



Sandia Crew Goes Aloft to Instrument RFD-2 Reentry

A flying "camera platform" with a crew of Sandians left Albuquerque last week for Bermuda. The leased DC-7, fitted with 25 cameras and special electronic instrumentation, will photograph the reentry phase of the RFD-2 flight test. The flight will test safety aspects of nuclear auxiliary power units in space.

Personnel of Aerospace Nuclear Safety Division and Range Optics Division will operate the cameras and instrumentation. The Sandia crew on board consists of L. W. Scully, project engineer for camera installation; G. Q. Wilson, Aerospace Nuclear Safety Division project engineer; D. A. Greenwell; S. L. Jeffers; B. W. Marshall; and D. A. Byrne.

Other optical instrumentation, including three tracking telescopes and an array of plate cameras, will be used to photograph the reentry from a station in Bermuda.

A three-stage rocket is scheduled to be fired from NASA's Wallops Island facility in Virginia to carry the Sandia-designed RFD-2 reentry vehicle to about 200 miles south of Bermuda. On board the RFD-2 will be an inert isotope generator.

The test is part of Sandia Corporation's responsibility for safety in the nuclear aerospace program. The Atomic Energy Commission has assigned to Sandia the responsibility of making an independent safety evaluation of proposed aerospace nuclear devices.

The isotope generator will be mounted in front of the RFD-2 and is designed to break up and be consumed by heat during

(Turn to page 4, please)

Sandia Corporation Payroll, Purchase Figures Released

Payroll for Sandia Laboratory in Fiscal Year 1964 amounted to approximately \$66.3 million, according to figures reported by Accounting Division.

During FY '64, the number of employees on roll at Sandia Laboratory averaged slightly more than 7100.

In FY '63, the payroll amounted to \$62.3 million for an average of 7000 employees.

Purchases by Sandia Corporation in the State of New Mexico amounted to approximately \$23.4 million for FY '64. About 97 per cent of the amount, or \$22.7 million went to Albuquerque firms. FY '63 purchases in the state amounted to approximately \$17.4 million, with about \$17 million of this in Albuquerque.

Livermore Laboratory's payroll amounted to about \$8.7 million in FY '64 with an average of 985 employees on roll for the year. In FY '63, the payroll for an average of 998 employees was about \$8.4 million. Value of plant assets at Livermore Laboratory for '64 totaled \$17.3 million.

Plant assets of Sandia Laboratory were \$130.7 million at the end of FY '64. At the end of June in 1963, plant assets amounted to \$115 million at Sandia Laboratory.

Plant assets at Tonopah Test Range are valued at \$8.6 million.

These figures represent undepreciated values of buildings and facilities. All of the plant assets are the property of the Atomic Energy Commission but are used and operated by Sandia Corporation.

FLYING CAMERA PLATFORM—This leased DC-7 has been fitted with 25 cameras and special electronic instrumentation to record the reentry phase of the RFD-2 flight test. The aircraft last week left with a crew of Sandians for Bermuda. Part of the Aerospace Nuclear Safety Program, the RFD-2 will be launched from Wallops Island, Va., and impact in the ocean about 200 miles south of Bermuda. Note Thunderbird insignia on aircraft rudder.

Sandia Sends 198 Papers to AEC for Public Release

During the second quarter of 1964, Technical Information Department sent 198 technical papers, written by Corporation employees or consultants, to the AEC's Division of Technical Information Extension at Oak Ridge, Tenn., for public release. The total for the year is now 425.

In addition, the following technical information activities were carried out:

One set of engineering drawings was given public release.

Six reports were given standard distribution, making them available to the public through the AEC's Depository Libraries and the Office of Technical Services, Department of Commerce, Washington, D. C.

Thirty-two titles (in addition to the six mentioned above) were added to the Reprint and Monograph Series.

The Department, during the same months, received 99 letters from universities and technical colleges requesting 2810 monographs and reprints. The letters were in reply to 283 bibliographies of the Sandia Reprint and Monograph Series sent earlier this year to department heads at the schools.

J. L. McCraw Appointed to Post of Deputy Manager for AEC-ALO

James L. McCraw has assumed duties as Deputy Manager of the Atomic Energy Commission's Albuquerque Operations. He succeeds Lawrence P. Gise who became Manager AEC/ALO Aug. 1, following the retirement of Kenner F. Hertford.

Mr. McCraw, a native of Kelly, N. Mex., attended grade school and high school at Cerrillos, was graduated from Albuquerque High School, and studied electrical engineering at the University of New Mexico.

He has been ALO Assistant Manager of Operations since September 1959. His successor has not been announced.

Mr. McCraw entered Federal service at Marfa, Tex., in 1931 as a Patrol Inspector with the Border Patrol of the U. S. Immigration and Naturalization Service. He received successive promotions to Immigrant Inspector, Nogales, Ariz. (1935-1940); Assistant Chief Patrol Inspector, Alpine and El Paso, Tex. (1940-1942); Training School Director, El Paso (1942-1943); and Chief, Alien Control Division, Detroit, Mich. (1943-1945).

He went to Germany with the Office of Military Government, U. S. Zone, in November 1945 as Advisor on Border Control. He later was Chief, Police and Fire Section, OMGUS (1947-1949); and Chief, Public Safety Division, State Department, U. S. High Commissioner for Germany (1949-1951).

Mr. McCraw returned to the U. S. to join the AEC in Albuquerque in November 1951 as Director, Office of Security. He was promoted to Assistant Manager for Inspection and Storage Operations in February 1956 and was appointed Assistant Manager of Operations for the ALO complex in September 1959.

ELMER DEVOR, supervisor of Product Data Division, left, was honored last week at the Third Value Engineering Workshop. The Certificate of Achievement was presented by R. A. Bice, Vice President, Engineering for Manufacture, and cited Mr. Devor for establishing the Value Engineering Program at Sandia Laboratory.



James L. McCraw

Five Sandia Men to Present Papers Before Mathematical Society

Five members of Sandia's Mathematical Research Department will be presenting papers at the American Mathematical Society meeting to be held Aug. 24-28 in Amherst, Mass.

The papers and their authors are:

"Characterization of Developable Topological Spaces I" by J. M. Worrell and H. H. Wicke. Mr. Wicke will make the presentation.

"Eigenvalues of Schrodinger's Equation Via a Phase Function" by P. B. Bailey.

"An Oscillation Criterion for a Second Order Differential Equation" by P. W. Waltman.

"On the Convergence Rate in the Law of Large Numbers for Linear Combination of Independent Random Variables" by D. L. Hanson and L. H. Koopmans. Mr. Hanson will make the presentation.

"Convergence Rates for Linear Combinations of Exchangeable Random Variables," by Mr. Hanson and Mr. Koopmans. Mr. Koopmans will present this paper.

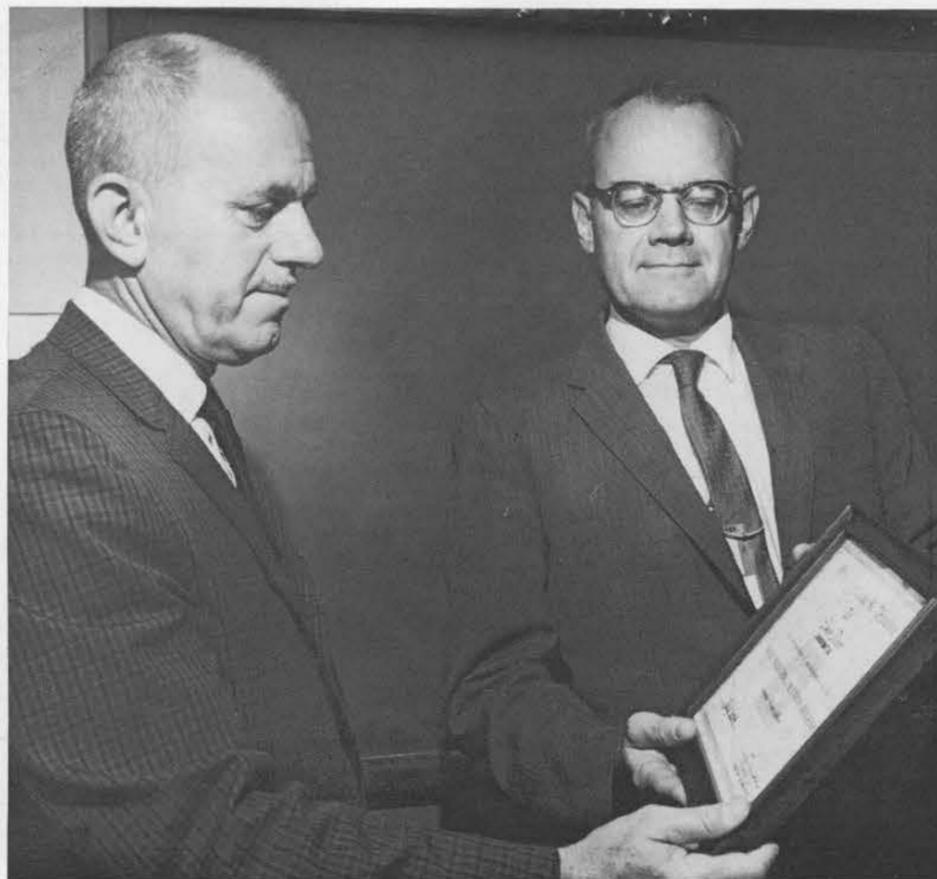
R. W. Henderson to Address Symposium on Human Performance

R. W. Henderson, Vice President, Weapon Programs, will speak on "The Birth of the Bomb" at a dinner meeting Aug. 18 of the Symposium and Workshop on the Quantification of Human Performance.

The symposium is sponsored by the University of New Mexico and the Human Factors Subcommittee of the Electronic Industries Association.

A. D. Swain of Development and Systems Division has been in charge of local arrangements for the meeting. He will be moderator of a session on "The Measurement of Human Performance" on Aug. 17, and will discuss "THERP (Technique for Human Error Rate Prediction)" during a session Aug. 18. L. W. Rook of the same division will join Mr. Swain in a workshop on "Using THERP." The symposium will continue through Aug. 19.

Purpose of the symposium is to survey the methods currently available, discuss the problems involved, and determine the areas where growth is required in the quantification of human performance.





CONTRAST—Left is the east facade of Bldg. 836, Sandia Laboratory, showing what can be done when people care. At right, a vacant lot on Lomas Blvd., Albuquerque.

Editorial Comment

Your Personal Anti-Litter Campaign

For some years there has been concern about America the littered. But the country found it hard to get excited over trash. Not much was done about it. Now the country has generated the necessary enthusiasm and the extra effort is being made to un-clutter our landscape.

More and more we are going to see and hear the plea to keep our country clean. More litterbags, more trash receptacles, and more clean-up crews will be seen.

This matter of carrying out a successful anti-litter campaign goes beyond refraining from being a litterbug. We must carry on the program with the enthusiasm which has afflicted others.

How about this six-point anti-litter program for each of us?

1. Keep our own home and property litter-free.
2. Put trash in the proper receptacle and carry a litterbag in the car.
3. Pass the word on to the youngsters. Litter dropped from little hands is just as unsightly.
4. Spread the word to friends and neighbors. Make them feel as responsible as you.
5. Show your approval to city officials who make it possible to stash that trash in easily available receptacles.
6. Give local civic organizations a helping hand in their fight against litter.

The idea is to get across the message that litter is an expensive, unsightly, unsafe, unnecessary nuisance.

One southern town used a pointed gimmick to emphasize the cause of litter. In this city, when a motorist stopped for a traffic light, Brownie Scouts, grinning from ear to ear, handed them a litterbag carrying the words: "See Live Litterbugs Inside." The unsuspecting driver looked in and saw his own reflection in a piece of foil.

'Once Upon A Mattress'

Scientists Endure 15 Miles of River Afloat on Almost Nothing

When you start worrying about a fisherman hooking your air mattress, it may be time to prop your feet on a table and watch TV!

George Steck and Don Mattox have been avid whitewater enthusiasts for some time. But they find that in the summertime, the water in New Mexico's Rio Grande drops too low for even kayaking through the rapids.

One wild idea led to another wilder idea until on a recent weekend the two men floated on air mattresses through the 15 miles of the lower box of the Rio Grande (between Arroyo Hondo and Taos junction)—the area with the most rapids and thrills.

"They were ordinary plastic air mattresses," George explained, "the kind that is labeled 'do not use in the water.' We laid with our heads near the front end and our legs dangling over each side. Practically all the paddling and steering was done with our arms." They wore life jackets, and crash helmets.

The men took two days to make the trip, with food, light bedding, and a camera in waterproof bags tied onto the back of the mattresses. They had to portage one place where blasting for a new bridge had left too many sharp rocks.

The water was cold at the start of the trip, but about a mile downstream there were natural hot springs. The warm water helped to revive the pair.

"We passed by one fisherman standing on a rock with his back toward us. I hollered 'hi' and he was so surprised he almost fell into the river," George said.

The men agreed that this mode of travel was a way to become intimately associated with water. George is supervisor of Statistical Research Division and Don is with Films and Interfaces Division.



CRASH HELMETS and life preservers were worn by Don Mattox and his companion during their wild float through the lower box canyon of the Rio Grande.



IMPROPER FORM is unintentionally displayed by George Steck as he runs the rapids on his air mattress through jagged boulders in the Rio Grande.

Sympathy

To H. E. Roberts for the death of his father in Albuquerque, July 21.

To Donald Peacock for the death of his mother in Chicago, July 19.

To Dean Walters for the death of his father in Albion, Ill., July 23.

To K. A. Smith for the death of his mother in Wisconsin, Aug. 3.

National Guard Members Meet Non-Simulated Dangers in Camp

A number of Sandians are back at work after completing their annual two week field training with the New Mexico Army National Guard, Task Force I.

This year's training program, called Exercise Zia, was conducted in the Dona Ana range adjacent to White Sands Missile Range, northeast of Ft. Bliss, Tex.

The training included night maneuvers under blackout conditions with truck convoys and M-42 track vehicles (each carrying twin 40mm guns). The guns were used to fire at radio-controlled air targets.

Simulated combat conditions, including air strikes and guerrilla infiltration, weren't the only consideration. The men trained in high daytime temperatures and deep talcum-fine dust. At night, there was

the added danger of desert wildlife: rattlesnakes, scorpions, and saucer-size tarantulas.

Those participating from Sandia were: Audilio (Mike) Barela, Richard Chavez, Charles F. Cloyes, Dennis Cordova, Robert L. Courtney, Tony Gabaldon, Tom C. Garcia, Lawrence A. Lang, Orelia Montoya, Jose E. Otero, Amado Padilla, David T. Reed, John Richardson, Jim F. Sanchez, Joe L. Sanchez, Clarence E. Sandy, B. L. Stewart, George W. Treadwell, and Longinos Trujillo. Jerry Olguin and Walter F. Cihak left last weekend for a similar training period at Dona Ana range with Task Force 3.

Service Awards

15 Years



G. J. Hof
Aug. 15, 1949



D. E. Murphy
Aug. 15, 1949



W. J. Norris
Aug. 16, 1949



Efen Apodaca
Aug. 22, 1949



Herbert E. Brown
Aug. 22, 1949



Antonio Garcia
Aug. 22, 1949



Marian F. Dixon
Aug. 24, 1949



Ramon Bernal
Aug. 25, 1949



J. H. Porter
Aug. 25, 1949



J. F. Chavez
Aug. 26, 1949



G. H. Miller
Aug. 26, 1949



O. Olivarrri, Jr.
Aug. 24, 1949



K. H. Williams
Aug. 24, 1949

10 Years

Aug. 15 - 27

Horace Moore, R. A. Rozelle, Carmel Pugliese, Marian H. Jacot, Joseph H. Valdez, Jr., Herman P. Nieto, Carlos Chavez, Amadeo Aragon, Jr., Robert S. Bass, James D. Appel, M. Evelyn Stewart, S. Elinor Coberly, George G. Shelton, T. Vincent White, David Werme, Gloria A. Geibel, Clarence J. Domme, C. V. Rathbun, Donald McFall, Robert W. Durkee, Everett V. Breeden, and Joe D. Hankins.

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LAB NEWS

AUGUST 14, 1964

SANDIA CORPORATION

LAB NEWS



ALBUQUERQUE, NEW MEXICO • LIVERMORE, CALIFORNIA

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Supervisory Appointments



E. E. IVES to supervisor of Division I, Advanced Systems Development Department II.

Gene has been assigned to Systems Engineering Department since coming to Sandia eight years ago. He was promoted to section supervisor a year and a half ago and has headed sections in both Control Systems Division and Safety and Systems Support Division.

Prior to employment with Sandia, Gene was attending Auburn University, where he received his BS degree in electrical engineering. Summers he worked for Birmingham Slag Company (in Alabama) in general engineering. He later received his MS degree in electrical engineering from the University of New Mexico.

Gene is a member of Eta Kappa Nu and Tau Beta Pi, engineering honoraries, and the Institute of Electrical and Electronics Engineers.



WILLIAM R. HOAGLAND to supervisor of Systems Division I, Systems Engineering Department.

Bill has been at Sandia 13 years, working primarily in Environmental Testing and Systems Development organizations. A section supervisor since September 1963, his most recent assignment has been heading Safety and Vulnerability Section.

He previously worked for a year as an engineer for an elevator company in Moline, Ill.

Bill was graduated from the University of Colorado with a BS degree in electrical engineering. He is a member of the Institute of Electrical and Electronics Engineers and is a registered professional engineer in New Mexico.

During World War II, Bill served three years in the Navy.

Livermore Group Tours BTL Cable Ship

A group of Livermore Laboratory employees recently accompanied C. H. Bidwell on a tour of the Bell System cable ship, C. S. Long Lines. This system ship has just completed laying a new \$35 million submarine cable stretching 2700 miles between Oahu, Hawaii, and San Luis Obispo, Calif.

During the tour, the group witnessed a part of the actual loading of undersea cable onto the Bell System ship from the Norwegian ship, Skarva. The C. S. Long Lines will leave this month to lay a new transoceanic communications link between the Philippine Islands and Guam.

Among the Sandians who toured the ship were: Gerry Hauer, Jim Mesnard, Paul Schoenemann, Ted Sneddon, Dick Sundahl, and Lorena Schneider. The tour was conducted by R. D. Ehrbar, Head, Submarine Cable System Department II, BTL.

The following day, B. S. Biggs, Vice President Livermore Laboratory, toured the ship with E. T. Mottram, Director, Submarine Cable Laboratory, BTL; and Mr. Ehrbar.

Both Mr. Biggs and Mr. Bidwell are employees of Bell Telephone Laboratories, on leave of absence to Sandia Corporation.



MAX NEWSOM to supervisor of Division I, Advanced Systems Development Department I.

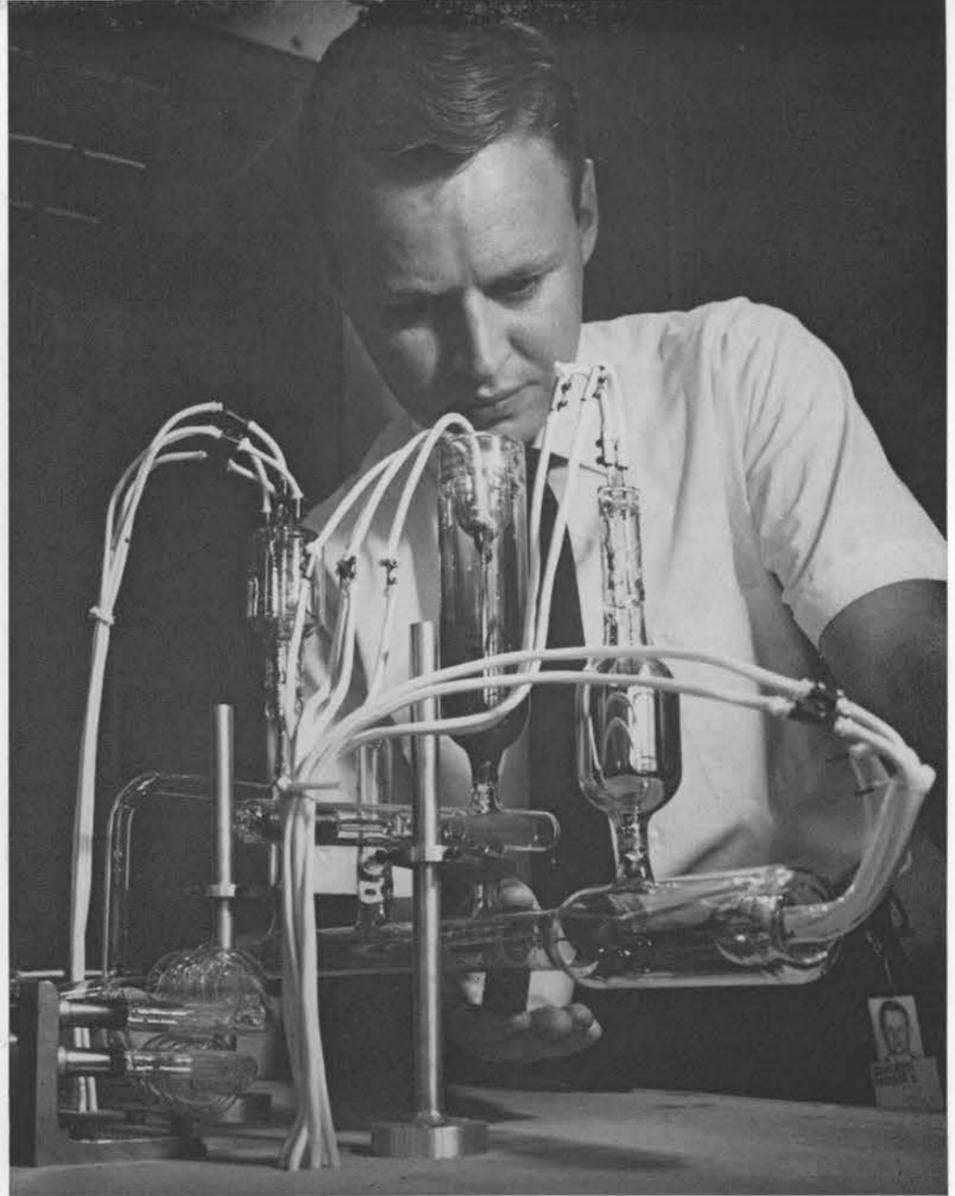
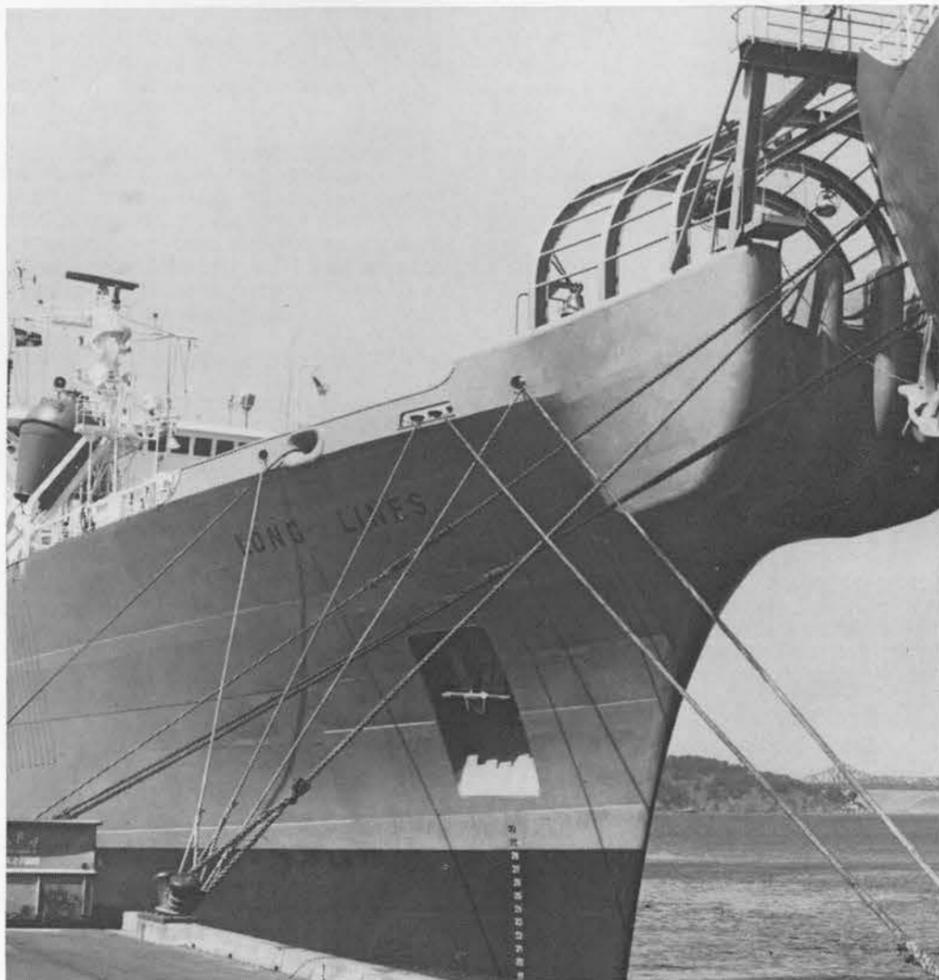
Max began working for Sandia eight years ago, originally assigned to Electrical Systems Department. He later transferred to a project division, returned to Electrical Systems Department, and 18 months ago joined the PAPS Component Design Section. He has been a section supervisor for three years.

Immediately prior to coming here, Max was at Texas A&M College, where he received both BS and MS degrees in electrical engineering.

He served two years in the Navy as an electronics technician.

Max is a member of Tau Beta Pi and Eta Kappa Nu, honorary societies, the National Society of Professional Engineers, and the Institute of Electrical and Electronics Engineers.

C. S. LONG LINES, the Bell System's cable ship, is shown here taking on cable. The ship placed the 5,300-mile U.S.-Japan telephone cable in four months. The ship plays out deep-sea cable and repeaters from a stern chute at speeds up to eight knots.



THIS ULTRA-HIGH vacuum replication system is used by Richard L. Schwoebel in studying the micro structure of gold atoms condensing and growing on a gold single crystal. A thin film of carbon duplicates the surface and is examined by electron microscopy.

Scientist Studies Growth, Shape Of Gold Atoms on Gold Crystal

Under what conditions will a gold atom condense on a gold single crystal? What are the forms of these growing surfaces? These are questions being considered by Richard L. Schwoebel in his current research at Sandia Laboratory in the Physical Electronics Division.

"There have been few quantitative measurements of crystal growth kinetics under conditions similar to those considered theoretically," he explains. "Through use of a simplified crystal-vapor system, we have been able to relate our experimental results to current theories of crystal nucleation and growth."

The results of this research were reported at the recent International Conference on the Physics and Chemistry of Solid Surfaces held at Brown University.

The experiment consists of exposing a single plane of a high purity gold crystal to a beam of gold atoms. Adsorbed gold atoms move across the crystal surface and some are captured at growth centers on the surface. The number captured depends on the crystal temperature and is related to the binding energy of the adsorbed atom with the surface. A delicate microbalance supports the gold crystal and measures the deposition and desorption rates.

The quartz microbalance used by Mr. Schwoebel can detect weight changes of nearly 5×10^{-8} grams—roughly equivalent

to a single layer of oxygen atoms on a sq. in. Due to sensitivity of the microbalance, vibrations within the technical area were a major factor in locating this laboratory in Bldg. 808.

Gold was selected for these experiments for several reasons. Perhaps the most important of these is that oxides and other phases which might interfere with the growth mechanism presumably do not exist on the surface under the conditions of these experiments. The single crystals are grown from 99.999 per cent pure stock, oriented using X-ray diffraction, sliced with a spark cutter, and finally electropolished. These crystals are obtained from a firm in Cambridge, England. The wafer-shaped crystals, used by Mr. Schwoebel, are about 7mm in diameter and $\frac{1}{2}$ mm thick.

The micro structure of the growing surface is studied through the use of an ultra-high vacuum replication system. A gold single crystal with its new deposit is coated with a thin film of carbon 50-100 angstroms thick. The carbon film is separated from the crystal surface and duplicates the original surface with considerable precision. These replicas are then examined by electron microscopy. Sometimes Mr. Schwoebel evaporates a heavy metal (such as platinum) onto the carbon film to shadow or accentuate detail. Experiments have shown that below about 600°C. gold atoms are not incorporated into the gold crystal but form separate crystallites on the surface having trigonal, rhombohedral, trapezoidal, or hexagonal shapes. Above this critical temperature, the new deposit is a continuation of the underlying crystal.

Future research will probably include continued structural studies, the influence of defect introduction into the substrate lattice, and the study of elastic reflection of accelerated atoms from these surfaces.

W. J. Brion (now with Design Practices Section) assisted in assembly of the experimental apparatus. R. D. Snidow and W. A. Robertson of Scientific Glass Section were responsible for crafting the delicate equipment.

Sandia Authors

Current or forthcoming articles by Sandia authors in technical journals include the following:

M. D. Fimple of Applications Oriented Systems Division, "Fortran Versus Cobol as Data-Processing Languages," August issue, *Datamation*.

D. M. Mattox of Films and Interfaces Division, "Film Deposition Using Accelerated Ions," September-October issue, *Electromechanical Technology*.

R. A. Hill and E. H. Beckner, both of Plasma Physics and Chemical Kinetics Division, "A Rapid Scan Spectrograph for Plasma Spectroscopy," August issue, *Applied Optics*.

J. A. Corll of Applied Research Division, "Recovery of the High Pressure Phase of Cadmium Sulfide," October issue, *Journal of Applied Physics*.

Retire? Clark Read Did But Not Into A Life of 'Do-Nothingness'

Clark D. Read was practicing putts in his patio. He sank several.

"I can still drive a golf ball 225 yards," he said, "but I don't have time to play."

Clark retired from Sandia in March 1960. Now 70 and in good health, he devotes his busy days to several professional, community, and church jobs.

He serves on the youth and education committee, both local and state, of the New Mexico Society of Professional Engineers. He is also a member of the NMSPE program planning committee. He serves on the directory committee of the American Society for Metals and is a member of the American Ordnance Association.

Clark is a member of the Executive Board of the Kit Carson Council of the Boy Scouts of America and is chairman of the long range planning committee. He is the Kit Carson Council representative to the Albuquerque Associated Services Committee.

He is a member of the Board of Trustees, Trinity Methodist Church, and serves as the chairman of the maintenance committee.

He is active in the Ballut Abyad Shrine, serving as chairman of the Greeter's sick and visiting committee. He is a member of several Masonic organizations.

Clark accepts consulting engineering jobs and is certified to teach in the Manpower Training Schools. He recently instructed a course in electrical assembly.

"I wouldn't have a regular eight-hour a day job now," he says. "But when the time came, I didn't want to retire. I tried a sales job for a while and did some business consulting, but this didn't work out."

"I finally had to re-orient myself to a life of leisure, but I have a special definition for leisure."

All of Clark's activities are geared to either service work for the organizations he's associated with or to self improvement.

"To really enjoy being retired requires a wholesome look at life, a willingness to be helpful to people and organizations serving various public needs, and to know



CLARK D. READ, retired since 1960, doesn't have time to play golf. He is active in professional, community, and church organizations and pursues several hobbies.

how to have a little fun every day," he says.

Clark keeps up with current engineering literature and has taken art courses at the University. He sketches and paints whenever he has time.

Before Mrs. Read passed away, the couple traveled extensively visiting all but three of the 50 states and took cruises to the Caribbean and to Hawaii. Clark's color slides form the basis for several talks he presents occasionally at organized programs.

In addition to color photography and painting, Clark is also interested in gourmet cooking and tending his apple trees. He has grafted varieties of apples to host trees, sprayed the trees regularly, and canned the resulting beautiful fruit.

"I don't think the knowledge and experience gained during a lifetime should be wasted in retirement do-nothingness," Clark says. "Plan your financial affairs. Get ready to give some time to serving others. It's quite rewarding. Take on a church job, or anything of a service nature. Keep in good health. This is the advice I'd give to anyone. Plan now for retirement."

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LAB NEWS

AUGUST 14, 1964

Universities Giving Sandia Laboratory Help In Carrying on Unclassified Basic Research

Sandia currently has contracts, totaling about \$600-thousand, for basic research studies of unclassified nature being carried out in 15 universities located across the nation.

In this activity, Sandia Corporation is following the trend established by the AEC, the Bell System, and many large industries in utilizing the facilities and specialized talents of faculty members and graduate students available at the nation's schools.

Glenn T. Seaborg, chairman of the U.S. Atomic Energy Commission, in a speech a year ago at the University of Colorado noted that the AEC was then currently spending more than a billion dollars annually on research and development, of which about \$90-million was spent in U. S. universities.

He remarked on the importance of "strengthening our existing centers of excellence and increasing the level and quality of cooperation between the universities and the national laboratories" as a way of meeting the goal of an accelerated rate of training engineers, mathematicians, and physical and biological scientists. "In addition to its contribution to basic science, such participation could be expected to strengthen and stimulate industrial development . . ." Dr. Seaborg added.

The contracts between Sandia Corporation and various universities make possible desired research in Sandia-related projects, but there are also "by-products" in several instances. The contracts may indirectly help to bolster the technical competence of the university staff, and

they may provide a means of interchange between Sandia scientists or engineers and the school's technical staff.

There is a certain amount of flexibility in the granting of the contracts. In some cases only one university may have the specialized equipment or talent to handle the particular project. Other times the proposed research subject is submitted to several universities who present their approach to the problem and their estimated cost. Although the cost is a competitive item, sometimes a visit to the university or a talk with the scientists concerned may be necessary to determine which method of approach is the most desirable. A contract to perform a piston and cylinder vibration study was granted the University of Texas after considering proposals from six or eight other schools.

Many of the contracts have been renewed year after year as progressing research offers new field for study. Oklahoma State University has been performing analytical studies since 1961 on effects of a blast wave on reentry vehicles for Aerodynamic Research Division. A contract with Ohio State University, started in 1962 as a study of uranium corrosion under carefully controlled environment, has been narrowed under the current contract to research on the mechanism governing atmospheric corrosion of uranium at room temperature. The work is for the Materials and Process Development organization.

Michigan Technological University's proposal in 1963 for research on the mechanics of slide dams was recently extended in another 12-month contract to include construction of a three-dimensional flow



PART of the contingent of Sandians at Bermuda will operate optical instrumentation such as the ME-16 tracking telescope inside the dome in the background. From left are R. L. Hughes, A. L. Shaut, H. H. Passmore, and H. V. Fisher.



BILLY MARSHALL checks one of the high speed motion picture cameras inside the DC-7. Most of the 25 cameras on board will operate automatically with a fixed field of view. Others will be manually operated to track reentry and burnup of the RFD-2.

(Continued from page one)

RFD-2 Reentry Test

reentry. Photographic coverage of the event is vital to the test.

Preparations for the RFD-2 flight test have been underway at Sandia Laboratory since last summer when the RFD-1 was successfully flown over the same route carrying a dummy SNAP 10A nuclear reactor.

The work is centered in Sandia's Aerospace Nuclear Safety Department under V. E. Blake, Jr.

Mission Director of the RFD-2 flight test is Arnold E. Bentz, supervisor of Aerospace Nuclear Safety Division III. Arnie is at Wallops Island now with a staff of Sandians preparing for the test. With him are T. V. Crawley, L. J. Keck, L. R. Nelson, A. L. Winklejohn, R. R. Middlesworth, C. A. Calder, A. F. Fink, J. B. Boyd, and J. E. Deveney.

Another contingent of Sandians, headed by W. H. Everhart of the Division, are making preparations for the test in Bermuda. They will provide the optical instrumentation, telemetering systems, and communications systems.

They include D. G. Beatson (Field Test project engineer), B. H. Bell, R. E. Berry, A. J. Brouillard, F. E. Diebold, J. F. Donovan, D. M. Fenstermacher, H. V. Fisher, R. C. Gauerke, H. J. Gay, D. E. Grim, H. C. Hardee, C. C. Holland, R. L. Hughes, S. L. Jeffers, R. D. Klett, J. J. Kuruzovich, I. W. Lenz, J. S. Llamas, H. W. Loemker.

J. P. Martin, M. T. Mattison, G. L. Miller, H. D. Moody, J. E. Palmer, Dan Parsons, H. H. Passmore, E. L. Prawitz, M. M. Robertson, E. C. Saxton, A. L. Shaut, H. K. Spahr, H. K. Togami, Adam Trujillo, Lucien Van Blaricum, and I. B. White.

Two other aircraft, C-54's, provided by the Air Force Special Weapons Center, KAFB, will operate in the impact area south of Bermuda during the flight test. Sandians operating telemetry equipment mounted in these planes will be G. A. Abeyta, C. E. Erickson, and D. B. Holt.

You're Lucky! A Fascinating Trip Takes Only A Few Miles of Driving

You're out of charcoal for the barbecue. The crab grass has taken over the lawn. The swing cooler has broken down. Don't fight it—forget it, and take a trip.

Within a 50-mile radius of Albuquerque, there are an amazing number and variety of things to see and do. Best of all, many of the places are relatively unknown. As a result, you won't have to fight off the other sightseers, but you had best pack along a lunch and water (and wood if you plan a fire in a desert area).

Here are some suggestions for one-day trips:

—The many Indian pueblos in the area: Isleta to the south; Laguna to the west; Sandia, San Felipe, Santo Domingo, and Cochiti to the north; and Santa Ana, Zia, and Jemez to the northwest. The daily newspapers frequently give advance notice of any special Indian dances.

—Coronado State Monument near historic Bernalillo.

—The cave where the Sandia man was found, on State Highway 44 between Sandia Peak ski area and the village of Placitas.

—The unusual wind-eroded sandstone formations of Tent Rocks near Cochiti Pueblo.

—Fourth of July Canyon in the Manzano Mountains near Chilli, site of the largest stand of maple trees in New Mexico.

—Pottery Mound (where University of New Mexico archaeologists have excavated wall murals and Indian pictographs along the Rio Puerco, west of Los Lunas).

—State Highway 10 north from Tijeras, the nearly-deserted mining town of Golden, San Pedro, Madrid, and Cerrillos, and the villages (such as San Antonito) where you may chance upon a fiesta or a performance of the early Spanish dance, Las Matachinas.

Albuquerque, itself, offers the foreign atmosphere of Old Town with its shops, restaurants, historic buildings, and museum. The University of New Mexico is renowned for its unusual architecture, and exhibits in the Fine Arts Center and Anthropology Museum are open to the public. There are

also a number of lectures, movies, and other special attractions throughout the year on campus that may be attended by the general public.

Coronado Club Members Elect New Officers

Members of the Coronado Club held their annual meeting Aug. 3 and elected six new directors in record time. The entire slate offered by the nominating committee was elected by the 80 members present, although one additional name was submitted from the floor.

Joe Shelby and Pearson Crosby (AEC) were elected directors for one year terms. New directors who will serve two years are Doug Ballard, Andy Carter, Fred Bogott (ACF), and Jake Carroll. The carryover directors are Max Newsom, George Horne, Charles O'Keefe, and Bob Hepplewhite, the appointed directors—C. W. Dickenson Jr., representing Sandia Corporation, and Terry Miller, representing the AEC.

A resume of club activities and changes during the past year was presented by the directors. Highlights of the reports included: resurfacing the bowling lanes and installing new pins (seven leagues competed during the regular bowling season and two are in competition this summer); swimming instruction classes for children and adult beginners all fully subscribed, and 70 swimmers registered for team competition; redecorating and otherwise improving the lounge area; and a full program of buffets, dances, and other entertainments.

The new board of directors met Aug. 6 and elected the following officers: Mr. Horne, president; Mr. Hepplewhite, vice president; Mr. Carroll, treasurer; and Mr. O'Keefe, secretary.



MATH STUDENTS from the University of New Mexico saw Sandia Laboratory's Sphere of Science and 7090 computer facility on Aug. 7. Here, operation of the computer is explained by Donald R. Miller, graduate student from the University of Arizona, a Sandia summer employee.

PAGE FIVE
LAB NEWS
AUGUST 14, 1964

Sandia Speakers

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

L. H. Ptacek and T. J. Williams of Electronic Components Division, and J. Rush and R. R. Rogers of Sprague Electric Company, "A Feasibility Study in Miniaturized Packaging," Fifth International Electronic Circuit Packaging Symposium, Aug. 19-21, Boulder, Colo. Mr. Rogers will make the presentation.

E. C. Neidel of Electronic Development Division, "Encapsulating with Loose Microballoons," Fifth International Electronic Circuit Packaging Symposium, Aug. 19-21, Boulder, Colo.

Death



July 16.

Survivors include his widow, two daughters—Barbara and Patricia, and a sister in Illinois.

Floyd L. Botkins, a Corporation employee for eight years, died Aug. 31. He was 51.

Mr. Botkins was a staff assistant in electrical-mechanical Test Support Division. He had been on leave of absence since

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CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.

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, or national origin.

FOR SALE

- 3-BDR. HOME, den, fireplace, 1 1/4 bath, near Valley High, 3 1/2 acre, horse allowed, FHA appraisal \$17,500. De Haan, 1851 Calle Los Vecinos NW, 344-4805.
- ROTARY POWER MOWER, \$10; wooden desk w/3 drawers, \$10. Reinman, 256-9737.
- TRIUMPH TR-4, low mileage, extras. Tessler, 299-7493 after 5.
- '62 MG MIDGET, owner left for military service, must sell. McMaster, 268-8062 after 5-15 and weekends.
- '56 OLDSMOBILE 88, HT, R&H, automatic, seat belts, new battery and tires. McAvoy, 256-3215.
- WINCH FOR JEEP, complete w/power take-off and cable, \$175. Flowers, 1833 Kentucky NE.
- '53 OLDS 88, PS, PB, runs, make offer. Archuleta, 255-6781.
- KITCHEN AID dishwasher, portable, \$50. Webb, 298-8139.
- BUNK BEDS w/coil springs, beds can be used as twin beds, \$25. Goen, 268-7521.
- '64 CHRYSLER Newport, 4-dr., factory air, PB, PS, w/w, 4000 miles. Gay, 299-5625.
- TWO GE refrigerators, \$60, \$120. Fink, 299-9095.
- 2-BDR. HOUSE, hw/floors, walled yard, newly decorated, below FHA appraisal, nothing down. FHA. Owens, 255-9257.
- '62 FORD GALAXIE 500 XL, HT, automatic transmission, PS, 20,000 miles, below NADA suggested price. Rea, 299-9315.
- '64 DKW, low mileage, R&H, take over payments. Risk, 299-7205.
- GIRL'S 26" bicycle, \$12.50; bunk beds convertible to trundle or twins, \$30. Cano, 255-0211.
- CAB OVER PICKUP CAMPER, \$350. Stronach, 1831 Bridge SW.
- EXTENSION BUMPER, for '61 Chev, want pickup for use with a camper, cost \$65, want \$25. Wilson, 299-8864.
- KENMORE GAS RANGE, \$33; screen door, \$4.50; girl's ice skates, size 8, new, \$7.50. Chaves, 255-6155.
- TWO R-1 LOTS NE, across from park, near schools, \$1995 ea., terms, discount for cash. Martin, 256-3384.
- JEEP, UNIVERSAL Model CJ-3A, 4-wheel drive, Warn hubs, tow bar, engine recently rebuilt, \$750. Alberts, 298-2922.
- 10 GAL. TANK AQUARIUM, pump, 2 filters, aerators, tubing for one filter and aerator, \$10. Mahoney, 298-5711.
- KENMORE APT. SIZE 21" gas range. Pena, 268-4839.

- BREADBOX, \$2; automatic percolator, \$5; metal utility cabinet, \$8; electric sterilizer, \$5. Smith, 298-0557.
- TROMBONE, Olds w/case, beginners model, \$60. Plagge, 255-1801.
- LAFAYETTE CORNET w/case; pull-type fireplace screen, brass and black, brass andirons; chest of drawers, white; 9x12 hemp rug. French, 255-7676.
- 3-BDR., 1 1/2 bath, full carpeting, double garage, walled, fenced, blast shelter, corner lot, \$450 down, \$13,750 FHA, 8926 Fairbanks NE. Brumley, 299-1809.
- ALLSTATE MOTOR SCOOTER, 3.8 HP, compact, 3,000 miles, \$125. Hassig, 2717 Mary Ellen NE, 298-1455.
- COWBOY BOOTS, 10" top, 1 1/2" walking heel, French calf lower, calf uppers, black, size 4 1/2, worn once. Cahill, 298-6247.
- '51 CHEVY station wagon, recently overhauled engine, level plywood floor behind front seat, used as camper. Henry, 255-2536.
- SW VALLEY, 3-bdr., den, 26' LR w/vigas, 2 fireplaces, carpeted, 1 1/4 baths, double carport w/storage, shade trees, new \$17,500 FHA available. Roth, 243-7049.
- FLUTE w/case, \$50. Yarbrough, 255-4087.
- RCA HI-FI record player and radio combination, blond cabinet. Hayes, 299-3704.
- '58 KARMANN GHIA, \$800. Pritchard, 268-9618.
- WINDOW steel shaft w/glass and screens, approx. 3 1/2'x4 1/2', #3323, \$15; trailer hitch for '59 Ford, \$5. Cleveland, 298-0218.
- MONKEY. Brush, 255-6945.
- 3-BDR, 1 1/4 bath, DR, double garage, WB fireplace, built-in range-oven, walls, newly decorated, drapes, a/c, below FHA, low down. Millard, 299-2039.
- MOUNTAIN CABIN on 2 lots, 2 bdr. from Albuquerque, 9 miles from Cuba. Platt, 252-1973.
- '62 LARK, VS, R&H, reclining seats, low mileage, below book. Church, 299-2175.
- CASCO MASSAGER, \$65 w/exclusive 8-way control, covers back, neck, and shoulders. Silva, 242-6450.
- '58 RAMBLER, 6, Cross Country station wagon, R&H, OD, 60,000 miles, \$500. Erickson, 255-1182 after 5 p.m.
- KAY GUITAR, \$30; automatic Westinghouse washing machine, \$40; power lawn mower, \$15; afto sax, \$30. Eaton, 298-3865.
- LONGMIRE low wing monoplane, C-85 engine, 200 hours total, cruise 120 MPH, Longmire, 299-0453.
- ACCORDION, \$20; boy's-girl's bicycles, \$20 ea.; couch, \$35; end table, \$5; washing machine, \$30; deer rifle, \$15. McFall, 298-1552.
- ZOYSIA GRASS PLUGS 3 1/2" ea. Zachmann, 299-6871.
- '51 CHEVROLET, 4-dr., R&H, \$125. Dunaway, 299-1422.
- NORTHWEST, Pat Hurley Park area, 3-bdr., den, built-in kitchen, dishwasher, carpeting, double garage, fireplace, a/c, \$1200 below FHA. Johnson, 242-8758.
- INEZ BRICK, 3-bdr, 1 1/4 bath, large study, large screened porch, 2409 Hensdola NE. Hardee, 298-5724.
- MOTORSCOOTER, '61 Vespa, GS, windshield, luggage rack, spare tire, make offer. Hickman, 11617 Clifford NE, 298-3804.
- POPULAR ELECTRONICS magazine, October 1964 thru June 1964 (117 issues), \$10. Boling, 282-3256.

- THREE BICYCLES: girl's 26", \$13; boy's 26", \$12; boy's 24", \$7. Delnick, 7512 McNeerney NE, 298-5276.
- ROBERSON 3-bdr. and den, 5 yrs. old, several extras, convenient location. Everett, 299-6037.
- '63 GALAXIE 500-XL CONVERT., 406 cu. in., 405 HP, bucket seats, seat belts, under NADA. Davis, 256-1294.
- WESTINGHOUSE REFRIG., 14.5 cu. ft. Frost-Free; '62 Corvair Spyder, 4-spd. trans., \$1450; '63 Kenmore washing machine. Windsor, 247-9158.
- CAMPER mounted on trailer, raises for camping, built from Popular Science prints, sleeps four, \$200. Taylor, 298-0426.
- 3-BDR., attached garage, carpet, drapes, a/c, walled back yard, range included, \$12,750, 3706 Cherokee NE. Lafrenz, 256-0308.
- REMINGTON 12 gauge automatic model 11A, full choke. Klopolsky, 299-4110.
- '50 CHEV. 4-dr., automatic transmission, \$50. Tischbein, 298-1407.
- '49 CHEV. 1/2-ton pickup, 3-speed, new engine, clutch assembly, 2 new 6-ply nylon tires, over-land springs, heavy bumper hitch, \$335. Bauder, 299-7322.
- '59 FORD WAGON VS, 4-dr., R&H, OD, 312 cu. in. engine, \$695. Moritz, 256-2362.
- '49 CHEVROLET PICKUP, new tires-paint-battery-brakes, engine recently reconditioned, \$375, 4-spd. transmission. Chavez, 298-0674.
- CABIN SITE w/electricity in Jemez Mountains, Deer Lake, full acre in pines. Abegg, 298-2498.
- 1 ACRE LOT northwest valley (Bosque Del). Reck, 344-4123.
- FLYING CLUB MEMBERSHIP, Sigma Aircraft Club, \$111 per month and \$5.50 per hour. Risse, 299-5002.
- CORRALES HOME on one acre, 3 fireplaces, 3-bdr., electric kitchen, corral, double garage, independent efficiency apt. Swiss, 898-2083.
- '57 VOLVO, new rebuilt engine, \$395. Wilson, 298-0049.
- SMALL SERVEL GAS REFRIGERATOR, \$45. McClelland, 255-9236.
- '62 VOLKSWAGEN, sedan, low mileage, white, one owner, new spare, \$1350. Thorp, 298-6030.
- LAWN FURNITURE, all steel, 4 chairs, 2 rockers, glider, 2 tables. Jefferson, 299-1125.
- CABIN SITE on Cajonios River, Colo., heavily forested, restricted area, 138' river frontage, excellent fishing, \$1600, cash only. Mafit, 247-8756.
- 50 CC MOPED type motor bicycle, low mileage, \$65; Hotpoint automatic washer, \$25; GE Universal vacuum cleaner, 1413 Guaymas. Hightower, 299-3386.
- TRAVEL-ALL 1960 International B120 4x4, 28-600 miles, one owner, \$1255. Hildebrandt, 247-9594.
- DOWNDRAFT AIR CONDITIONER, 4000 cfm, best offer. Trujillo, 255-5053.
- GE PORTABLE DISHWASHER, \$35. Myers, 298-2677.
- '55 PONTIAC station wagon, ST, 2-dr., new rings, \$225, or trade for good Chevrolet pickup. '50 model or newer. Louis, 243-1846 after 5.
- '50 FORD PICKUP, 6-cyl, 4-spd. trans., \$350. Thompson, 256-7397.
- GUITAR, GIBSON EB-330T, thin body, dual pickup, \$125 w/case; Ruger convertible 6 w/holster, \$40. Holovka, 268-2834.

- 3-ROOM CABIN and garage, approx. 1 acre of land in Manzano Mts. Hi-way South 10. Bluett, 282-3686.
- FOUR BURNER KENMORE gas range, \$40. Beau-champ, 298-6552.
- MOTOR BOAT, Glasco, 15' long, 40 HP motor and trailer. Miziker, 255-4177 after 5.
- '61 FALCON station wagon, white, deluxe trim, R&H, seatbelts, extras, \$1200, no trade; 5-drawer chest, natural pine finish, \$10. Hansen, 3119 Lykes Dr. NE, 298-0308.
- REFRIGERATOR, 8 cu. ft. Western Auto. Busby, 299-6450.
- 3-BDR. MOSSMAN, extra large den, 2 fireplaces, carpeted, walled, fruit trees, appliances optional, FHA appraisal, \$800 down. Foster, 255-9355.
- 16' CARTERCRAFT, 35 HP Evinrude and trailer, licensed, skis and equipment, \$750. Hindi, 298-0256.
- TIRES, 740x15 US Royal, tubeless, 2 ply, \$25 for four. Kenna, 298-6059 after 5.
- COFFEE TABLE, 2 step tables, lined oak, \$25; deep fat fryer, \$10; Cosco utility cart w/removable tray, \$12. Smith, 299-1264.
- '61 OWENS Fiberglass boat, fully equipped, 35 HP elect. start. Evinrude, dual gas tanks, custom cover, factory tandem trailer, \$1250. Scott, AM 8-2197.
- 9x12 HOOKED RUG, \$15; Magnovox TV console, lined oak, make offer. Hagen, 268-7989.
- GIRL'S 20" bicycle, Schwinn, 1 yr. old, \$25. Swanson, 242-1342 or 242-1349.
- 3-BDR. HOUSE, den, fireplace, a/c, carpeting, draperies, sprinklers, large patio, finished garage could be 4th bdr. or hobbyrm. Morrow, 298-1762.
- BEAR HUNTING BOW w/quiver; golf clubs. Haines, 299-8683.
- RANCH OAK BUNK BEDS, mattresses; one case-ment window, 55" wide, 40" high. Petersen, 299-3366.
- WEBCOR 3-speed portable phonograph, 13 yrs. old, needs repair, \$10. Johnson, 224-C Grove NE after 5.
- BABY BED w/mattress; '56 Olds, PS, PB, new seat covers. Martel, 299-0833.
- DRAFTMEISTER BEER DISPENSER, holds pony keg, used once, \$250. Looby, 877-2742.
- 3-BDR. BOBBER, 1 1/4 bath, family room, fireplace, built-in range, hw/floors, fa/heat, a/c, landscaped, no qualifying, 3613 Espejo NE. Hollis, 299-7209.
- 6-YEAR CRIB w/mattress, \$15; 2 armless chairs, need reupholstering, \$5 ea. Anderholm, 299-0482.
- '58 CHEV. SEDAN delivery, 6-cyl., stick shift, bucket seats; Boxer puppy, fawn, male. Bewley, 298-5728.
- SHOTGUN, 16 gauge Winchester Model 12, w/7 boxes ammunition, \$75. Bruce, 299-2542.
- CARPETED 3-bdr., a/c, NE, near shopping, walled yard; AKC silver miniature poodle pups. Workhoven, 282-3246.
- '63 CHEVROLET IMPALA SPT. CPE., pg. ps, PB, R&H, tinted glass, 327 cu. in. engine, \$2495, consider part trade; GE 11.5 of refrigerator, \$40. Workman, 298-8201.
- '63 CHEV. BELAIR VS, 4-dr sedan, automatic, PS, factory air, less than NADA. Benson, 268-9727.
- RABBITRY, Rabbits, hutches, feed, supplies, Breit-bach, 268-7900.

- STUDIO COUCH, grey tweed; mosaic end tables, glass coffee table; occasional chair. Stone, 298-4879.
- AFRICAN BERMUDA SOD for the digging; 14' aluminum boat, 20 hp motor, trailer, \$375. 6210 Bellamah NE. Pliner, 256-1907.
- AR-1 SPEAKERS, walnut, \$190 each new, 5 years old, both for \$100. Smith, 268-5138.
- IRRIGATION PUMP, centrifugal, self-priming 1 1/2" inlet, 1 1/4" outlet, electric, 3/4 HP, \$42. Ortiz, 877-3025.
- GLASS JARS w/lids for canning, pints-70c/doz, quarts-80c/doz. Hobbs, 268-6461.
- 7 CU. FT. CHEST TYPE FREEZER, \$100. Gelder, 299-0134.
- COLT, registered thoroughbred and quarter horse. Aquino, 247-9254 after 6:30.
- 3-BDR., 1 1/4 baths, paneled den, landscaped, sprinklers, trailer/boat space, carpeting, drapes, a/c, under \$18,500, assume 5 1/4 G.I., 10805 Claremont NE. Van Deusen, 299-4328.
- RACING SLICKS, 8.20x15, w/w double Eagle, never used, two for \$65; aluminum 4-barrel manifold, '55 V8 Olds, \$65. Schofield, 268-0956.

FOR RENT

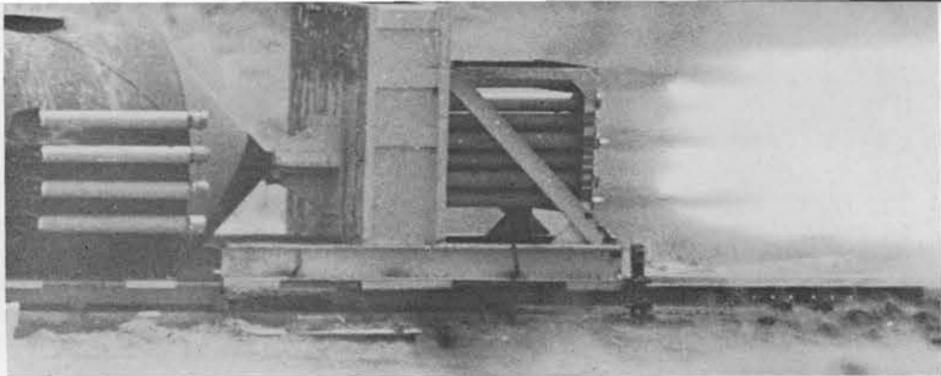
- TWO BDR. HOUSE, near school, water and garbage paid. Jiron, 268-8573 after 4:30 p.m.
- APPROX. SEPT. 1, 3-bdr. and den, unfurnished house, carpeting, drapes, walled yard, Hansen, 10013 Los Arboles NE, 298-0436.

WANTED

- WILL SOMEONE returning by air from Washington D.C. accompany my son age 11, airport to airport? MacCallum, 255-6363.
- TDP PARTICIPANT would like to join or form car pool with same from vicinity of Carlisle and Central. George, 265-0117.
- JOIN CARPOOL or ride from Princess Jeanne (Lomas and Claudine) to Bldg. 880. Wilson, 298-0049.
- RIDE or join car pool from Yucca NW. Hellwig, 242-8393.
- JOIN OR form car pool from Inez Addition (vicinity of Prospect and Hoffman Dr.) to gate 7 or 9 parking lot. Nevin, 298-0363.
- FISHING ROD, light duty salt water fishing, reel with line guide. Windham, 256-9455.
- LATE MODEL 4-speed pickup. Pritchard, 268-9618.
- JUDO INSTRUTOR for Heights YMCA, if interested, call Craig Houser, 265-6971. Smith, 299-6873.
- COUPLE wishes to team up with couple for trip to NY Fair via southern states, your car or mine. Chavez, 298-5091.
- USED CROW BAR; 12-lb. sledge hammer; 6 or 8 in. concrete blocks; small mortar boat. Collins, 268-3612.
- CHILD UNDER 1 yr. to care for in my home 5-day week, vicinity Washington and Lomas. Baird, 268-5365.
- RIDER for established car pool, from Collet Park area to bldg. 880 parking lot. Martell, 299-0833.

LOST AND FOUND

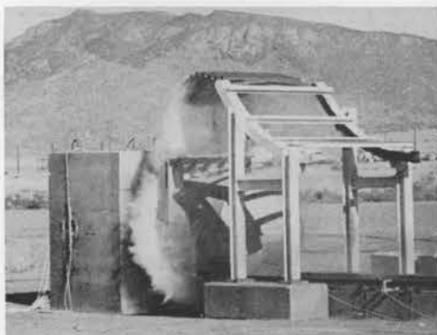
- LOST—Prescription glasses w/GI frames, safety glasses w/case, prescription glasses w/brown case, wallet w/ID CARDMAN, tri-focal safety glasses. LOST AND FOUND, tel. 264-2757.
- FOUND—Amer. Motors car key. LOST AND FOUND, tel. 264-2757.



SANDIA ROCKET SLED is fired down the track carrying a tank with 2000 gallons of water. The water is thrown against the test items. This is what makes the test unique—normally test items are accelerated into the water for such experiments.



TANK, on front of sled, approaches target at nearly 100 mph.



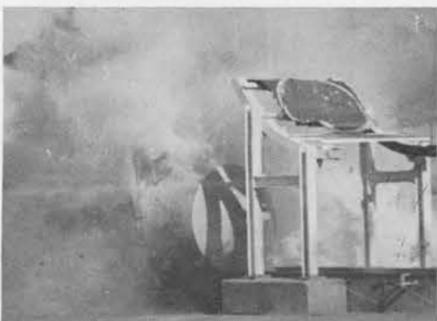
DOOR LIFTS from tank releasing water. Impact starts.



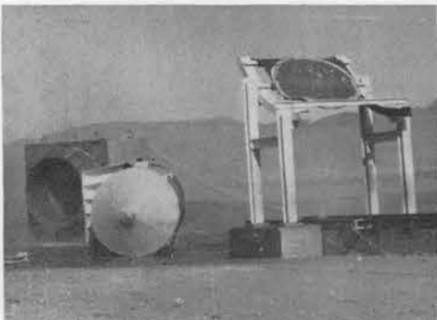
DOOR CLEARS target and water's impact against test items continues.



TANK EMPTIES and water fills target block containing test items.



IMPACT is now complete. Cloud of moisture fills the area.



TEST COMPLETED. Tank and test block show result of impact.

Missile, Target Reverse Roles In Unique Test

Sandia Laboratory completed a unique series of tests on the 3000-ft. sled track last week for Los Alamos Scientific Laboratory.

The tests involved propelling a 2000-gal. tank of water down the track and hurling the contents against a nuclear rocket nozzle and a simulated reactor core plate. The tests were in connection with the Kiwi reactor development program. The tests will help determine what would happen if a nuclear powered rocket fell tail first into the ocean during a launch abort.

Six sleds were fired during the series. The tests were designed by Dave C. Bickel, supervisor of Track and Guns Section. Test engineer was Art F. Witte of the Section. Photographic instrumentation for the tests was provided by Photometrics Division.

The water tank propelled down the track was mounted on slippers. Just before the tank hit a hollow concrete block containing the nozzle and core structure, a sliding door on the front of the tank was pulled off by an overhead mechanism. This allowed the water to be hurled against the test items.

The rocket sled which pushed the tank down the track was braked, the tank separated from the sled and hit the target at speeds ranging from 75 to 100 mph. High speed cameras inside the target photographed the water as it passed through the nozzle and core plate. Other instrumentation recorded pressure and velocities of the frontal surface of the water as it passed through the nozzle.

The front of the 44-ton target had a cone-shaped flange around which the perimeter of the tank opening fitted during impact. This prevented the tank or parts of it from entering the block and impeding or diverting the flow of water. Impact usually moved the block about 25 ft. from the end of the track.

Normally, rocket sled tests involving water impacts are run just the opposite of the newly completed series—the test is impacted into the water. However, photographic instrumentation for the tests would have been difficult, if not impossible using the other technique.

The "turn-around" technique also simplified the mechanical problems of getting the water into contact with the nozzle and core by protecting the test items from other than water impacts. Other techniques, such as dropping the test item into a container of water, would not provide sufficient velocities or insure correct test item attitude at water impact.

Congratulations

Mr. and Mrs. Tony Garcia, a son, Mark, July 25.

Mr. and Mrs. J. B. Langdon, a son, Mitchell, July 26.

Mr. and Mrs. L. W. Schieber, a son, Russell Adam, July 25.

Mr. and Mrs. G. F. Wright, a son, Stanley Richard, June 12.

Mr. and Mrs. James Morewood, a son, Jeffrey David, July 27.

Mr. and Mrs. E. L. Neau, a daughter, Lisa Marie, Aug. 7.

United Giving Becomes Most Desirable Way to Do Our Part

By J. M. Wiesen
Chairman, ECP Promotion Committee

Each year, millions of dollars are contributed to health and service agencies across the nation. Those who give are aware of the need for these agencies. These contributions are voluntary gifts.

Since the need for support exists and responsible people are eager to do something about it, much of the giving is done the United Way. United giving through plans such as the United Community Fund and our own Employees' Contribution Plan has proven to be the most desirable.

United Giving plans offer us the best way to meet our responsibilities. Through a single campaign many agencies are supported. Thirty-six agencies by ECP—29 in the United Community Fund and seven national health agencies. Campaign costs are greatly reduced and contributors are approached only once each year to support many agencies. Since the UCF solicits employers and employee groups only, the 29 member agencies do not solicit from door-to-door for operating expenses. The window sticker issued to members of ECP after each campaign shows solicitors from the seven national health agencies that you have given through ECP. On occasion and with the approval of UCF, capital fund-raising campaigns may be conducted by UCF member agencies.

Sandia's ECP and the community's UCF are much more than agencies to raise

funds. The services of all member agencies and their budgets, including salaries, are reviewed by the UCF annually to insure that the citizens of the community will get the service they need at reasonable costs. Agencies applying for membership in ECP and UCF are thoroughly checked to determine that their services are needed and that they are well managed. All agencies in the UCF agree to operate under the policies established by that group.

ECP funds are managed by Sandians selected by the unions and management. UCF funds are managed by our fellow citizens, many of whom through the years have been Sandians. While it would be impossible for any of us as individuals to perform this task, the cooperation of many competent and dedicated individuals can do the job. Thus we can be assured as individuals that campaign goals are reasonable and that contributions are spent wisely.

This year there will be no person-to-person solicitation during the ECP annual enrollment drive. However, all employees at Sandia Laboratory will be given the opportunity to contribute their fair share the united way at one of several ECP employee meetings.

Should you have any questions about ECP or any of its member agencies, please feel free to call the Information Bureau at 264-5950.

Take Note

Shades of grade school geography! Sandia Laboratory's technical library recently received a request from Columbia University Libraries for an abstract. It's a wonder the letter reached its destination. It was addressed "Sandia Corp., Albuquerque, Mexico."

About the same time Technical Information Department received a request to set up an exchange of publications. The envelope was addressed "Sandia Corporation, P. O. Box 5800, Albuquerque, New Mexico, USA." It was from Academia Sinica (a research institute) in Peking, Chinese People's Republic. We replied we had no journals or periodicals suitable for regular exchange.

Guests and prospective members are welcome to attend a meeting of the Tierra del Sol Toastmistress Club on Thursday, Aug. 20, at 7:45 p.m. in the Staff Room at the Coronado Club.

Purpose of the club is to help women improve their speaking ability and develop confidence. For additional information call Dottie Hickman at 298-3804 after 5 p.m.

Welcome Newcomers

July 27 - Aug. 7

Albuquerque	
Frank E. Arellano	3413
*Penelope J. Bales	7612
James D. Brandt	2122
Charlotte L. Freedman	4112
Margaret G. Gallegos	4341
Bonnie C. Gallo	3421
Walter Herrmann	1125
Cle Rae M. Humphres	4432
Alma G. LeClair	3241
Frances H. Morris	4212
*Rosemary Penn	3126
Berta C. Smith	3126
Robert E. Vaughan	3413
*G. Darlene Welch	2642
Paula J. Wilson	4333
California	
Dennis C. Cronin, San Bernadino	7424
Colorado	
Joseph Sava, Crested Butte	2122
Idaho	
Paul O. Matthews, Idaho Falls	3312
Illinois	
Ronald D. Jacobson, Rockford	5133
Kansas	
Burrell E. Hammons, Kansas City	5133
Nebraska	
Lonnie L. Miles, Lincoln	1433
New York	
Ivars U. Gals, Troy	7253
Oklahoma	
Alva G. McGuckin, Norman	4114
William N. Talley III, Oklahoma City	2543
Washington	
Jan P. Skaates, Seattle	7623
*Denotes rehired	

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LAB NEWS

AUGUST 14, 1964

Sandia's

Safety

Scoreboard

Sandia Laboratory:

64 DAYS

2,240,000 MAN HOURS

WITHOUT A

DISABLING INJURY

Livermore Laboratory:

69 DAYS

343,000 MAN HOURS

WITHOUT A

DISABLING INJURY