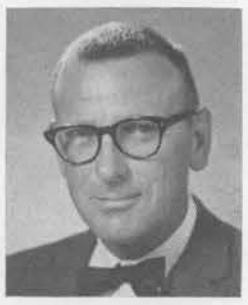
A. S. C. Taylor
4254
Nov. 16, 1949

10 Year Awards

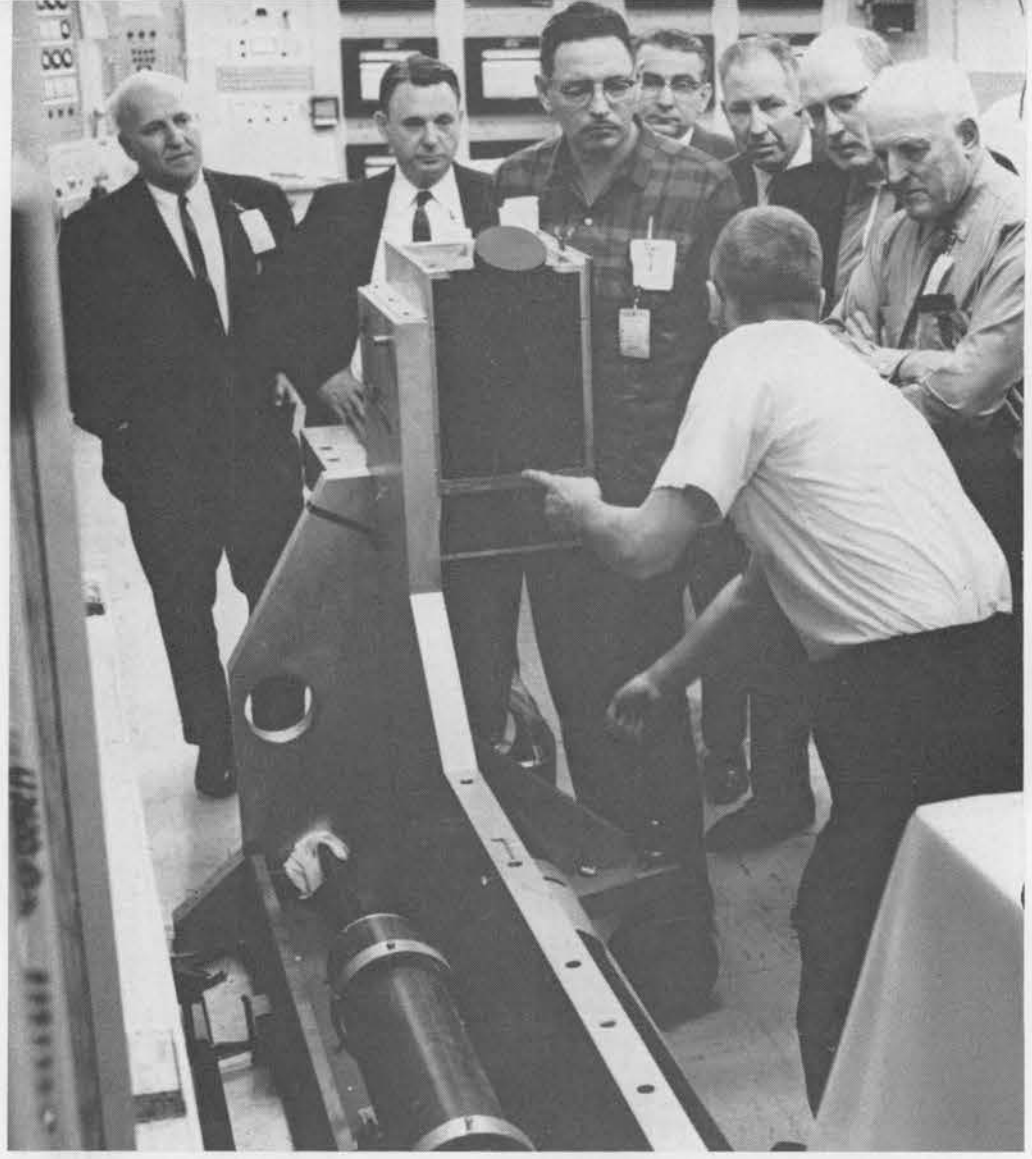
Nov. 7-20

Richard R. Preston 2541, Robert V. Norvill 8234, Roy O. Dell 4421, Peter Ferketich 4221, C. M. Laskowski 4232, Salomon S. Baca 4614, Paul M. Montano 4623.

Fred H. Sanders, Jr. 4221, Pablo C. Maes 4631, Willard A. Scranton 1411, Ralph T. McRae 4413, Allie B. Whitmore 4611, and Joseph Lobato 4421.



James R. Meikle
2550
Nov. 17, 1949



A TOUR OF TECHNICAL FACILITIES at Los Alamos Scientific Laboratory for purchasing officers of AEC prime contractors included an explanation by Warren Quinn of an interferometer used to take ultra-high speed photographs of controlled thermonuclear reaction experiments. The purchasing officers (l to r) are: L. R. Neibel of Sandia Corporation; J. T. Klenke of Reynolds Electrical and Engineering Co.; K. A. Cruise of Bendix-Kansas City; J. J. Spicka of Mound Laboratories; F. R. Moon of Sandia's Livermore Laboratory; Oscar Terrel of Knolls Laboratory; and K. S. Spoon, Sandia's Purchasing Agent.

AEC Contractor Purchasing Officers Meet at Los Alamos

Four representatives from Sandia Corporation attended the eighth annual meeting of purchasing officers of AEC prime contractors, which was held at Los Alamos Scientific Laboratory Oct. 13-15.

K. S. Spoon, Purchasing Agent, led discussions on "Interpretation and Application of AEC Procurement Regulations" and "Methods of Selecting New Sources of Supply." He also gave a talk on "Incentive Contracts: Views from the Practical Side," which was based on information compiled by E. D. Harrity, Senior Buyer in Purchasing Department II.

F. R. Moon, manager of Livermore Laboratory's Security, Safety and Purchasing Department, attended the entire meeting. L. R. Neibel, manager of Purchasing Department IV and Traffic, and J. W. Hughes, one of his senior buyers, attended the session on computerized purchases.

The meeting will be held next year at Brookhaven National Laboratory.

LIQUID NITROGEN STORAGE at Los Alamos Scientific Laboratory is explained to Frank Moon, Livermore Laboratory purchasing officer, by R. L. Campbell (right) of LASL's Supply and Property Department. The tour was for attendees at a meeting of purchasing officers of AEC prime contractors.

Congratulations

Mr. and Mrs. F. K. Statzula (3312), a son, Thomas Francis, Oct. 3.

Mr. and Mrs. A. T. Oravecz (4411), a daughter, Aurora Maria, Oct. 7.

Mr. and Mrs. K. J. Craswell (5425), a son, Ronald Jamie, Oct. 8.

Mr. and Mrs. T. D. Gardner (4412), a son, Dale Thomas, Oct. 9.

Mr. and Mrs. T. D. Harrison (2514), a son, Dale J., Oct. 12.

Mr. and Mrs. F. P. Callahan (4632), a son, Kevin Wayne, Oct. 17.

Mr. and Mrs. J. W. Puariea (1433), a daughter, Karla Kay, Oct. 18.

Mr. and Mrs. C. T. Riney (4412), a daughter, Karen Nadine, Oct. 17.

Mr. and Mrs. K. M. Timmerman (7311), a daughter, Amy Louise, Oct. 20.

Take Note . . .

Two personally-owned books have been borrowed from the office of C. W. Harrison, Jr., and not returned. They are: **Antennas** by J. D. Kraus, and an English translation of a German book, **Boundry Value Problems of Microwave Physics** by Fritz Borgnis and Charles A. Papas.

The books may be returned to Mr. Harrison at Division 1425, Bldg. 802, Rm. 401.

* * * *

The Sandia Base Thrift Shop will be closed Nov. 11 in observance of Veteran's Day, and Nov. 23-27 in observance of Thanksgiving.

SANDIA CORPORATION

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ALBUQUERQUE, NEW MEXICO • LIVERMORE, CALIFORNIA

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STATION 20 is one of nine Contraves phototheodolite tracking instruments used at Tonopah Test Range to obtain data during ballistic drops and rocket firings. Data, obtained through 60-in. telephoto lens, are recorded on 35 mm motion picture color film at rate of eight exposures per second.

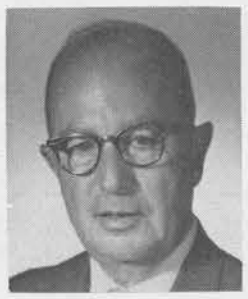
Preparing Site for Construction of New Development Lab

Construction of Bldg. 807, a new three-story laboratory building similar to Bldgs. 805 and 806, will start soon, according to the Atomic Energy Commission. Apparent low bidder for the project at $1,877,-900 is the Robert E. McKee Construction Company of Albuquerque.

Work is underway now to remove Bldg. 626 from the site to be occupied by the new building. When constructed, Bldg. 807 will form the third leg of a giant "U" consisting of Bldgs. 805, 806, and 807.

Plant Engineering project engineer C. M. Morrisett estimates that construction of the new building will take about 400 calendar days. Completion is scheduled about Dec. 15, 1965.

R. E. Poole Died Oct. 27 Following Lengthy Illness



Robert E. Poole, who served as a Vice President of Sandia Corporation from 1952-61, died Oct. 27 at a Hemet, Calif., hospital following a lengthy illness. He was 65.

Family services were held the following day.

Mr. and Mrs. Poole had been making their home in Sun City, Calif., following his retirement June 1, 1961, as Vice President, Livermore Laboratory. A son, Robert E. Poole, Jr., resides at Newport Beach, Calif., and a married daughter lives in Pasadena.

Mr. Poole had been with the Bell System for more than 35 years. He helped set up BTL's Military Electronics Laboratory at Whippany, N. J., and before coming to Albuquerque was this Laboratory's Director.

In 1949 he was one of a number of key executives of the Western Electric Company and Bell Telephone Laboratories assigned to establish Sandia Corporation. His first post at Sandia was Director of Research and Development. He was elected Vice President, Development, in 1952 and five years later was transferred to Livermore, Calif., to head Sandia Corporation's new laboratory there.

Mr. Poole served in many capacities for the Episcopal Church. While in Albuquerque he was Senior Warden of St. John's Episcopal Church as well as being a leader in other activities. Mr. Poole was a member of the first Editorial Committee at Sandia Laboratory and worked with the company publication until his retirement.

He was a Fellow and Life Member of the American Institute of Electrical Engineers and a Senior Member of the Institute of Electrical and Electronics Engineers.

Continued from Page 1

Tonopah Test Range Tackles New Jobs

along the flight line are tracking phototheodolites, tracking telescopes, radars, and other radio frequency tracking systems which provide ballistic coverage for medium and high altitude releases from aircraft. This is the second range.

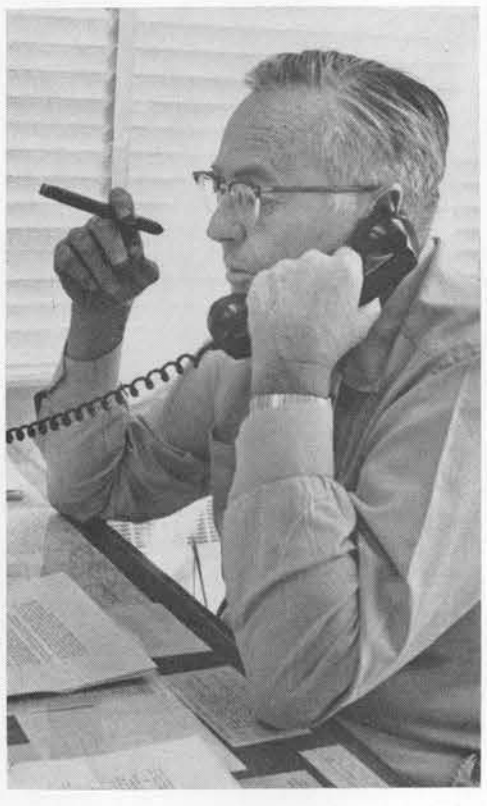
These same instruments are used to provide ballistic coverage in support of the instrumentation rocket activities and, in conjunction with the rocket complex, constitute the third range.

Additional construction which will give the range even greater capabilities is now underway or just recently completed.

A camera maintenance building with darkroom facilities will improve handling of film; a disassembly building near the rocket complex will allow greater freedom and safety in "post mortem" examination of test units containing high explosives; a reinforced concrete blockhouse at the rocket complex and a new Contraves tracking station will also improve the range.

The new station, located farther south than other instrumentation, will extend the base leg of the range and, according to Dick Browne, be indispensable in gathering data on drops from the higher flying, faster moving aircraft of the future.

Dick Browne, supervisor of Tonopah Range Operations Division, advised that positions for Staff Member Electrical and Staff Assistant Electrical are now open at the Range. On-roll personnel interested in these positions may contact their supervisors who will notify personnel representatives in the Personnel Development Division.



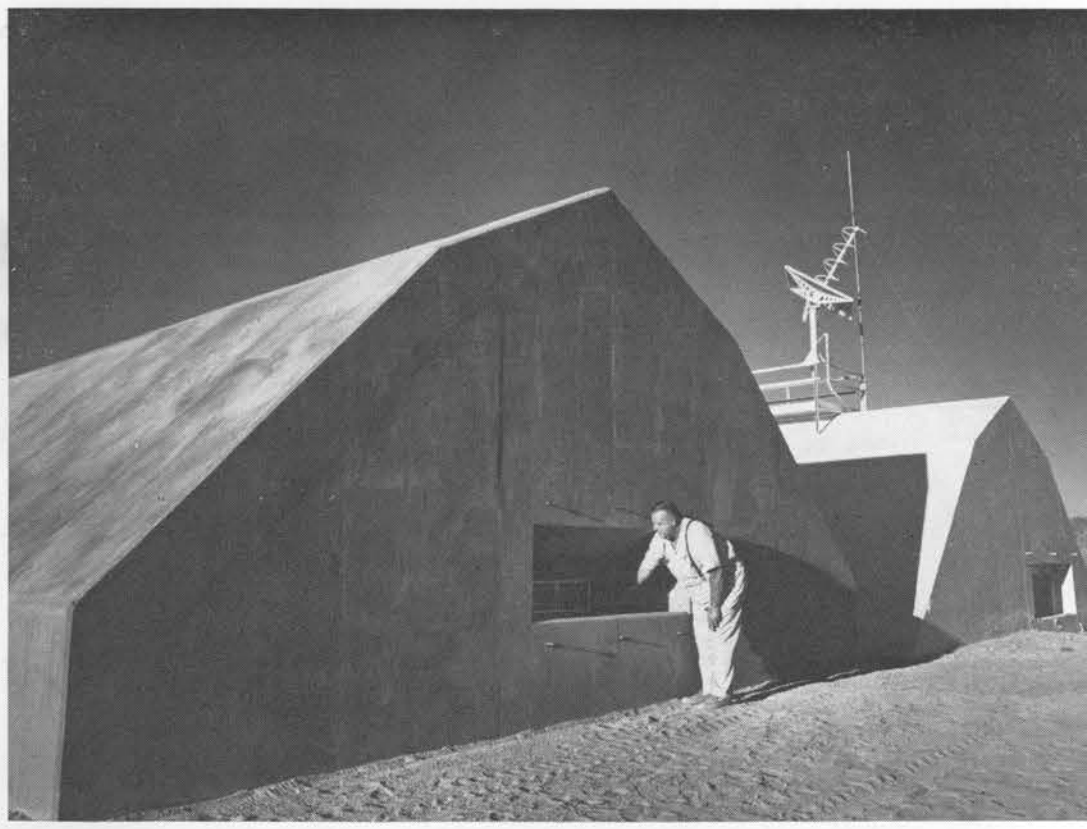
MAN IN CHARGE of 637-sq.-mile Tonopah Test Range is R. N. Browne, range manager. Value of range and equipment is estimated at about $10 million.

Livermore Laboratory Holds First Workshop In Value Engineering

The first Value Engineering Workshop held at Livermore Laboratory ended Oct. 30 following two weeks of concentrated studies. The course was administered by Elmer Devor and Jack Hueter of Products Data Division at Sandia Laboratory, with assistance from Ron Wishart, SCLL Product Evaluation Division.

The 44-hour course was given to 25 students, divided into five project teams. Each team had the task of applying value engineering techniques to typical SCLL hardware. A short course for 100 supervisors was given in three-hour sessions. Project teams presented the results of their work at a project report session on the final day.

In the future, the Product Evaluation Division will conduct and coordinate value engineering analyses on actual hardware. Management Systems Division will report the subsequent cost savings to the AEC.



NEW BLOCKHOUSE at Tonopah Test Range is inspected by R. C. Holland, Rocket and Ordnance Section. The new building will house all instrumentation needed to fire rockets from nearby launchers. Older blockhouse in background will be used by observers during firings.

Measure Radiation Of Red Chinese Nuclear Test

On Oct. 16, the Red Chinese detonated what appeared to be a low-yield nuclear test device at a testing site in central Asia. Since the test was conducted above ground, it released radiation into the atmosphere. The radiation has been detected at stations across the continental United States, including Sandia Laboratory.

"The minute rise in the radiation level presents absolutely no hazard to public health," W. H. Kingsley, Manager of Environmental Health Department, comments. "Since the detonation, the radiation level has risen 4-5 times its normal level, but the level is still infinitesimal."

The normal radiation level has been about 2.5 picocuries (one millionth of one millionth of a curie) per cubic meter of air. On Oct 27, the radiation level had reached 22 picocuries.

By contrast, during atmospheric tests in 1957, the radiation level reached 600-700 picocuries per cubic meter. Had this level been maintained for 10 years, the average citizen would have received about as much radiation as that generated by a chest x-ray.

The peak of radiation from the test appeared to have passed by Oct. 30. The increase was detected not only by Sandia Laboratory, but also by Los Alamos Scientific Laboratory, and the State Department of Health in Santa Fe.

S. P. Schwartz Has 35th Anniversary With Western Electric

Sandia Corporation's President, S. P. Schwartz, will observe his 35th anniversary with Western Electric Company on Nov. 16.

Mr. Schwartz joined the Bell Telephone System in 1927 as an engineer with the Western Electric Company in New York City. He has served in various supervisory assignments concerned with the communication and defense activities of the Company.

In 1957 he was appointed vice president and general manager of Sandia Corporation and assumed his present position on Sept. 1, 1960.

Sandia Speakers

Following is a list of speakers, titles, and places of presentation for recent talks by members of Sandia Corporation.

D. G. Schueler of Solid State and Thin Film Devices Division, "Ferroelectric Ceramic Memory Devices," 1964 Electron Devices Meeting, Oct. 29-31, Washington, D. C.

D. E. Munson of Deformation of Materials Division, "Dynamic Stress-Strain Behavior of Metals," Materials Science Colloquium, Oct. 19, Stanford University.

R. A. Hill of Plasmas and Kinetics Research Division, "A Study of Hydrogen Shocks in the Impulse Tube by Rapid Scan Spectroscopy," sixth annual meeting of the Division of Plasma Physics of the American Physical Society, Nov. 4-7, New York City.

E. H. Beckner of Electro Physics Research Division, "Quadrupole Injection Utilizing Plasma Collision and Depolarization Processes," sixth annual meeting of the Division of Plasma Physics of the American Physical Society, Nov. 4-7, New York City.

J. R. Banister of Molecular and Plasma Phyics Research Department and E. H. Beckner of Electro Physics Research Division, "Electrostatic Acceleration of Plasma Electrons and Ions in Transverse Magnetic Fields," sixth annual meeting of the Division of Plasma Physics of the American Physical Society, Nov. 4-7, New York City. Mr. Banister will make the presentation.

A. R. Sattler of Crystal Lattice Defects Division, "Ionization in Silicon from Monoenergetic Neutron Bombardment Below 1 Mev"; "Ionization by Energetic Silicon Atoms within a Silicon Lattice," co-author is M. G. Silbert of Los Alamos Scientific Laboratory; and "Channeling of Ions through Single Crystal Silicon Lattice," co-author is Geoffrey Dearnaley, on loan to LASL from Atomic Energy Research Establishment, Harwell, England. Mr. Sattler presented all three papers at the American Physical Society meeting, Oct. 23-24, in Chicago.

Elmer Devor of Value Engineering, Cost Reduction & Supplier Evaluation Division, "Roadblocks to Progress—Logical or Emotional?" 1964 Western Colloquium, Society of American Value Engineers, Oct. 23, San Francisco, Calif.

L. W. Brewer of Industrial Hygiene Section, "Control of Solvent Exposures by Breath Analysis," joint meeting of American Industrial Hygiene Association and Health Physics Society, Oct. 30, Colorado Springs, Colo.

D. M. Abrahams of Publications & Graphic Arts Division, "Photo Instrumentation," San Francisco City College, Nov. 14.

Livermore Laboratory

Area 8 Test Lab Important To Weapon Development Programs

At Livermore Laboratory, "up on the hill" usually refers to the Area 8 Environmental Test Site. This is an area of about 10 acres situated on a hill less than one-half mile from the main Laboratory. Within this fenced and closely guarded perimeter, the SCLL Area 8 Test Division carries out test programs involving high explosives (HE), structural testing (including some pressure testing), acceleration (large objects), and radiography; and performs most of the shock testing done at the Laboratory.

These facilities are required to get the quick answers necessary during the development of systems and components. Most of Sandia's testing is conducted at Sandia Laboratory's Area III. Whether a test is conducted at Livermore Laboratory or Sandia Laboratory depends upon such factors as requirements, scheduling, and availability of facilities.

The two largest operations are the hazardous test facility in Building 972 and the HE firing facility in Buildings 973 and 974. The hazardous test facility contains a centrifuge and devices for structural, pressure, and shock testing. A 150/300 KVA x-ray is also in this building. The firing facility contains HE assembly rooms, firing chambers, and a data acquisition and control room for the chambers and the high-speed cameras used to record events within the chambers.

Began in 1958

In 1958, a temporary facility was built on the hill to house the air gun. At that time it was the only building there, and some of the original equipment and structures remain in use.

The firing facility came next and is the largest single structure at area 8. It was the first permanent installation there, and provides for completely contained testing of explosives. Conceived early in the component testing program, it evolved as a permanent facility only after extensive testing in borrowed and temporary sites. Permanent HE storage magazines were built at about the same time.

The eight-ft. (radius) centrifuge, installed in a concrete-lined pit, was the next permanent structure. Then Building 972 was constructed as the hazardous test facility, followed by a radiography site.

A late addition to Area 8 facilities is the "squirt gun," a device designed to test an underwater recoverable capsule. Other developments under way include an extension of one of the buildings in the firing facility and an environmental test building for testing HE components for vibration, shock, temperature, and acceleration.

Safe Operation

To ensure safe operation, instrumentation and control equipment have electrical interlocks that control the operation of such devices as the centrifuge, x-ray, high-speed cameras, and sources of high voltage. Indicator lights on the control equipment provide the test coordinator with a complete monitor capability for hazardous equipment and door interlocks.

Strictly enforced regulations governing the movement of personnel within the various facilities, especially the firing facility, eliminate many potential hazards. Since establishment of Area 8, there has not been a disabling injury because of, or resulting from, a test conducted there. The safety organization at SCLL has an active interest in these programs and is included in the planning of all tests. Every hazardous test conducted at Area 8 is subject to review by the safety organization.

Clean and Orderly

A new employee introduced to Area 8 sees first the array of flashing and rotating red warning lights on and around buildings. What may be most impressive, however, aside from the equipment, is the orderliness. Because many of the tests conducted at the site involve hazards, it is essential that working areas, hallways, and aisleways be kept clean and uncluttered.

At the firing facility, where handling HE is a routine part of most tests, dust and HE by-products are closely controlled through filters, air conditioning, and special waste containers. A "down-day" is regularly scheduled for general cleanup.

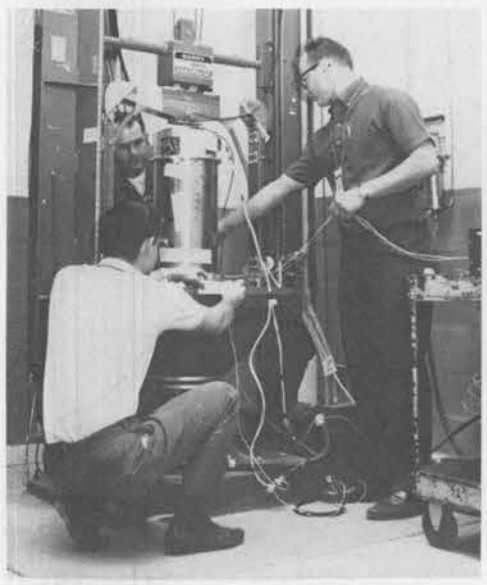
Area 8 plays an important role in the test activities at Livermore Laboratory and is a necessary tool in the AEC weapon development program.

PART OF AREA 8 CONSTRUCTION is reviewed by Dick Myers (left) and Joe Sladky. The building going up in the background is the new HE environmental test laboratory, Building 976.

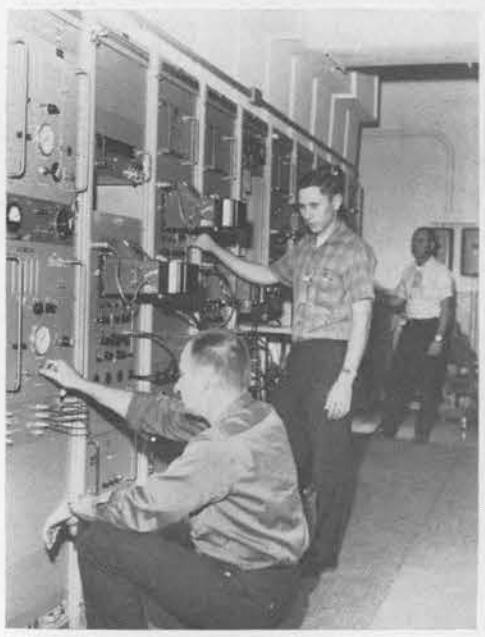
BEFORE LOADING THE HE, T. K. O'Kelley, from Safety Engineering Section, checks the test setup inside a firing chamber with technicians Herb Pruett (left) and Larry Skinandore.

READYING THE CENTRIFUGE for a test are technicians Lou Wittkopp (left) and Bill Wilcox. The eight-ft. (radius) centrifuge rotates at speeds from 20 to 235 rpm with a dynamic load capability of 60,000 g-lbs. It can carry a maximum specimen weight of 3000 lbs.

THIS HYDROSTATIC TEST CONTROL PANEL regulates liquid pressure used to hydro-test a specimen. Shown at the controls are Jim Duggar (left) and Joe Sladky, supervisor of Area 8 Environmental Test Section.



AN INSTRUMENTED TEST on the drop table is prepared by (l to r) Dennis Meyers, Les Jones, and Duane Sillanpaa. The drop table can lift a test specimen weighing up to 200 lbs. as high as eight ft., then release it to fall unrestricted, striking the anvil (table). Contact material on the table can be varied to produce the desired shock load on the specimen.



CONTROLS FOR ONE FIRING CHAMBER are set just before a test by (l to r) photographer Gordon Bennett, technician Steve Folkendt, and test engineer Gene Anderson. Gene holds the master key for the panel, which closes an interlock to prevent accidental or inadvertent actuation of the equipment.

X-RAY FOR CHECKING COMPONENTS. Bob Eastburn operates this 150/300 KVA x-ray located in the hazardous test facility, Building 972. After a specimen is subjected to a test, the x-ray is used to detect cracks or other malformations resulting from the test.

CONTROLS FOR THE STATIC TEST FRAME are set by (front to back) Bill Purcell, Jim Duggar, and Phil Sites. Static tension and compression loads are applied to a test specimen for checking the structural integrity of the part or component.

A SPECIAL WRENCH is withdrawn from the air gun by Art Clark (right) and Ralph Thompson. The gun, 16 ft. long with an eight-in. bore, uses high-pressure air to fire a steel projectile against a test specimen. Projectile weight may vary from 28 to 250 lbs. A 60-lb. projectile can be accelerated to 830 ft./sec.

HEADQUARTERS FIELD COMMAND
DEFENSE ATOMIC SUPPORT AGENCY
SANDIA BASE, ALBUQUERQUE, NEW MEXICO

28 Oct. 1964

Mr. S. P. Schwartz
President
Sandia Corporation
Sandia Base, Albuquerque, New Mexico

Dear Mr. Schwartz:

I have proclaimed the week of 8-15 November 1964 as Religious Emphasis Week for Headquarters Field Command and the related agencies at Sandia Base and Manzano Base. During this week, services for all three major faiths will be conducted to offer each one of us opportunity to fulfill his obligation to God and meet his need for Divine Guidance.

In addition to the members of this headquarters, their dependents, and civilian friends and neighbors in the adjacent communities, I would like personally to invite you and the members of the Sandia Corporation to participate in this observance.

It is my hope that this special religious emphasis will accomplish a three fold objective:

a. To renew within ourselves the conviction of the importance of prayer and dependence upon Almighty God for world peace.

b. To accept willingly the spiritual, moral and morale building benefits to be derived from a base-wide participation in Divine worship.

c. To strengthen and enlarge the over-all religious program at Sandia and Manzano Bases.

A schedule of religious services is enclosed together with a brief biographical data on our guest mission leaders. If there is any further information you deem necessary, please do not hesitate to request it of the Field Command Chaplain, phone 264-3722.

Sincerely yours,
R. C. JOHNSON
Rear Admiral, USN
Commander

Employees Invited to Participate In Religious Emphasis Week

Sandia Corporation employees and their families have been invited to participate in activities during Religious Emphasis Week, Nov. 8-15, which will be sponsored on Sandia Base by Headquarters Field Command/-DASA.

The schedule of religious services to be offered are:

Protestant Services at Sandia Base Chapel No. 2 (Bldg. 107). Sunday, Nov. 8, mission services at 11 a.m. and 7 p.m. Monday, Nov. 9, men's meeting and luncheon at 11 a.m., mission service at 7 p.m. Nov. 10, women's meeting at 10 a.m., fellowship supper at 6 p.m., followed by mission service at 7. The guest preacher will be Chaplain (Capt.) Alfred E. Brough of Fort Bliss, Tex., formerly with civilian pastorates in Philadelphia, and Director of the American Baptist Student Ministry at the University of Pennsylvania.

Roman Catholic Services at Sandia Base Chapel No. 1 (Bldg. 1850). Sunday, Nov. 8, regular mass schedule-mission service at 7 p.m. Nov. 9-13, mission service (for dependents) at 10 a.m., mission mass (for employed personnel) at 12:05 p.m., and mission service at 7 p.m. followed by confessions. The services will be conducted by the Rev. Albert A. Fuytinck of the Redemptionist Missionary Fathers, Odessa, Tex.

Jewish Services. Thursday, Nov. 12, Torah session at 8 p.m. at Sandia Base Chapel No. 2 (Bldg. 107). Friday, Nov. 13, sabbath service at Temple B'nai Israel (Conservative), 415 Cedar SE, and at Temple Albert (Reform), 1006 Lead Ave. SE. Rabbi David D. Shore of Temple Albert will lead the Torah session and speak representing the Jewish faith. He served as an Army Air Corps chaplain during World War II.

LOW NET TROPHY WINNER for the annual 4200 Organization golf tournament was Gordon Zahm (left), who received the award from 4200 Director R. J. Hansen. Low gross winner was Gil Lovato.

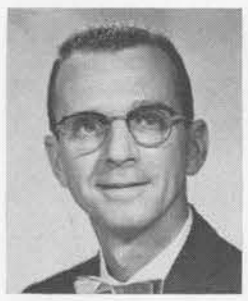
H. D. Sivinski to Talk At Joint Meeting of ASQC, ASME, AIIE

Members of the American Society of Mechanical Engineers, American Society for Quality Control, and American Institute of Industrial Engineers will meet Tuesday, Nov. 17, at the Coronado Club.

Speaker will be H. D. Sivinski, member of 9100 staff, who will discuss "Environmental Problems in Space Travels."

Social hour will begin at 6:30, dinner will be at 7, and the talk is scheduled for 8:30 p.m. For reservations to attend the meeting, which is open to the public, contact Joel Martin of Operations Planning and Quality Control Division, tel. 264-3409.

Death . . .



Fernie F. McEwin, a Sandia employee for more than 12 years, died Oct. 21. He was 42.

Mr. McEwin was an engineer in Advanced Systems Development Department.

Survivors include his widow and two children in Albuquerque, and two sisters and two brothers in Texas.

Aerospace Nuclear Safety Dep't Plans Nov. 17 Symposium

An Aerospace Nuclear Safety Department Seminar on Launch Abort Environment Hazards will be held Tuesday, Nov. 17, at 9 a.m. in Bldg. 815.

Opening the meeting, F. D. Kite of Aerospace Nuclear Safety Division II will present a review of aerospace nuclear safety ground test activities.

He will be followed by J. M. Gayle, Chief, Physical Chemistry Section, NASA/Marshall Space Flight Center, who will speak on "Liquid Propellant Blast Hazards." Dr. Gayle has been with NASA four years, and was previously with the U. S. Bureau of Mines for 16 years. He was graduated from the University of Alabama and holds a doctorate degree in chemistry from that school.

Dr. Gayle's paper is a discussion of the blast hazards of liquid propellants based on investigations of launch pad and test stand accidents.

"Project Pyro and Related Launch Vehicle Propellant Tests" will be the subject of a talk by Charles Cooke, Chief, Hazards Analysis Office, Air Force Rocket Propulsion Laboratory. He was graduated from Marietta College in Ohio, and received his MS degree in aeronautical and astronomical engineering at Stanford University. He was with Wright-Patterson AFB for eight years, and has been at Edwards AFB since 1959.

Mr. Cooke's paper is a discussion of the current testing program, Project Pyro, which is being performed at Edwards AFB. It also includes a report on the hypergolic fuel impact tests conducted at Naval Ordnance Testing Station, China Lake, Calif.

Films of tests will be shown at the seminar. No tickets are required.

Style Show Planned For Coronado Club Noontime Patrons

Patrons of the Coronado Club will have a chance to do a little "window shopping" as they pass through the lobby, starting next Monday.

Arrangements have been made with a local clothing store for the display of women's ski attire the week of Nov. 9, and leisure-type clothing the week of Nov. 16. During the noon hour, a representative from the store will be on hand to provide additional information. Both mannequins and showcases will be used to display the clothing.

SHOPPING CENTER • SHOPPING CENTER • SHOPPING CENTER • SHOPPING CENTER • 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

SONOLA CHORD ORGAN, $100; Norge automatic washer, $45. Love, 298-6484.

GROUNDED GRID half kilowatt linear transmitter, self contained power supply in 8¾" high cabinet, $50. Nogle, 299-3863.

GO-CART, 1¾ HP, 4-cycle engine. Adams, 268-5943.

'55 OLDS 98, AT, PB, PW, PS, $275. Fuentes, 1202 Jackson SE, 268-7875.

DRAPES, new custom made, white w/green, 3 large pair; carpet 9x15 all wool twist, rose, custom cleaned. Williams, 256-6008.

2-PC-SECTIONAL, white vinyl; corner table, walnut, formica; tangerine swivel chair; all $40; bamboo drapes, white/design, 7'x8', $10. Fergesen, 299-1501.

SKIS, boots, and ski pants for 5-7 yr. old, boots and pants worn three times. Pope, 268-7206.

WASTE KING portable dishwasher, $100; 6x9 wool, rose rug and pad, $10; Glen Miller limited edition album, $25. Harley, 898-0594.

TWO 10-acre lots, 8 miles from 66 on S Highway 10, $350 per acre. Browne, 344-9675.

8" WARD's Power Craft table saw, $20. Van-Vickle, 299-1240 after 5:30.

'56 VOLKSWAGEN, 2 new tires, radio. Kreitler, 7509 McNerney Ave. NE, 299-8494.

OLDS Ambassador cornet w/new case, $80. Haskins, 298-1997.

17" TV, $25. Southwick, 255-3312.

KARLSON SPEAKER ENCLOSURE, 15", $20. Burkhardt, 256-3310.

'51 CHEVY station wagon, plywood floor behind front seat, used as camper, make offer. Henry, 1933 Truman NE, 255-2536.

TWIN SIZE MATTRESS and box spring, steel frame, blond wood bookcase headboard, $40. Duvall, 299-8744.

4-BDR., 2 baths, fireplace, custom drapes, carpeted, a/c, landscaped, on cul-de-sac in Holiday Park, FHA appraised. Fromhold, 298-6316.

SELL OR TAKE OVER PAYMENTS: '61 Buddy Mobile home, 55x10, w/living room extension, 2-bdr. Rittgers, 298-7248 after 6.

BOY'S BIKE, 26", thorn-proof tubes, $15; tetherball and pole, $4. Thayer, 299-3127.

MATCHING mahogany step tables and table lamps. Bowden, 265-0468.

DODGE Lancer hubcaps (spinners), set of 4, new, still in original carton. Amaral, 255-9466.

TENT, never used, 10x12 cabin style, 7.5' ridge, sewed-in floor, screened all around, lists, $109, sell $50. Scott, 299-3412.

COSCO HIGH CHAIR, red plastic upholstery; Teter-Rock, five seats, backyard fun for many children. Forsythe, 299-2785.

BOWLING BALL and bag, $15; golf shoes, size 10½, $5. Murphy, 299-0647.

REMINGTON .22 cal. automatic rifle, light-weight nylon stock w/Weaver 3X scope; trade for Polaroid model 100 camera or equivalent which shoots 3000 speed film, color. Mitchell, 299-8647 after 5:30.

BICYCLES: boy's and girl's 26", 3-speed, w/extras, $35 ea., $65 for both. Ayers, 1010-G Palomas Dr. SE, 255-4902.

SMITH & WESSON K-22 masterpiece w/holster, $40. Long, 264-1109.

.027 LIONEL TRAINS, 5 Star General and others, switches, table, etc. Willers, 243-7494.

SHORT WAVE RADIO, receives regular broadcast, amateur, citizens band, and short wave stations. Evans, 298-7816.

'55 PONTIAC, 9-passenger station wagon, hydromatic. Temple, 242-9092.

REFRIGERATOR, 12 cu. ft., $40 or trade for automatic washer; Royal electric typewriter, office size, $165. Tilley, 299-0762.

BRIGGS & STRATTON ENGINE, 4-cycle, 3 HP, $25; Aurora auto racing set, HO, 4 cars, 2-lane, repair parts, $11. Mitcham, 299-8425.

'64 CORVAIR MONZA, automatic, large engine, $1800 payoff plus older car for my equity. Hainlen, 268-7478 after 6.

'58 KARMAN GHIA, $800, new paint, Pritchard, 268-9618.

FALCON TRAILER HITCH, approved in all states. Sutton, 298-7036.

MODERN CHEST OF DRAWERS, glass top, $10. Pope, 816 Val Verde SE, 255-6702.

CAMPER for ½-ton truck, $75. Berger, 255-0265 after 5.

'62 RAMBLER station wagon, 4-dr., classic, 6-cyl., ST, R&H, $1150. Richardson, 344-4324.

POWER SAW w/table, $60; aluminum garage door w/hardware, $20 or best offer; aluminum glass door, left hand, $25. Pino, 299-6544.

'58 VW MICROBUS, 50,000 miles, less than NADA for cash. Brewster, 298-5155.

'63 RAMBLER WAGON, ST, OD, in-lock rear end, R&H; dressers, matching set, double 6" foam mattress; 8" table saw. Naumann, 299-5576.

DINETTE TABLE and 2 chairs; window fan; Exercycle; electric heater; bowling ball and bag. Merrell, 299-0348, Sat. & Sun.

'56 PLYMOUTH Plaza, 4-dr. V8, 185 HP, AT, AC, w/w, deluxe wheel covers, $200. Ratchner, 268-0534 after 5:30.

3-BDR. HOME, living room, dining room, a/c, 1 block Acoma Elementary school, 8 large trees, bluegrass lawns, garage and carport, near bases. Cope, 1605 Maxine NE.

12" CRAFTSMAN BAND SAW w/1/3HP motor and stand; Craftsman heavy duty sabre saw. Calvery, 255-9545.

'60 CHEVROLET Bel Air, Powerglide, PB, PS, factory air, white 2-dr. sedan. Lamb, 256-7343.

LEWYT vacuum cleaner w/all attachments, $10. Wagoner, 299-6801. 1837 Britt NE.

HO gauge trains, engines, accesories, tracks, transformer, train table, $60. Harper, 298-0146 after 5.

CORRALES HOME on one acre, 3 fireplaces, 3-bdr., electric kitchen, corral, double garage, independent efficiency apt. Swiss, 898-2083.

BOY'S 20" bicycle, 1 yr. old, $18, pneumatic tires w/stop leak, coaster brake, kickstand and rear carrier. Black, 299-3369.

'62 CHEVY II 100, 6-cyl., stick shift, 17,000 miles, will trade. Palmer, 299-3557.

WESTINGHOUSE refrigerator, 9.7 cu. ft., $35. Gourd, 256-6852.

2 ADJOINING R-1 LOTS, 75' and 84' fronts, terms. DeZeeuw, 344-7392.

MOUNTAIN CABIN, Vallicito Lake Area, Colo., electric range, refrigerator, automatic washer, hot water heater, wb/fireplace, 2 baths. Vogt, 299-2551 after 5.

WESTINGHOUSE refrigerator, 9 cu. ft., right hand door, $35. Chavez, 298-0674.

TWO DIAMOND RINGS, one has 5 10-pt. FC, the other has 2 10-pt. FC and 1-60pt. FC, appraised value $900, make offer. Pollett, 298-1661.

LC SMITH standard typewriter, dust cover, $25. Gregory, 268-2022.

'58 ADMIRAL refrigerator, 12 cu. ft., large freezer across bottom, $75; '63 Chev. Impala Spt. Cpe., PG, PS, 327, below NADA at $2295 or trade. Workman, 298-8201.

CLARINET and case, 6 months old, $65. Ezell, 268-4845.

BOAT, 14' runabout, deck, windscreen, controls, cover, 7.5 HP, suitable for sail conversion; trailer, complete rig, $595. Staurt, 268-2943.

MAHOGANY DUNCAN PHYFE dining suite, buffet, glass front china, table, table padding, 6 chairs. Harvey, 256-2666.

TURNTABLE, Knight 25-watt, linear deluxe basic amplifier, Heathkit preamplifier model WA-P2, 12" speaker, $40. Johnson, 255-5427.

'55 PONTIAC wagon, $125; '60 Chrysler 4-dr. HT-power, $1150. Corll, 255-5683.

BICYCLE, Schwinn, 26" boy's. Fox, 256-2606.

'56 MUSTANG MOTORCYCLE, $125; '53 Cushman Eagle, $50; 2 adjustable bed frames, $4 ea. Singleton, 299-1613.

POODLE, miniature female, black, AKC registered, $39; aquarium w/fish and air pump, $9; gasoline tank, $3. Winblad, 344-3109.

TAPE RECORDER, Sony, model 262, dual track, playback unit, 1 yr. old, $120; car top carrier heavy duty, $20. Eversgerd, 256-6345.

GE WASHER, $60; Westinghouse dryer, $25, both for $75. 11004 Elvin NE. Ryan, 299-5433.

LADIES' VANITY, mahogany, readily convertible into knee-hole desk, includes vanity, mirror, bench, $39.50. Metzger, 298-5054.

ONE-WHEELED TRAILER w/frame and canvas cover, adjustable hitch included, $60. Nelson, 264-7356.

APT. SIZE DEEP FREEZE, $75; RCA delux console TV, 7 yrs. old, $25. Brown, 255-0566.

'63 RAMBLER WAGON, Model 770, AC, bucket seats, OD, transistor ignition, locking differential, tinted glass, radio, $2225. Jenkins, 299-6395.

TWO 26" bicycles, $12 ea., BC-348 receiver, $20; Heathkit Q-multiplier, $5. Hollenbach, 298-6572.

'63 CHEV BA, V8, PS, AT, air, Positraction, $1995 or best offer, will trade. Benson, 268-9727.

'60 GERMAN FORD Taunus station wagon, $525. Howard, 299-7540.

AKC REGISTERED miniature black dachshund puppies, 8 wks. old, $50. Luhrs, 256-7132.

'62 DODGE Polara 500, all luxury equipment, large engine, 24,000 miles, original owner. Bland, 256-7984.

WANTED

REFINED, RELIABLE COUPLE to share home in NE HEIGHTS, references required. Simth, 256-0621.

CARE OF ONE CHILD in my home, 5 days a week, prefer child 1½ years to 5. Hesselbarth, 1009 Florida SE, 256-1720.

WANT TO RENT GARAGE in area near Wyoming and Central. Sutton, 298-7036.

SINGER Featherweight portable sewing machine, pay cash or trade antique gun or what? Smitha, 8607 Menaul NE, 299-1096.

USED DOORS, different sizes. Chavez, 298-5091.

SKIS, length 5' to 5'6", ski boots for 9-yr.-old boy. Shunny, 299-2787.

FOR RENT

3-BDR., corner lot, carpet, drapes, $90/mo., stove and refrigerator available, damage deposit required, 2600 Christine NE, McCreight, 298-4695

2-BDR. APT., unfurnished, stove, refrig., a/c, w/w carpet, walled backyard, near base, 601 Valencia SE. Ross, 255-0486.

UNFURNISHED 2-bdr., stove, refrigerator, water paid, shower and tub, washer rough-in, near Sandia on Trumbul SE. Villella, 299-6261.

ONE-BDR. brick duplex apt., furnished, large yard, located at 609 San Pablo SE. Kollman, 256-6761.

LOST AND FOUND

LOST—¾ length man's grey coat, lady's prescription sunglasses, man's prescription glasses in case, man's prescription glasses w/brown plastic frames, man's sunglasses. LOST AND FOUND, tel. 264-2757.

FOUND—gold and brilliant earring, gold tie tack, turquoise and silver figure. LOST AND FOUND, tel. 264-2757.

RFD-2 BRIEFING—Arnie Bentz, supervisor of Aerospace Nuclear Safety Division III and Mission Director for the recent RFD-2 flight test, called the Sandia operation a "complete success" during a briefing last week for officials of various government agencies and contractors. Other Sandians on the program gave detailed reports of preliminary RFD-2 data analysis.

Group Studies Results Produced By Recent RFD-2 Experiment

A briefing on preliminary analysis of data gathered during the RFD-2 flight was held last week at Sandia Laboratory for officials of various participating government agencies and contractors. Conducted by Aerospace Programs Organization, the RFD-2 experiment tested safety aspects of isotopic power sources used in space applications.

As previously reported in the **Lab News**, a three-stage Scout rocket was fired from NASA's Wallops Island launch facilities on a 750-mile trajectory to impact about 150 miles southeast of Bermuda. A Sandia-designed reentry vehicle (RV) carried a non-radioactive mockup of a nuclear isotopic generator designed to disassemble and burn up during reentry.

"The primary object of the mission was to demonstrate the disassembly performance of the isotopic generator," Arnold E. Bentz, supervisor of Aerospace Nuclear Safety Division and RFD-2 mission director, told the group last week. "Data gathered verified accomplishment of this objective. The objectives to determine the history of fuel-rod exposure to reentry heating and obtain information of fuel rod ablation were met within the limits of the trajectory flown."

In his summary statement of the results of the RFD-2 flight, Arnie called the mission "completely successful." He said they attained their objective which was to correlate flight test results with analytical predictions. They were able to experimentally measure heating rates, using present heat transfer codes.

"The objective to obtain information on RV design was met and the mechanical integrity of the RV was exemplified in the transmission of both real time and delayed telemetry data after telemetry blackout to water impact," Arnie said.

"High quality telemetry data were received for the complete period of flight from liftoff to water impact," Arnie continued. "High quality optical data were also recorded during the total reentry heating period. These data complement each other in verifying the high degree of success of this mission."

After impact, the parachute, signal beacon, and flotation bag were recovered. Torn shroud lines from the parachute indicated that the RV was separated during parachute deployment.

"Lack of recovery of the reentry vehicle in no way detracts from the overall success of the mission nor does it detract from the mechanical integrity of the reentry vehicle," Arnie said.

Glenn A. Fowler, Vice President, Development, opened the meeting last week and welcomed the group to Sandia Laboratory. Other members of the Aerospace Programs Organization made detailed presentations of the RFD-2 data analysis.

The briefing team participating on the program and the subjects discussed were as follows:

Members of the Aerospace Nuclear Safety Department, Holt Gay discussed the Reentry Vehicle; Leon Keck, Telemetry Instrumentation Analysis; Harold Spahr, Reentry Vehicle Trajectory Analysis; Robert Klett, Thermodynamics Analysis; and Ira White, External Fuel Elements and Generator Disassembly.

Dan Parsons, supervisor of Optical Development Section, discussed Optical Coverage, and Merton Robertson of Analytical Methods Division discussed Spectroscopic Analysis.

Welcome Newcomers

Oct. 19-30

Albuquerque
Helen E. Buchanan 3126
Judith Crooks 3428
Cecil M. Fitzgerald 4574
*Lucille Larrabee 4342
Ruth A. Miller 3126
L. Gene Walter 4333
E. Maxine Whited 3126
Oklahoma
Joseph G. Hill, Norman 3111
*Denotes rehired

Sandia's Safety Scoreboard

Sandia Laboratory:

82 DAYS
2,992,944 MAN HOURS
WITHOUT A
DISABLING INJURY

Livermore Laboratory:

77 DAYS
398,600 MAN HOURS
WITHOUT A
DISABLING INJURY

THE SOUTH HAS RISEN AGAIN at this point, surface ground zero at the Project Dribble site near Hattiesburg, Miss. When the five-kiloton Salmon nuclear device was detonated 2700 ft. below this point, there was substantial vertical surface motion in the surface zero area. Shown in this photo, taken before the detonation, are (l to r) A. D. Thornbrough, Sandia project leader at Dribble; W. R. Perret, Sandia project scientist; and R. L. Rutter, alternate project leader.

Underground Nuclear Test Conducted in Mississippi

The first of three underground nuclear detonations programmed for Project Dribble was fired Oct. 22 at the Dribble site near Hattiesburg, Miss. The experiment, called "Salmon," involved detonation of a five-kiloton nuclear device in a tamped emplacement at the bottom of a hole drilled to a depth of 2700 ft.

Sandia Laboratory's participation in Project Dribble included arming the Salmon nuclear device, recording free-field particle motion underground and on the surface, and providing a specially-designed television camera to inspect the drilled holes before and after the detonation.

For particle motion studies, 71 instruments, including surface motion gages and subsurface gages, were placed in five drilled holes surrounding ground zero. Project scientist for this effort was W. R. Perret of Underground Physics Division.

Project Dribble, a joint Atomic Energy Commission-Department of Defense project, is part of the Advanced Research Project Agency's Vela Uniform Program. Vela Uniform is designed to develop techniques for improving the capability to detect, identify, and locate underground nuclear detonations.

Sandia project leader for Dribble activities is A. D. Thornbrough, supervisor of Effects Instrumentation Section. Alternate project leader is R. L. Rutter. Field Test personnel participating in the project include L. C. Sandgren, L. A. Kracko, D. B. List, W. R. Drake, F. K. Millsap, P. L. Nelson, and J. D. Burkhardt. R. L. Baca is the Engineering and Research Support Division representative on the project.

R. J. Brousseau of Nevada Test Site Test Support Division was responsible for arming the device. He was assisted by J. H. Fuqua.

R. G. Scharrer, G. G. Curry, and L. W. Wright of Instrumentation Development Section and G. W. Hughes of Range Optics Division developed the heavily insulated television system for study of the cavity after the detonation. The camera will be lowered into the shaft and will be able to operate up to 15 minutes in a high-temperature environment.

Two later experiments planned for Project Dribble may involve detonation of two 100-ton nuclear devices 2000 ft. below the surface. Firing of these devices in tamped and decoupled emplacements at the same depth, in the same medium, and in the same area, will permit correlating and evaluating results of seismic instrument readings so that more complete knowledge of decoupling possibilities and the seismic recording of decoupled explosions can be obtained.

Authority for the construction of the facilities required for the two 100-ton experiments, called "Sand" and "Tar," has not yet been granted. It is estimated that the two nuclear devices could be detonated, if authorized, about 22 months after construction approval is received.

Principle purpose of the five-kiloton Salmon detonation is to provide a basis for calculating, with reasonable accuracy, the seismic signal that would be generated by a five-kiloton decoupled detonation in the Tatum dome. When the Dribble Program is complete, signals from the 100-ton decoupled explosion (Sand), the 100-ton tamped explosion (Tar), and the five-kiloton tamped explosion (Salmon) can be correlated, and a reasonable set of values deduced for the signal that would be created from a five-kiloton decoupled detonation in the Tatum salt dome.

SALMON NUCLEAR DEVICE, shown in its canister before being lowered to firing depth (2700 ft.) in the Tatum Salt Dome, was designed to create explosive force equal to that produced by 5000 tons of TNT. It was detonated on Oct. 22. R. J. Brousseau of Nevada Test Site Test Support Division (bending toward canister at left) armed the device. He was assisted by J. H. Fuqua.