

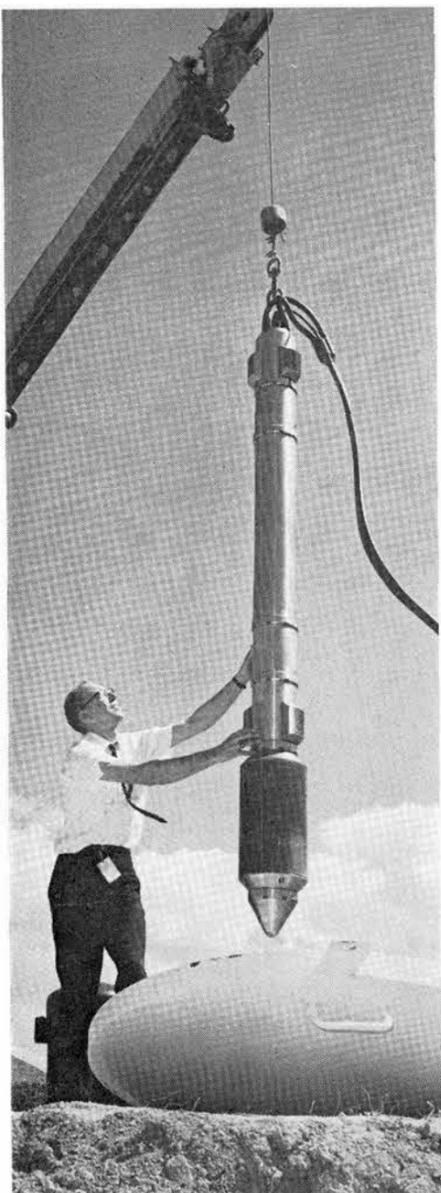
Prototype Sandia Seismic Observatory Placed in Alaskan Permafrost for Testing

SANDIA CORPORATION

LAB NEWS

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

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PROTOTYPE USO package was guided into 169-foot deep borehole in Coyote Test Field by Dean Gladow (9233).



SEISMOMETER PACKAGE is shown as it enters 12-inch-diameter borehole in underground shelter. The USO unit is now 90 feet deep in Alaskan permafrost.

R. C. Fletcher Named Judge for Science Fair Int'l

R. C. Fletcher, Vice President 5000, was one of 12 judges announced last week by Glenn T. Seaborg, Chairman of the Atomic Energy Commission, to select winners of the AEC Special Awards at the 17th Science Fair International May 11-13 in Dallas, Tex.

Other New Mexicans named to serve on the panel are Richard G. Elliott, Director of Information, AEC, Albuquerque Operations; Elizabeth R. Graves, a group leader at Los Alamos Scientific Laboratory and the first woman scientist to serve as an AEC Special Awards Judge; John F. Spalding, a geneticist at LASL; and Dr. C. S. White, President of Lovelace Foundation for Medical Education and Research.

Alexander R. Van Dyken, Assistant Director for Chemistry Programs in the AEC's Division of Research, Washington D.C., is chairman of the panel.

AEC Special Awards are presented to 10 contestants with the most outstanding nuclear-related exhibits at the Fair. Each winner and his science teacher are invited to attend a special Nuclear Research Orientation week held in mid-August at the Commission's Argonne National Laboratory near Chicago.

Judging at Dallas will take place Wednesday, May 11, and the 10 winners of AEC Special Awards and their 10 alternates will be announced at the Awards luncheon on Friday, May 13. It is expected that some 50 of the more than 400 student exhibits will be either devoted directly to some area of nuclear science or developed with the aid of nuclear research tools.

'Secretary of the Year' Honor for Sandia Woman

Jo Hanna, secretary to Vice President 4000, was honored as Secretary of the Year, during a recent luncheon of the Albuquerque chapter of National Secretaries Association (International).

The award is based upon service to the chapter and the winner is elected by the club membership. Jo has served as chairman of numerous committees for the chapter.

She had extensive secretarial experience in Ohio before joining Sandia in 1953 as a clerk steno in the Purchasing organization. Her assignments here have included deductions clerk in Finance, department secretary in Purchasing and Programming, secretary to Sandia's United Kingdom coordinator, Director's secretary (4100), and since Nov. 1, secretary to C. W. Campbell, Vice President 4000.

Governor Campbell Appoints Sandian as Scientific Advisor

Governor Jack M. Campbell has appointed B. H. Van Domelen of Advanced Systems Research Department III, 5530, as his scientific advisor.

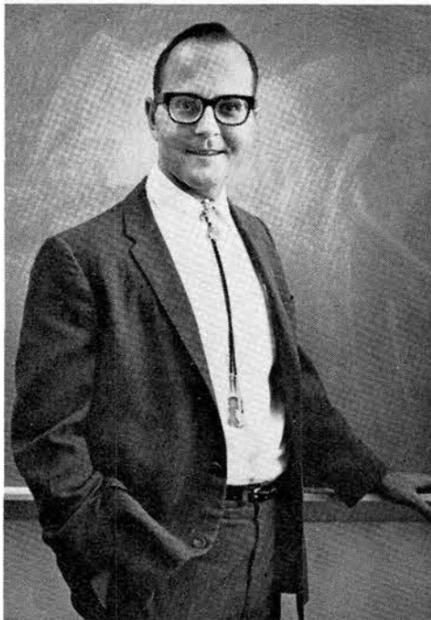
He succeeds H. M. Busey, formerly of Los Alamos Scientific Laboratory, who was appointed to the position in 1963. The advisor assists the governor by appraising scientific proposals, attending meetings of scientific nature, and informing him of developments in science and their relationship to New Mexico's natural resources and human and industrial capabilities. The advisor also works closely with the Governor's Scientific Advisory Committee which is chaired by Prof. V. H. Regener of the University of New Mexico. G. A. Fowler, Vice President 9000, is a member of this committee.

Mr. Van Domelen has a BA degree in physics and mathematics from Kalamazoo College, and MA and PhD degrees in physics from the University of Wisconsin.

Since being employed by Sandia in August 1960, he has done research in self-organizing systems and has been a division supervisor in the Materials and Process organization. Mr. Van Domelen has been on leave from Analytical Methods Division 1122 since last September for an assignment in Department 5530. His present activities include work with the Joint Task Force-Two program and the newly-created Planetary Quarantine Department 2570.

Mrs. Van Domelen, who also holds a

doctorate (in mathematics), is assigned to Statistical Research Division 5263.



B. H. VAN DOMELEN (5530) is the recently appointed scientific advisor to New Mexico's Governor Jack M. Campbell.

An unmanned seismic observatory (USO) developed by Sandia was installed in a 90-foot borehole near Fairbanks, Alaska, last week to evaluate the effect of permafrost on the observatory.

The observatory, a prototype designed to operate unattended for 120 days with 98 percent reliability, was developed for the Advanced Research Projects Agency of the Department of Defense for detecting, locating, and identifying underground nuclear detonations.

Twelve members of Seismic Systems Division 9233, headed by supervisor H. M. Dumas and project leader R. S. Reynolds, handled the installation of the 3400-pound observatory in Alaska.

The unit was tested briefly earlier this month in a borehole 169 feet below ground level in Coyote Test Field, some 200 yards from the U.S. Coast and Geodetic Survey seismic laboratory. Borehole depth depends on local seismic conditions and terrain, but 200 feet is considered the maximum depth required.

Work on the observatory began at Sandia in November 1964. Designed by Seismic Systems Division 9233, the system is expected to be evaluated by early 1967.

The USO unit is relatively light weight, easily installed, and rugged enough for shipment to remote areas for installation.

Major system components will permit many installation configurations suitable to wide variations in climatic and geographical conditions. The combination of a small shelter to house the tape recorder and electronic systems and the seismometer in the borehole should be adaptable to most locations.

A sealed, locked shelter buried a few feet underground, or placed on the surface and covered with a minimum of three feet of soil, is designed to provide protection. The earth cover also provides temperature stability for the tape recorders and electronic devices.

Crystal oscillators, system electronics, and the tape recorder are placed inside a safe-like enclosure for protection against tampering. All electronic module boxes and the tape recorder are mounted in sealed steel cases, which permit entire units to be replaced if technically trained personnel are not available for servicing. Cabling between the vault, the seismometer package, and the power supply is armored.

The upper section of the seismometer borehole package, containing three short-

(Continued on Page Five)

90 Percent Goal Very Close, Early Bond Drive Results Show

Led by the Military Liaison 7500 organization, first to reach 100 percent participation, Sandians throughout the Laboratory responded this week to the current U.S. Savings Bond drive. Overall participation increased by 2700 employees to bring the current enrollment to 87 percent.

With a number of employees still to be contacted, the Sandia goal of 90 percent participation is within reach, according to Don Morrison (5256), chairman of the Sandia Savings Bond committee. He expressed his appreciation to all drive solicitors and coordinators.

Along with 7500, Organization 6000 achieved 100 percent early in the drive.

At mid-week, a number of Sandia organizations had reached or passed the 90 percent participation mark. These include 1300, 1400, 1500, 2100, 2200, 2400, 2500, 4100, 4200, 4300, 4600, 7300, 9300, and 9400. Other directorate coordinators are confident that as their cards come in their organizations will make the goal.

As the LAB NEWS went to press, this was the Sandia tally:

Number of participants: 6118.
Percentage of participation: 87.
Total monthly deduction for bonds: \$76,500.

New enrollees this year: 2700.
Percentage of increase: 79.

Last year, some 3575 Sandians were investing \$56,978 monthly in U.S. Savings Bonds.

At Livermore Laboratory, early results of the drive look very good. Overall participation has increased by 533 employees to bring the Livermore enrollment to 80 percent. Total participants now number 778 and their total monthly purchase of Savings Bonds is \$11,500.

Editorial Comment

Listen!

Most of us treasure the art of being a good conversationalist. Our goals are to be interesting, provocative, informative, constructive, and perhaps witty. We all know from experience how wearisome dull company can be, and we have the wish, in fact the need, to be accepted by others as "good company."

But there's more to being good company in a conversation than simply offering astute and valid commentary. And there's more to be gained from conversation than simply social relaxation.

There is the art of listening. Not simply the good manners of attentiveness and waiting till someone is through speaking before expounding our thoughts or exposing our wit. Not simply tolerance, nor patient endurance.

Here are a few listening techniques worth developing: Glean the thoughts of your conversational companion. Evaluate his judgments. Weigh his opinions with your own. Understand his point of view. Learn.

We are basically an impatient people—let's not allow our impatience to destroy this prime opportunity to grow through the experience of conversation.

Develop the trait and habit of not simply hearing but of listening.

For Logic Diagrams

New Standard Adopted

A new standard for logic diagrams, a volume of graphic symbols, was adopted last week by Sandia Corporation's Design Practices Committee. The standard, prepared after more than three months of consultation and work by the committee, will affect all Sandia products not directly related to development or production of nuclear weapons.

Logic diagrams are used in the design of switching circuits. For a number of years, designers have used various symbols, related to Boolean algebra (a kind of algebra which has applications in the computer field), to represent the switching functions rather than specify the electrical hardware required. By designing the logic functions first, better decisions on specific hardware to perform the functions can be made. However, a variety of symbols have been used to designate the functions.

The American Standards Association has issued logic diagram standards permitting various options for the symbols. Sandia's new standard is within these options provided by ASA but codifies them into a single, unified system. It provides a "common dictionary" for the designers of production testers, field test instrumentation, aerospace equipment and other Sandia hardware and for the draftsmen, fabricators, inspectors, operators, and repairmen who are involved with the equipment.

Training sessions for Sandia personnel who will use the new standards will begin May 15. A number of orientation work-

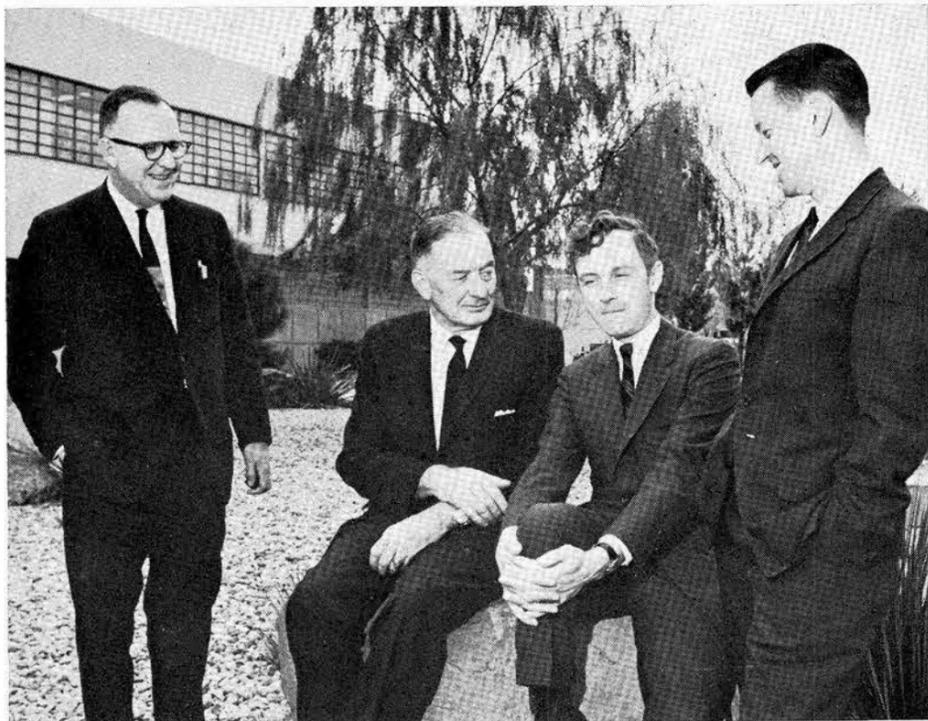
shops are scheduled. About 400 employees will attend the logic workshops.

The Design Practices Committee was established in October 1965 with W. W. Westman, supervisor of Test Systems Design Practices Division 2224, as chairman. Committee members include representatives of the 1000, 2000, 7000, 8000, and 9000 organizations.

The committee's job is to develop design practices for use on non-weapon related projects in the areas of reliability, definition control, standard parts, materials, processes, fabrication, inspection, and workmanship.

Using committee suggestions and after consultation with designers throughout Sandia, with other government agencies, and with Sandia suppliers, the draft of the Sandia standard was prepared by R. W. Roberts, supervisor of Apparatus Development Division 2422, L. J. O'Connell of Test Equipment Reliability and Engineering Design Practices Division 2442, and W. F. Sefcik of Design Definition Division C, 2213.

"We expect some changes in the standard," Mr. Westman emphasized, "as we receive feedback in the training sessions. This standard will be made as effective as possible for all concerned. We have received tremendous cooperation from a large number of people who realize the benefits of standardization. This is appreciated. With further cooperation, we can complete the adoption of many standards successfully."



FIRST TOUR OF LABORATORY — Michael M. May, Director of the University of California's Lawrence Radiation Laboratory, Livermore (second from right), chats informally with S. P. Schwartz, President of Sandia Corporation, during a recent visit to the Laboratory. R. W. Henderson, Vice President 1000 (left), and R. C. Fletcher, Vice President 5000 (right), also accompanied Mr. May on his first tour of Sandia. Mr. May replaced John S. Foster Jr., who was named Director of Defense Research and Engineering for the Department of Defense late last year.



FIRST CERTIFICATE AWARDED for completion of Sandia Technical Institute Program was presented by R. B. Powell, Vice President 3000 (left), to Hugh A. Sumlin (4251) last week. Others present at the ceremony honoring Hugh for completing the program were (l to r) L. W. Stouder, supervisor of Machine Shop Division 4251; R. E. Day (3132); and M. A. McCutchan, supervisor of Employee Training and Education Division 3132.

First Technical Institute Graduate Honored for High Performance Level

A desire for self improvement and a superior level of accomplishment were recognized last week when Hugh A. Sumlin (4251) was honored as the first graduate of Sandia Laboratory's Out-of-Hours Technical Institute.

The certificate awarded by R. B. Powell, Vice President 3000, along with the commendations from Hugh's supervisor and representatives of the training organization, were among the rewards Hugh received for completing the mechanical technology program with high honors. Another was his promotion from a graded employee to staff assistant technical.

His five-year mechanical technology curriculum included mathematics, physics, engineering, and related subjects. He completed 14 courses offered during the noon hour and six courses in evening classes. In all, he devoted about 1000 hours to classroom work. His certificate is the equivalent of a technical institute degree.

Hugh stressed that the cooperation of his wife and three children, ages 10, 11, and

12, was a big factor in completing the course. Among other considerations, they didn't interfere with his studying at home. This involved from 20 hours on weekends during peak study periods to about seven hours a week for less demanding courses.

Hugh served his machinist apprenticeship while attending high school in Jacksonville, Fla. He joined Sandia as a model and instrument maker in September 1954 and worked in this capacity until March 1964. He then worked as a layout operator for eight months. In October 1964, Hugh was promoted to the position of "part programmer" which involves using computers to prepare instructions for numerically controlled machinery.

L. W. Stouder, supervisor of Machine Shop Division 4251, stated that Hugh's job requires the specialized knowledge offered in the out-of-hours courses.

Four different technical institute level programs are offered by Employee Training and Education Division 3132. The courses stress practical understanding and application of engineering and scientific technology. Graduates of approved study programs are recognized as having earned the equivalent of a technical institute degree.

Out-of-hours courses are provided without charge to Sandia employees who meet the prerequisites. Class members study on their own time and must maintain a satisfactory scholastic standing in order to stay in the program.

The resources of local high schools and universities are used to meet course requirements when possible.



Mary Malone (2422)

Take A Memo, Please

Safety requires constant alertness, attention to details, and adherence to approved practices and procedures.

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LAB NEWS

MAY 6, 1966

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ALBUQUERQUE, NEW MEXICO • LIVERMORE, CALIFORNIA

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G. R. Marguth Elected To Livermore City Council

Gilbert (Gib) R. Marguth, an electronics engineer in Telemetry and Instrumentation Systems Division 8127, was a victorious candidate in the Livermore City Council election held April 12. He held one of three four-year terms which were open on the council.



Gib has been involved in community affairs since coming to Livermore in 1961. Currently, he serves as trustee of the Livermore Elementary School District. He has been active in the First Presbyterian Church and Joe Mitchell School affairs, including Landscape Chairman for two years. Gib has been a technical advisor to the Livermore chapter of JETS (Junior Engineering Technical Society) and during the 1964-65 school year he worked with three students on designing a simple analog to digital conversion system.

Before joining Sandia, Gib was a military computer design engineer for Honeywell, Inc., in Minneapolis, Minn.

From April 1953 to January 1957, he served in the U.S. Air Force, primarily instructing pilots in the fundamentals of radio navigation and instrument flying.

Gib graduated from Oregon State College with Bachelor of Science degrees in both electrical engineering and mathematics. He is a member of Sigma Tau, Eta Kappa Nu, and Pi Mu Epsilon honorary societies and the Institute of Electrical and Electronics Engineers.

Livermore Notes

John Hitchcock (8116) was recently installed Chief of the Twin Valley Nation Longhouse of Y-Indian Guides, a national organization sponsored by the YMCA to foster companionship between fathers and sons. Members meet in tribes and the local Twin Valley Nation comprises 18 of these tribes. Membership is open to boys over six years of age and their fathers, who are required to attend tribe meetings with their sons. Regular meetings consist of games, craft projects, singing, and story telling. Weekend outdoor activities include camping trips and fishing. Pow-wows (get-togethers of various "nations") are held periodically. Those interested in obtaining further information concerning the Y-Indian Guides may contact John on 447-5837.

Discount admission tickets are available from Employee Benefits for the eighth United States World Trade Fair to be held May 12-22 at Brooks Hall, Civic Center, San Francisco. The fair will be open to the public from 2-10 p.m. Mondays through Thursdays; 2-10:30 p.m. Fridays; 11 a.m. until 10:30 p.m. Saturdays; and 11 a.m. until 7 p.m. Sundays.

John Barnhouse (8226) won the first place trophy in the third annual Sandia Thunderbird Golf Tournament, sponsored by the Sandia Employees Golf Club. He finished with a low gross score of 80.

Prizes were awarded in the tourney which took place April 16 at the Pleasant Hills Golf Course in San Jose. Sixty players, divided into two flights, participated. The first flight included those with a handicap of 20 or less, while the second flight was made up of those with handicaps from 21 to 36. Walt Dzugan (8212) was the top winner of the first flight with a net score of 69, and Jack Emerson (husband of Eve Emerson 8231) won the second flight with a net of 65.

First place trophy in the third annual Division 8252 Bowling Tournament held at Livermore's Granada Bowl on April 17 went to Tabo Hisaoka with a 612 total for three games. Roy Yapo placed second with 610 and John Turk third with 608.

Sandians Mike Gregory (8112) and Broward Moss (8253) have been cast as sailors in the chorus of the latest Cask and Mask production "Oh Captain." The musical will open Friday night May 13 at 8 p.m. at the May School Theater near Livermore.

The lively musical, scheduled to play Friday, Saturday, and Sunday for three successive weekends, was adapted from the movie "Captain's Paradise" which starred Alec Guinness. Tickets are available at Books Universal in Livermore.

Resolicitation at Livermore Raises Additional \$4,969 in Pledges to Valley Hospital

A resolicitation effort at Livermore Laboratory for the Valley Memorial Hospital Expansion Fund resulted in pledges of \$4969. This brings the total amount pledged by Sandia employees to \$62,851. Sandia Corporation has pledged \$10,000 to the fund.

The additional \$4969 was pledged by 88 employees. Of these, 53 were new contributors who pledged \$2753, and the remaining 35 were employees who increased their original pledges by \$2216.

Contributions have reached \$790,000, only \$10,000 short of the \$800,000 campaign goal required to qualify Valley Memorial Hospital for \$1,411,462 of Federal-State matching grants, allocated under the Hill-Harris Act. Pledges still outstanding indicate that the goal will be met and there is a good possibility the campaign will go over the top.

The \$2.2 million building program is scheduled to get underway before the end of this year and is expected to take about 16 months to complete.

Blood Bank Drive Scheduled May 13

The annual blood bank drive at Livermore Laboratory will take place Friday, May 13, according to Jim Henderson (8211), drive coordinator.

The blood drive will be held at the LRL East Avenue cafeteria from 8 a.m. to 1 p.m. and, as in the past, free coffee, doughnuts, and orange juice will be served to donors.

Through the SCLL account with the bank, blood is available without charge to all Livermore Laboratory employees and their dependents. The account is operated on a pint-for-pint replacement basis, with the patient paying only for handling, storage, and administrative costs.

Since last year's drive, 97 pints have been withdrawn from the bank for employees and their dependents.

The blood bank is operated by the non-profit Alameda-Contra Costa County Medical Association.

ASME-AIAA to Hold Joint Meeting, May 19

A joint meeting of the Mt. Diablo Subsection of American Society of Mechanical Engineers and the Mt. Diablo Section of American Institute of Aeronautics and Astronautics is scheduled to be held at the Castewood Country Club on Thursday, May 19.

Guest speaker at the meeting will be Glenn F. Minard, Chief Hydronaut Test Pilot, Lockheed Missiles and Space Company. He will discuss "Deep Submersibles."

Social hour will begin at 6 p.m., followed by dinner and the meeting at 7. For reservations or further information, contact Del Elliott (8154), ext. 2688, or Louie Tallico (8155), ext. 2870.

Welcome Newcomers

March 1 - April 22

California	
Viola J. Banfield, Fremont	8253
John C. Freeman, San Jose	8144
Burnell W. Grange, Berkeley	8146
Robert E. Humphrey, Pleasant Hill	8111
Dorothy A. Smith, Pleasanton	8235
Curtis P. Young, San Luis Obispo	8127
Utah	
Robert T. Reese, Provo	8147
Returned from Leave	
Charles A. Hannes	8232

Wedding

Judy Shirer and Tom Gray were married April 16 in an evening candlelight ceremony at the First Methodist Church in San Leandro, Calif. Following a church reception, the couple spent a week in Sonora, Calif., and vicinity. Judy, a stenographer-clerk in Purchasing Division 8243, has been with Sandia since October 1965. She is residing in San Leandro while her husband completes his military service. He is assigned to the destroyer, USS Gyatt, at Norfolk, Va.

Sympathy

To Jim Mesnard (5510) for the death of his mother in Hamburg, N.Y., April 18.

To John Mulligan (8112) for the death of his mother-in-law in Covington, Ky., April 15.



WESTERN ELECTRIC COMPANY Director of Salary Administration, Lewis A. Bain (center), visited Livermore Laboratory recently for general orientation. After briefings by members of the 8000 staff, he toured the Laboratory. Shown during a demonstration of the numerically-controlled lathe are (l to r) W. A. Little, Manager, Engineering Services Department 8250, who conducted the tour; C. H. DeSelm, Director of Staff Services 8200; Mr. Bain; K. A. Smith, Director of Personnel 3100; and R. W. Jackson, model and instrument maker in Special Machining and Support Shop Section 8223-2.

LIVERMORE NEWS

Songwriter Bob Harks Has 'Walkin' Home' Record Released

This spring should be the beginning of a "record" year for Bob Harks (8161) and his friend, Frank Fiorini, who sings professionally. A 45 rpm record recently produced by the two under their own label, CARMEL, is off the press and has been released to various disc jockeys and record companies throughout the county.

On one side of the disc Frank sings Bob's original song, "Walkin' Home," and on the other side, the Arlen-Harburg favorite, "Over the Rainbow." Both songs are done with a rock-and-roll beat.

"Frank and I met in New York in 1952 when we were auditioning for singing roles in a Rodgers and Hammerstein show, and we've corresponded regularly since," Bob says. Although neither made the Broadway show, Frank went on to sing professionally in night clubs in New York, Philadelphia, and his home town of Williamsport, Pa.

"When Frank and I got together in Livermore, we decided to join forces—his singing, and one of my songs — and try our luck with a record." Bob has written songs as an off-and-on hobby since college days. Frank has had many years of professional singing experience, but this is his first solo performance on wax.

CARMEL was chosen for their recording name after the California mission city of Carmel-by-the-Sea. The label, with its sweepingly modern seagull, is the artwork of Ben Aikin (8233), and is printed with

silver ink on blue-green paper to carry through the seaside theme.

"We found that choosing a record name is the easy part," Bob comments. "The real problem is getting top musicians for the accompaniment, and then obtaining quality recordings, master records, and pressings."

The musical accompaniment is provided by a professional three-piece combo.

"We found recently that the San Francisco recording studio selected for our venture was about the best available in the Bay Area," Bob says. "The technician in charge of Frank's recording session told us that Bing Crosby used the same microphone."

The results of the hour-long recording session are contained in a 10-inch reel of one-half-inch recording tape, according to Bob. From this large three-track tape (one track for the vocalist, the other two for instruments) the best performances of the two numbers were selected and equalized, and transferred to a master tape which was used to make the master record. From the fiber master record a metal electroplate master was made, from which the styrene records were pressed by a firm in Los Angeles. The labels were heat-sealed onto the records.

"We had a little difficulty getting the right balance of instruments and tone quality in our master tape recording," Bob says, "but we're more than pleased with the final results."

SONGWRITER BOB HARKS (8161) displays the record which features his composition "Walkin' Home." The recording has been released to various disc jockeys and record companies throughout the country.



Sophisticated 5100 Firing Facility Used for Dynamic Stress Research

Compared to complex environmental test facilities in Sandia's Area III, 5100's high explosive firing site might seem rather simple, but the instrumentation which gathers data from the blasts is extensive and strictly sophisticated.

The facility is used primarily for research in dynamic stress. Testing Section 5134-1 is headed by W. P. Brooks with L. E. Heames and C. W. Huddle operating the controls and instrumentation, and J. J. Weber helping to set up the tests and handle the explosives. Their "customers" are mainly Organizations 5100, 5200, and 5600.

Control buildings 9920 and 9927 are located a half mile apart. From the front they look rather ordinary, but the backs are a different matter. Each has a two-foot concrete wall protected by four-inch steel armor plate which is pitted from the force of the explosions. The front and side walls, and ceilings are all foot-thick reinforced concrete.

The tests are conducted in the open with test material, conventional high explosives, and detonator placed on wooden stands on either a steel or dirt pad about 20 feet from the back of either building. After the blast, the only thing left is a depression in the dirt and fragments of metal, too hot to handle.

Instrumentation inside the buildings records electrical signals from the test material or an electromechanical transducer. Pressures range up to 1.9 million atmospheres and can last for a few millionths of a second. (A high speed bullet impacts against a hard wall with about 100,000 atmospheres of pressure.) "The peak pressure will vary with the type of explosive and the duration will be affected by its thickness. We work to an accuracy of a few billionths of a second," said Mr. Brooks.

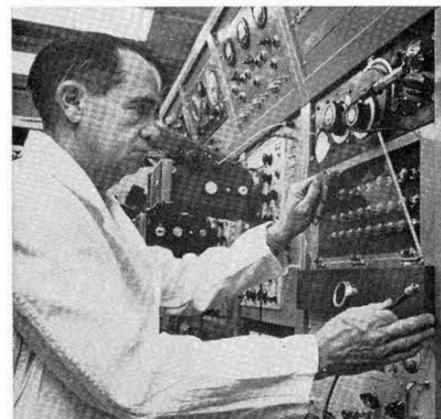
Instruments available to the technicians include a battery of oscilloscopes (each can be attached by underground signal cables to points on the test stand); streak cameras with high speed rotating mirrors to photograph the burning rate of explosives and the free surface velocity of materials; and framing cameras which record at a rate of up to 4 million frames per second. The cameras are located behind pieces of two-inch thick, laminated safety glass set in small openings in the steel armor plating.

The facility in Bldg. 9927 also houses a 140 kilojoule capacitor bank which can be charged to 20 kilovolts with a million amperes maximum output. The purpose of the capacitor bank is for high magnetic field studies.

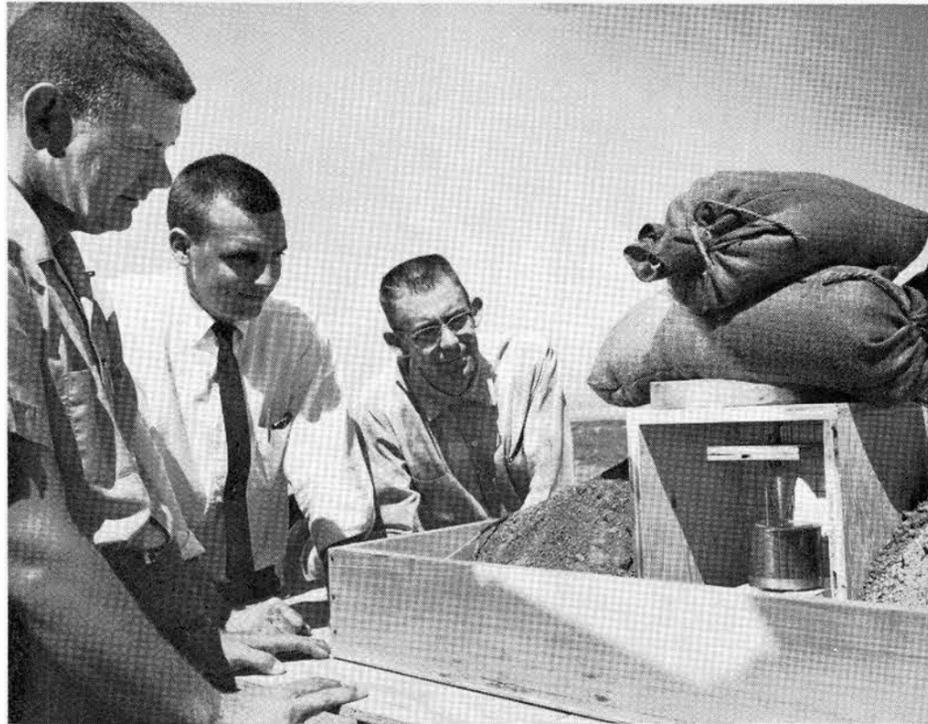
The facility provides a capability for a wide variety of precision scientific measurements. Last year 600 tests were conducted at the Bldg. 9920 site; eight or nine simple tests can be conducted in one day. The Bldg. 9927 facility conducts tests of more complex nature, mainly using the capacitor bank to supply high magnetic field pressures before higher explosive pressures are applied through conventional explosives. Some of these shots require one or two days to set up. This site averages 150 shots a year.

The shape of high pressure shock waves is observed by both electrical and optical techniques. For lower pressure waves, quartz gauges can record the shape of the shock waves very accurately. Digital delay generators time the shots down to a fraction of microsecond intervals.

R. C. Bass of Underground Physics Di-



CONNECTIONS from the power supply to the detonators are locked behind glass door by J. J. Weber (5134-1).



LOOKING OVER test set-up behind control building 9927 are (l to r) W. P. Brooks, firing site supervisor, and T. A. Duffey, Jr. and R. K. Fitzgerald (both 5620), who are using high explosives to accelerate a plexiglass plate against a cone to simulate earth impact.



PULLING PRINTS from cameras on oscilloscopes is C. W. Huddle (5134-1). Many other diagnostic "tools" are available for high explosive tests at both firing sites.

vision 5232 is one of the frequent users of the firing site in his equation of state studies of materials. He is currently interested in the effect of shock propagation through various geological materials. "The information contributes to the theory and general picture of the material," he said.

Another "customer," W. B. Benedick of Dynamic Stress Research Division 5133, is looking at the electronic response of quartz to shock pressures far above its elastic limit.

T. A. Duffey, Jr., and R. K. Fitzgerald, both of Advanced Systems Development Department II, 5620, are using high explosives to accelerate a plexiglass plate against a solid aluminum cone to simulate earth impact. They are studying the flow characteristics around the cone and the jetting of plate material upon high velocity impact with the cone. The thickness of the plate will be varied throughout the test series. Piezoelectric pins and a camera supply data on the plate's velocity, and a quartz gauge determines pressure generated at the base of the cone.

The scientist requesting the test normally specifies the type of explosive desired. This may include baratol, TNT, Composition B, PBX, nitroguanidine, and special explosives, which are ordered in specific diameters and thicknesses. The explosives are assembled in static-free laboratories and are later transported to the firing sites in a padded box. A lightning warning system monitors atmospheric conditions. No tests are conducted during adverse weather conditions.

The warning system is only one of



L. E. HEAMES (5134-1) is focusing and aligning framing camera for forthcoming shot. Thick laminated glass in small opening protects camera lens from shrapnel.

many safety measures: The connections from the power supply to the detonators are kept behind a locked glass. Railroad crossing gates are lowered, closing the area to vehicles, when the explosives are out of the magazine. A siren is started just prior to final arming. No physical connection exists between the power supply and detonators until all final checks have been completed. And windows on cars parked in front of the buildings are rolled down or the doors are left ajar. One "boom" and the test is over.

Sandians Named Senior Members By Nat'l ASQC

J. R. Sublett, manager of Advanced Manufacturing Development Department 2560, and G. J. Lombardi of Product Data Control Division 2512 were recently appointed to the grade of Senior Member of the American Society for Quality Control.

The Sandians will be honored along with David Fine (ACF) who was also named Senior Member of the Society, at a meeting of the Albuquerque Section, May 9.

The advancement is recognition by the national organization of a member's outstanding contributions to quality control, reliability, and related fields. This is accomplished through activities such as teaching, publications, and participation in society events both locally and nationally.

Sandia Speakers

C. R. Byrne (4631-1), "Location of Ion Gauges on Sounding Rockets and Effects on Pressure Measurement," second annual symposium of the New Mexico Section, American Vacuum Society, April 20-22, Albuquerque.

C. J. McGarr (4600), "Management Science in an Inventory Control System at Sandia Corporation," Federal Supply Managers, May 2-4, Washington, D.C., and Western Systems Conference, May 19, Los Angeles.

G. J. Simmons (5612), "Adaptive Systems," Oklahoma State University electrical engineering and mathematics colloquium, May 2, Stillwater, Okla.

E. D. Jones (5151), "Some Recent Nuclear Magnetic Resonance Experiments on Rare-Earth Intermetallic Compounds," Solid State Colloquium at Battelle Memorial Institute, April 21, Columbus, Ohio.

C. H. Karnes (1115), "Two Dimensional Elastic-Plastic Behavior of a Rod Subjected to Axial Impact," Georgia Institute of Technology School of Engineering Mechanics graduate seminar, April 22, Atlanta, Ga.

D. L. Brown, Jr. (9426), "Sandia Corporation's Personnel Data Processing System," American Association of Industrial Management, April 20, New York City.

A. W. Battaglia (1322), "A Broad View of Fluidics," Instrument Society of America, April 20, Albuquerque.

M. E. Daniel (2442), "A Note on Time Domain Synthesis," 18th annual Southwestern IEEE Conference, April 20-22, Dallas, Tex.

J. R. Banister (5120) and R. A. Hill (5122), "Spectrograph Studies of an Impulse Tube," 18th annual Southwestern IEEE Conference, April 20-22, Dallas, Tex.

B. T. Kenna and F. J. Conrad (both 1121), "Determination of Sodium in Silica by Thermal Neutron Activation Analysis" and "Fast Neutron Activation Analysis: Qualitative and Quantitative Determination of Selenium," Southwestern and Rocky Mountain Division, American Association for the Advancement of Science and the New Mexico Academy of Science (combined meeting), May 1-4, Las Cruces, N.M.

R. J. Baughman and R. A. Lefever (both 5154), "Czochralski Crystal Growth Under Pressure," Southwestern and Rocky Mountain Division, American Association for the Advancement of Science and the New Mexico Academy of Science (combined meeting), May 1-4, Las Cruces, N.M.

John Matsko and R. A. Lefever (both 5154), "Flame Fusion Growth of Cr₂O₃ Single Crystals," Southwestern and Rocky Mountain Division, American Association for the Advancement of Science and the New Mexico Academy of Science, May 1-4, Las Cruces, N.M.

R. K. Traeger (1111), "Dynamic Mechanical Testing to Evaluate Radiation Induced Changes," Rubber Chemistry Division of the American Chemical Society, May 3-6, San Francisco.

L. S. Nelson (5234), "Burning Drops of Metal" advanced class in physical sciences Los Alamos High School, Sandia Sphere of Science, May 3.

M. M. Robertson and W. B. Estill (1122), "Electron Probe and Electron Microscope Investigation of Identical Areas," First National Conference on Electron Probe Microanalysis, May 4-6, College Park, Md.

D. A. Young (9421), "Sandia's Computer Satellite System," Control Data Corporation user's groups (SWAP/CO-OP), May 2-6, Los Angeles.

R. S. Claassen (5100), "My PhD is in Engineering but I'm Really a Physicist," Oklahoma State University Engineering faculty, May 12, Stillwater, Okla.

N. J. DeLollis (1133), "High Temperature Testing of Re-entry Bonds," American Society of Mechanical Engineers Design Engineering Conference, May 9-12, Chicago.

L. F. Shampine (5262), "A Monotone Iteration for Certain Boundary Value Problems," national meeting of the Society for Industrial and Applied Mathematics, May 11-14, Iowa City, Iowa.

A. L. Roark (5261) and L. F. Shampine (5262), "The Eigenproblem for Displacement Integral Equations," national meeting of the Society of Industrial and Applied Mathematics, May 11-14, Iowa City, Iowa.

G. H. Haertling (1132), "Physical and Electrical Properties of the Ferroelectric Ternary System, NaNbO₃-KNbO₃-LiNbO₃," American Ceramic Society annual meeting, May 7-12, Washington, D.C.

E. K. Beauchamp (1132), "The Effect of Porosity and Grain Size on the Dielectric Strength of Magnesium Oxide," American Ceramic Society annual meeting, May 7-12, Washington, D.C.

Supervisory Appointments

ROBERT E. FOX to supervisor of Electromechanical Division II, 1325, effective April 16.

After joining Sandia in June 1952, Bob worked on pressure switches in electromechanical development for more than 13 years. In September 1965, he transferred to advanced development where he has worked on fluidics and pressure probes.



Before coming to Albuquerque, Bob worked at Foxboro Research Laboratory under a cooperative program while enrolled at Northeastern University in Boston, Mass. He received his BS degree in electrical engineering from Northeastern in June 1952 and has done some graduate work in electrical engineering at the University of New Mexico.

Bob served as an electronic technicians mate in the U.S. Navy from June 1945 to June 1947. He is a member of Eta Kappa Nu.

ELMER N. LESLIE, Jr., to supervisor of Advanced Development Division 1322, effective April 16.

Elmer joined Sandia in June 1962 and worked in manufacturing development for about a year before he transferred to an engineering project group where he was concerned with environmental studies. In January 1964 he transferred to design and development of test vehicle systems.



Elmer received his BS degree in mechanical engineering from Purdue University in June 1962. He enrolled in Sandia's Technical Development Program and obtained his MS in mechanical engineering from the University of New Mexico in June 1964.

He is a member of Pi Tau Sigma, Tau Beta Pi, and American Society of Mechanical Engineers.

DONALD R. MERTHENY, Sr., to supervisor of Janitor Service Section 4574-5, effective May 1.

Don has worked in the janitor service organization since joining Sandia in August 1957, with the exception of a year and a half in receiving.



Before coming to Sandia, Don operated his own shoe repair shop in Albuquerque for some ten years. From 1931 to 1946, he had a shoe repair shop in Huntington, W. Va.

Subsonic Testing Assn. Names A. Y. Pope 'Honorary Member'

The Subsonic Aerodynamic Testing Association has named A. Y. Pope, Sandia's Director of Aero Projects, as its first honorary member.

The group's membership committee made the nomination, and the membership voted — by standing ovation — in favor of the honor to Mr. Pope during a meeting last month at the University of Washington.

The action was "in recognition of Mr. Pope's service to the field of wind tunnels."

He is the author of "Wind Tunnel Testing," "Aerodynamics of Supersonic Flight," "Basic Wing and Airfoil Theory," "High Speed Wind Tunnel Testing" (with K. L. Goin 9322), and "Low Speed Wind Tunnel Testing," which will be published in June.

In 1960, Mr. Pope was president of the Supersonic Tunnel Association to which most of the members of the newer group belonged before formation of the Subsonic Aerodynamic Testing Association.

Sandia Authors

J. L. Kiker (5232), "Fixture for the In-tact Recovery of Explosively Shock Loaded Specimens," April issue, JOURNAL OF SCIENTIFIC INSTRUMENTS (published in England).

J. D. Kennedy and W. B. Benedick (both 5133), "Shock-Induced Phase Transition in Single Crystal CdS," January issue, JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS.

C. H. Karnes (1115), "Strain-Rate Effects in Cold Worked High-Purity Aluminum," forthcoming issue, JOURNAL OF THE MECHANICS AND PHYSICS OF SOLIDS.

P. B. Bailey (5261) and P. E. Waltman (former Sandian), "Existence and Uniqueness of Solutions to the Second Order Boundary Value Problem," January issue, BULLETIN OF THE AMERICAN MATHEMATICAL SOCIETY.

G. R. Case and Gail Barton (both 5623), "Integration of Experimental Data by Curve Fitting," March issue, CO-OP NEWS.

L. M. Barker, B. M. Butcher, and C. H. Karnes (all 1115), "Yield Point Phenomenon in Impact Loaded 1060 Aluminum," April issue, JOURNAL OF APPLIED PHYSICS.

B. M. Butcher (1115), "Strain Rate Effects in Metals," January issue, JOURNAL OF APPLIED PHYSICS.

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LAB NEWS

MAY 6, 1966

GOLD MEDAL AWARDED E. S. Roth (2565) during the recent ASTM Engineering Conference in Detroit is examined by Sandia President S. P. Schwartz. He was honored for "outstanding service through published literature," in particular, writings on positional tolerancing and functional gaging.



SHORT-PERIOD SEISMOMETER assembly is shown being inserted in a metal cylinder section of the nine-foot-long USO borehole package by Dean Gladow (9233). The long-period seismometer, which is not shown, fits between the nose-cone shaped cap (right foreground) and the forward lock, the section with protruding notched blocks next to the nose cap.

(Continued from Page One)

Prototype Seismic Observatory

period seismometers, has a mechanism for locking the package to the wall of the borehole and orienting it to the correct azimuth position. Where it is undesirable to drill a borehole large enough (12-inch-diameter) to accept the long-period seismometer, the seismometer package may be separated and the long-period system placed within the shelter or in a shallow hole. With the long-period system removed, the seismometer package will fit in a 7 $\frac{3}{4}$ -inch-diameter borehole.

Majority of the electronic equipment in USO is built with Vela satellite components, which have demonstrated high reliability in the satellites that have been orbiting the earth since the fall of 1963.

Major subsystems include a three-component, short-period (one second) seismometer array which can record signals as low as 2.7 millimicrons peak to peak; a three-component, long-period (15 second) seismometer array for good signal-to-noise ratio from a 30-second period to periods less than eight seconds; a modularized seismometer electronic system for the short-period system; a timing system with a crystal-controlled time base which generates timing signals to be recorded with the seismometer data; a slow-speed (0.015 inch per second) FM magnetic tape recorder capable of recording continuously for 120 days; a propane-fueled thermoelectric generator for power supply; an easily installed and serviced package configuration; and a central playback station where the 120-day data tapes from all unattended observatory installations can be re-recorded for playback at Vela standard speeds.

In 1964, the Advanced Research Projects Agency (ARPA) of the Department of Defense authorized Sandia to design, build, test, and evaluate a USO prototype capable of 120 days of continuous recording and unattended operation in remote locations.

R. S. Reynolds (9233) is project leader for the USO. Other members of the project group are C. E. Kreitler, electrical engineering; D. E. Gladow, mechanical engineering; P. A. Fjelseth, seismometer specifications and packaging; E. R. Stepka; T. L. Brake; D. D. Weber; D. F. Davis; and E. D. Zaffery (all 9233).

Promotions

Eugene J. Meyer (9323) to Staff Member Technical
Leon V. Day (7215) to Staff Associate Technical
Roland C. Hewitt (7255) to Staff Associate Technical
Leland L. Pierce (1132) to Staff Assistant Technical
Thomas V. Tormey (1134) to Staff Assistant Technical
Jake F. Gonzales (4251) to Staff Assistant Technical
Carl D. Holmes (8122) to Staff Assistant Technical
Raymond H. Foster (8233) to Staff Assistant Technical
Rambert T. Rivera (2554) to Staff Assistant Administrative
Mary T. Werner (8231) to Staff Assistant Administrative
Lawrence P. Keegan (9411) to Staff Assistant Administrative
Margarito Griego (4574) to Janitor
Frank N. Barros (4575) to Laborer
Diego Gonzalez (4575) to Laborer
Luciano Chavez (4615) to Stockkeeper
Nick S. Fajardo (4513) to Helper
John Ayala (4513) to Electrician
Willie L. Smith (4513) to Electrician
Jennifer J. Rex (4211) to Typist Clerk
Cleodia G. Snipes (2553) to Teletypewriter Operator
Richard L. Padilla (3415) to Messenger
Reba F. Shaw (4135) to Invoice Clerk
Theresa L. Blair (3126) to Secretarial Stenographer
Lorraine E. Cook (3126) to Secretarial Stenographer
Mavis R. Wackerly (3421) to Library Assistant
Nettie L. Jones (2232) to Document Clerk
Betty J. Langell (3428) to Document Clerk
Paula R. Stronach (2232) to Keypunch Operator
Donald W. Cook (2232) to Reproduction Service Clerk
Elaine A. Coons (2232) to Reproduction Service Clerk
Richard L. Miller, Jr. (2232) to Reproduction Service Clerk
Guillermo F. Griego (4545) to Service Clerk
Frances H. Morris (4212) to Senior Clerk
Delores M. Molino (2522) to Report Clerk
Theodore F. Pfeffer (2554) to Property Clerk
Harvey E. Long (4212) to Stock Analyst
Silviano Chacon (3154) to Record Clerk
Norma J. Swanson (7340) to Secretary
Eloy D. Cata (1413) to Laboratory Assistant

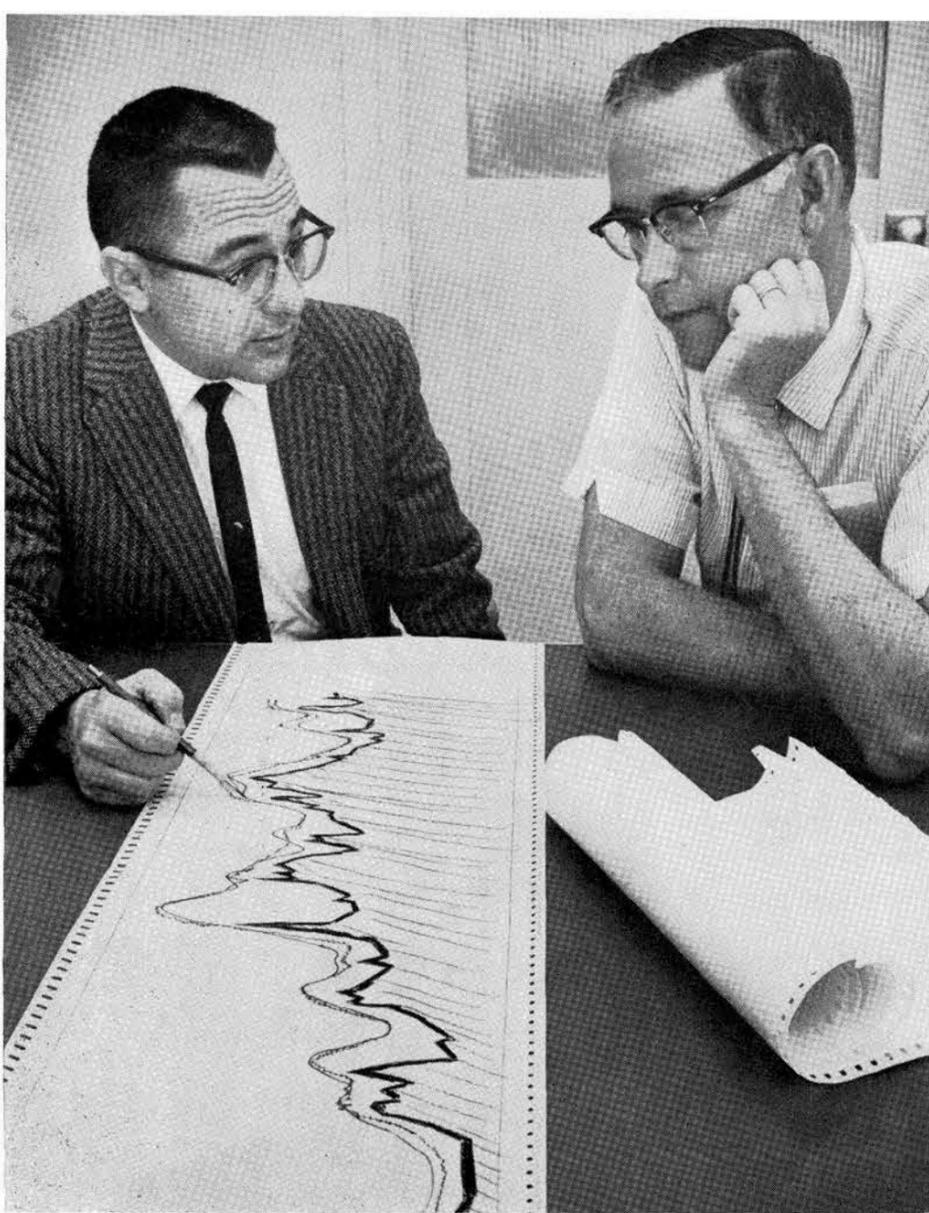
Welcome Newcomers

April 4-29

Albuquerque	
Catherine I. Abshire	4135
Dallas L. Allen	9212
Edward J. Andrade	4574
Doreen Bevans	3126
Frank C. Cabasier	4574
Sandra L. Carper	3126
Jane C. Champagne	2552
Brigitte H. Chorley	3421
Richard L. Coats	5223
Phyllis A. Dodd	9412
Josephine Emery	4574
Fidel A. Gabaldon	3126
Joan I. Gentry	3126
Jeanne R. Goetsch	3126
Betty J. Gray	4311
Gardner B. Green	4574
Simone Hurlbert	4333
Jerry T. Melchoe	3415
Mary A. Molaion	4372
*D. Phyllis Neff	4152
*Nancy J. Nelson	2211
Gail L. Poole	4545
*William H. Robertson	9213
*O'Donna B. Scalf	4211
Gail Venti	5623
Illinois	
Gerald J. Hochrein, Chicago	9323
Oregon	
Samuel W. Key, Seattle	1116
*Denotes rehire	

Congratulations

Mr. and Mrs. R. W. Lynch (5132), a daughter, Susan Elaine, April 15.
Mr. and Mrs. J. A. Corll (5132), a daughter, Rebecca Jane, April 18.
Mr. and Mrs. B. M. Garcia (2522), a son, Andrew Bernard, April 22.



DATA FROM JTF-2 TESTS conducted at Tonopah Test Range last year were used by E. A. Aronson (5263), left, to validate a computer oriented flight simulation model. G. P. Steck, right, is supervisor of Statistical Research Division 5263 which provides statistical and mathematical support to the large-scale military tests.

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LAB NEWS

MAY 6, 1966

Sailboating Popular Even in Arid N. M.

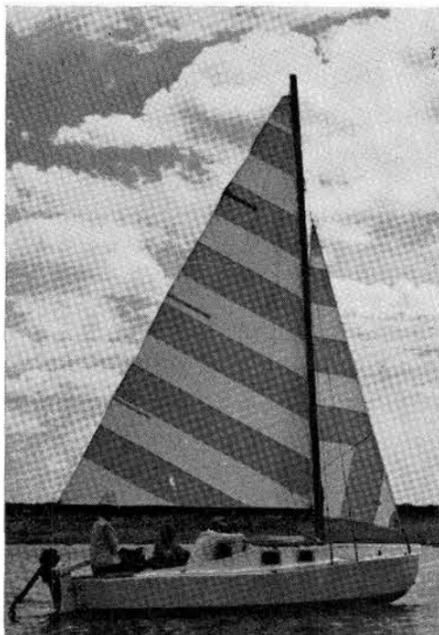
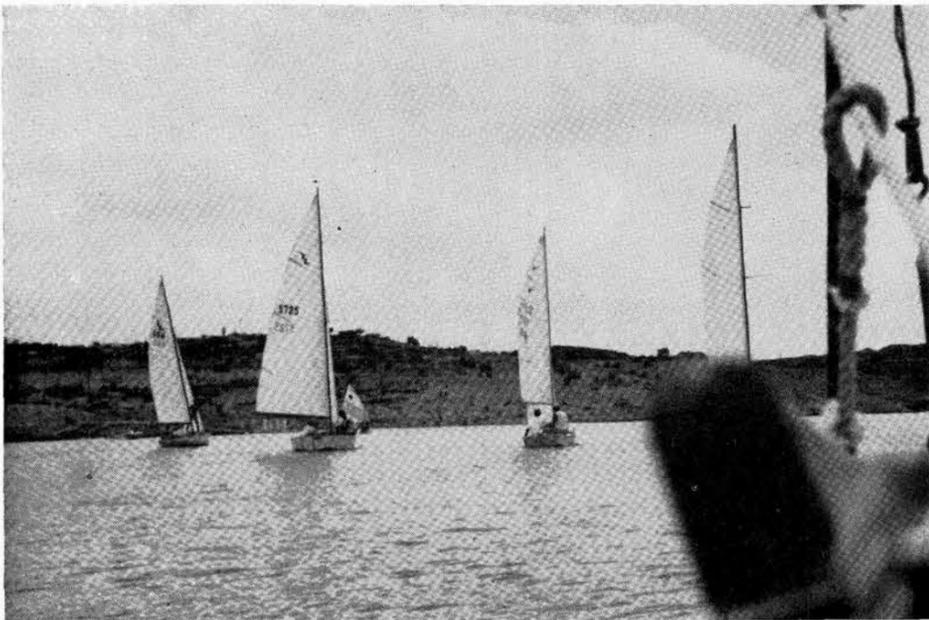
Would you believe that Albuquerque has a number of residents active in the sport of sailboating?

Enthusiastic sailors at Sandia include Al Quant (1112), Dick Rudolph (9221), Jim Appel (9319), Pete Wakeland (9200/3455), and Bob Finnell (9319). Bob is commodore and Dick is secretary-treasurer of the Rio Grande Sailing Club.

Several racing events are scheduled throughout the summer at Elephant Butte Lake. The first race this season will be on Memorial Day week-end. Since the race results are figured on a handicapped basis, the competition attracts all kinds and sizes of sailboats.

All persons interested in sailing are invited to join in the club's activities no matter whether they own a sailboat or not. For further information call the membership committee chairman at 268-1790 or any of the other club officers.

SAILBOATS owned by members of the Rio Grande Sailing Club are shown lining up for start of a club race on the Elephant Butte Lake.



SANDIAN Al Quant (1112) and his family enjoy catching the breezes at Elephant Butte Lake in their sailboat.

Statistical Research Aids JTF-2 In Test Design, Predictions, Analyses

A multitude of data without meaning or purpose is a useless thing. One of the jobs of analysts and mathematicians in Sandia's Statistical Research Division 5263 is to assure meaningful information from tests conducted by Joint Task Force-2.

The purpose of JTF-2 is to evaluate the low level capabilities of tactical and strategic aircraft weapon systems and the defense against such systems. To help accomplish this mission, a second and more complex series of nearly 500 flight tests by various types of Air Force, Navy, and Marine Corps aircraft is being staged in Arkansas, Louisiana, and Oklahoma (the first series was in Nevada). The program is under the direction of the Joint Chiefs of Staff with Sandia providing scientific and technical assistance to the JTF-2 headquarters on Sandia Base.

The total effort has a degree of sophistication without precedent in large-scale tactical testing.

Division 5263 is the major sub-element working with the Systems Evaluation Department of Sandia's Special Projects Organization on JTF-2 projects. As supervisor G. P. Steck explains, "This is the first time we've done anything of this magnitude, and we've been very gratified with the reactions of military operations people."

The division's assignment is two-fold: 1) design of the tests, development of statistical models, and analysis of the resulting data, and 2) creation of more complex mathematical models to predict the results. W. J. Zimmer (5263) and R. R. Prairie, supervisor of Statistics and Computing Division 2153, are working on designs, statistical models, and analyses, and W. H. Bradford (5263) created the mathematical model for the forthcoming series of target acquisition and navigation tests in Arkansas. Others in Division 5263 concerned with modeling aspects are C. E. Abraham, M. S. Tierney, Sarah Van Domelen, and E. A. Aronson.

The work evolves from long series of meetings and is dependent upon test objectives set by JTF-2 and approved by the Joint Chiefs of Staff. "At this point we become involved in discussions," W. J. Zimmer explains, "because there is usually a compromise between the design of tests which operations people might wish to conduct and those which would give us the maximum amount of desired information."

The test conducted last year at Tonopah Test Range was designed to determine how close to the ground different types of aircraft could be flown on the first sortie over varied types of terrain. "It was a case of large scale testing," Mr. Zimmer recalls, "because we didn't know how low the pilots could fly the planes and how low flying would be affected by speed and by the type of terrain. Our first consideration was how much clearance above terrain was considered important and how much variability there would be among the pilots. Recognizing these factors it was then decided how many sorties would have to be flown over the course in order to be satisfied that the observations would provide meaningful information."

Some 1300 clearance distribution and flight profile summaries were obtained during 464 flights over the 150-mile marked course at Tonopah Test Range and were used to study certain features such as mean and median clearances, pilot variability, etc. These statistical analyses comprised 50 percent of the contents of the JTF-2 test report dated December 1965, and additional analyses are planned.

Mr. Zimmer took certain portions of summary data from the Tonopah tests to develop a linear model to predict what kind of clearances a group of pilots would have at specific speeds.

E. A. Aronson also used data from the Tonopah tests to validate a computer oriented flight simulation model based on theory as well as fact. A major problem is determining whether an aircraft's trajectory can be reproduced by knowing only the course terrain and clearance data. He is also predicting air space ceilings for the Federal Aviation Agency to assure that JTF-2 tests will not interfere with commercial air traffic lanes.

For same months W. H. Bradford has been working on a mathematical model for the forthcoming Arkansas tests, which will determine the difficulty of locating targets from low-flying planes. He describes a model as "a sequential series of calculations programmed on a digital computer to simulate real world situations." A model can aid in the design of the field test—

in that major parameters and their sensitivities may be determined. Once a model has been validated by test data, extrapolations may be made to other situations and environments not covered in the field test. The present model represents an attempt to give probability of acquisition as a function of the target characteristics (contrast, size, and shape), visibility conditions, range from target, and other factors thought to be pertinent.

"This modeling has more uncertainties in it than previous models I have developed in systems analysis," Mr. Bradford said. "On the other hand, normally there is no chance to test a model as thoroughly. Here we are closely associated with a large test organization from inception of the tests design to its conclusion with an opportunity to update and validate a mathematical model."

In the Arkansas tests another of the division's members, M. S. Tierney, is interested in a mathematical representation of the human visual search problem. This includes answering the questions: What is a pilot's search pattern? What makes an object visually significant? When does a pilot visually recognize the object he is scanning? "We have to base possible solutions on basic assumptions," he said, "because you cannot mathematically model psychological differences."

Mr. Tierney also has a long range research project underway in which he is studying ways to digitize contour maps into a computer program. "It is tedious and time-consuming to take a small section of a map, read the contour changes, and transfer this information to key-punched cards," he said. "I'm trying to use only statistical properties of a type of terrain—such as distance between peaks and valleys or slope of the mountains—and generate from this information artificial terrains which are hopefully sufficiently similar to terrain that does exist to be useful for computer simulation purposes."

Still another of his projects is to determine if modeling would be necessary—or if JTF-2 could obtain meaningful information—from a series of tests planned by the Navy (called "Benchmark") to study defense of ships against airplanes coming in low over the ocean.

Mr. Abraham and Mrs. Van Domelen are modeling gun test problems and assessing correspondence of physical test layout with test design requirements.

Take Note

Flavio Gonzales (4212) was installed May 2 as commander of Carlisle-Bennet Post 13 of the American Legion. This is the second largest Post in New Mexico with about 1400 members.

A Legionnaire for 11 years, Flavio served this past year as vice commander, and last fall the American Legion National Executive Committee appointed him to a one-year term on the National Committee on International Affairs.

George Dalphin (3421) and his wife Peggy have a dozen paintings of assorted subjects and a brass casting on display in the lobby and auditorium areas of the Old Town Studio, 1208 Rio Grande NW.

Lloyd E. Fuller (3110) addressed a dinner meeting of the New Mexico Personnel Association at the Alvarado Hotel, April 27, on "Wage and Salary Administration." William P. Harvey (3111) is secretary-elect of the association.

Jim Edgeington (2542) is the new president of the Sandia Toastmasters Club 765. Other Sandians serving as officers for the new term include Cecil Johnson (2443), secretary; Walt Dauphinee (2545), treasurer; and George Kupper (4135), sergeant-at-arms.

The group meets each Thursday at 6:30 p.m. for dinner at the Belvue Christian Church. Anyone interested in joining the organization for a program of speech skills and self improvement may contact Mr. Edgeington, tel. 299-9458.

Two Sandians presented lectures recently during an evening course in Quality Control offered by New Mexico State University at Las Cruces.

A. C. Littlefield (2442) spoke April 12 on "Test Equipment Reliability" and W. E. Boyes (2140) discussed "AEC's Program for Control of Quality and Reliability" on April 26.

There are about 125 persons enrolled in the 10-week course.

Service Awards

20 Years



J. F. Bryson
8223



W. G. Funk
3150



W. H. Kingsley
3310



J. E. McGovern
4310



L. E. West
9424



H. L. Bigley
3242



W. H. Buckalew
5222



R. W. DeVore
2110

15 Years



J. R. Duran
4611



E. C. Fuentes
2444



M. J. L. Gallegos
2514



Consuelo Gonzales
3421



D. A. Hitchens
8113



G. J. Hurley
7512



W. A. Johnson, Jr.
4623



P. C. Kind
4573



B. L. King
3242



R. W. Olson
5141



S. B. Shannon
4254



Mary E. Sparger
8241



C. T. Stewart
2132



J. Q. Toler
3242



Malcolm Ward
4518



W. D. Wing
2114

10 Years

May 6-19

N. J. DeLollis 1133, M. E. Morris 2126, W. A. Walton 2512, E. A. Aronson 5263, L. D. Hubbard 7324, D. J.

Perrette 7332, A. P. Lites 7521, Richard Sanchez 1413, W. Maxine Schafer 3341, R. B. Hedberg 7223, Mary H. Dean 3421, R. E. Foster 7244, J. R. Meacham, Jr. 2126, J. T. Hillman 2134, W. L. Gault 7233, A. M. Cockrill 7252, Onesimo Martinez 4212, William Meador 4231, G. C. Baca 4517, A. J. Canute 9222, and R. G. Hogan 5520.

Retiring . . .

Claude C. Edwards will retire May 24 after almost 14 years as a maintenance electrician at Sandia Laboratory.

Claude plans to devote more time to church work. He also intends to do more camping and fishing.

Mr. and Mrs. Edwards live at 8905 Shoshone Rd., NE. They have four married children living in the Albuquerque area, one in Colorado, and 11 grandchildren.



Naomi E. Bennett retired April 22 after more than 15 years at Sandia Laboratory.

Naomi came to the Laboratory in March 1951 and worked in fabrication for the first year and a half. She then transferred to inspection where she has been for the last 13½ years.

After retirement, Naomi plans to devote more of her free time to her avocation of playing the organ.

Mr. and Mrs. Bennett have left Albuquerque for their new home at 1514 Eastwood Dr., Las Vegas, Nev.

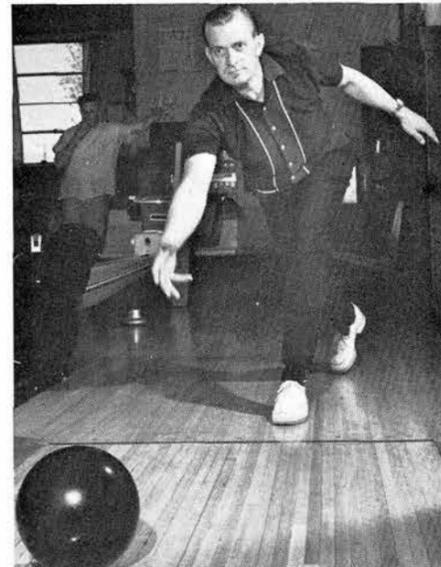


Ruth A. Redmond, a Sandia employee for almost 14 years, retired April 30.

After joining Sandia in July 1952, Ruth worked in quality assurance for eight years. For the past six years she has been working with the classified information records group.

Ruth, who has assisted her married daughter in doing voluntary work for retarded children, intends to devote more time to this type of service after retirement. She also plans on spending more time with her daughter and five grandchildren who live in Los Lunas.

Mr. and Mrs. Redmond live at 521 Grecian Ave., NW.



TOP BOWLER—Herb Sisson (7255) earned the Sandia Laboratory bowling crown by winning the All-Events title in the recent Sandia tournament.

Herb Sisson Takes Laboratory Bowling Crown in Tourney

Herb Sisson (7255) emerged top bowler at Sandia Laboratory by taking the All-Events Championship of the recent Second Annual Sandia Laboratory bowling tournament. The tourney, played April 19-20 and April 26-27, had 129 competing in all-events, 168 singles and doubles entries, and 34 teams participating.

Winner in the handicap all-events was John Ford (1334). Top scratch singles competitor was Don Coleman (4131) who also took the handicap contest. Doubles winners (scratch) were Dave Kendall (2412) and Leo Bresson (2412).

Handicap doubles winners were Mike Ryancsak (4512) and Dave Smith (4213).

Members of the championship team were Paul Gregg (2213), John Marcon (2451), Jim Dyer (1313), Herb Sisson (7255), and Dutch Eisold (2213). Dutch was the tournament director.

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LAB NEWS

MAY 6, 1966

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

- '59 VW SEDAN, radio, other extras. Hollingsworth, 299-8171.
- ROLLAWAY BED. Pitti, 256-1629.
- '63 CORVAIR, 700 series, 6-cyl., new tires, R&H, 29,000 miles, reclining seats, one owner, \$795. Coughenour, 296-4146.
- DRAPES: 1 pr. beige, full length; 1 pr. green print, short; 2 pr. white background w/aqua, short. Bartlett, 299-4861.
- 3-BDR. BRICK, SE, den, dbl. garage, 2 1/4 bath, hv/f, cfa, AC, carpeting, drapes, fireplace, fully landscaped, dishwasher, Hogan, 256-7832.
- SIMCA '59, 4-dr., recent overhaul, 38,000 miles R&H, \$250. Garcia, 242-1182.
- FLUTE, factory overhauled and repadded, cost \$250 new, sell for \$100 cash. Fisher, 265-0626.
- ONE ACRE HOMESITE Holiday Hills, city electricity, on State Hwy 217 South, free water. Elder, 268-7479.
- SONY 500A stereo recorder, \$195; 4x8 tire and tube, unused, \$7.50; Winchester 12 ga., double \$65. Schiess, 255-3252.
- '60 PORSCHE CONV., sell for \$1500, \$200 below Book. Hitchcock, 247-1711, ext. 3405 weekdays only.
- '64 DKW, 30,000 miles, make offer. Berry, 898-1400.
- GARDEN TRACTOR, lawn mower, rototiller attachments, \$15. Class, 298-6062.
- '63 TRIUMPH Spitfire, \$1200. Satterwhite, 298-7893.
- ROBERSON 3-bdr., covered 12'x40' patio, 1 1/4 baths, built-in electric stove, fireplace, AC, carpeting, 10909 Elvin NE, \$16,300. Putnam, 299-7142.
- BAR-B-Q wagon w/electric motor; GE electric range. Grant, 405 Palomas, NE.
- NE LOCATION, 3-bdr., 1 1/2 bath, attached garage, fp, electric built-in kitchen. Jarvis, 298-8294.
- FREE HO equipment. Nielsen, 255-2045.

- MOTOROLA TV and radio, make offer. Morrissey, 247-1130.
- GE portable air conditioner and stand, \$15. Cowham, 298-4249 after 5 p.m.
- GARRARD AT6 record changer and base, portable 2-speed tape recorder, 5-inch wide-band scope, sine-wave audio generator, best offer. Shanfeldt, 256-7210.
- \$1000 below appraisal, Roberson 3-bdr., 1 1/2 baths, den w/fp, corner lot, near Eastdale, refinanced at \$18,400 or take present 5 1/4%, \$14,250 loan w/\$3200. Duvall, 299-8744.
- FORD AUTO air conditioner, complete, \$50; 1-wheel luggage trailer, \$30. Benedict, 247-3572.
- 26-INCH HERCULES bicycle w/baby seat; mattress and springs for dbl. bed; w/baby furniture and equipment. Eberhart, 268-6943.
- JAPANESE version of Leroy Lettering Set. Moore, 299-3758.
- AMATEUR radio antenna system, 10-15-20M, quad, coax, selector switch, 32-ft. tower, prop pitch rotator, control, indicator. Cannon, 299-4592.
- CONN ORGAN, 2 61-note manuals, 25-note pedal; separate 50-watt Leslie tone cabinet; cost \$2700, will sell for \$1500. Bircher, 268-0726.
- STOVE, Kenmore electric, white, dbl. oven, rotisserie, four burners and grill. Armijo, 256-1629 after 5.
- UPRIGHT Admiral freezer, \$125; full-size violin, \$25. Daniel, 268-8335.
- 3-BDR. HOME, pitched roof, walled yard, carpet, drapes, near schools, Bases, and shopping, \$12,500. Erme, 299-0565.
- '60 CHRYSLER, PS, PB, AT, rigged for wife and small children. Corill, 255-5685.
- OLD-FASHIONED wall telephone, \$35. Lovelace, 299-9666.
- DRESSING TABLE w/mirror and bench, cost \$80, sell for \$27.50; 4 table lamps, 1 floor lamp. Nichols, 247-2564.
- '60 OPEL WAGON, \$395; '56 Plymouth wagon, \$225; '56 Cushman scooter, just overhauled. Fackelman, 299-8258.
- PEMBROKE WELSH CORGI puppy, AKC registered, all shots. Day, 256-6360.
- TWO MOUNTAIN LOTS, 100x150', Manzano Estates. Camp, 865-7839.
- '51 FORD TRUCK, 6-cyl., 6-ply tires, 3/4 ton. Colclough, 256-2907.
- PLAYPEN w/pad, \$8. Negus, 299-9232.
- '57 PLYMOUTH 4-dr., Belvedere, new motor and transmission, \$375. Govey, 299-8901.
- HQ-140-X RECEIVER, \$100; Viking II transmitter, complete, \$110; other items also, call for list and prices. Jones, 268-4954.
- 23" PHILCO Console TV, walnut cabinet, \$75; girl's bike, 24", \$10; .22 cal. revolver, \$20; Kroehler sofa bed, \$10; '56 FORD Fairlane 2-dr., V8, R&H, \$225. Whited, 298-3807.

- 21 FT. INBOARD, rebuilt engine, enclosed head, galley, trailer. Doherty, 255-8891.
- MEMBERSHIP 172 flying club, \$550; OTSMOH, chromed cylinders, dues \$10/mo., \$5/hr. wet, recently painted. Harkwell, 255-7527 or Arlowe, 298-1770.
- '55 CHRYSLER Imperial, \$150; large box maternity clothes, approx. size 14, all for \$10, includes blouse, skirts, slacks, shorts. Blair, 265-0686.
- DEER RIFLE, Springfield 3006, 4-power scope, new. Miller, 298-1514 evenings.
- TUBELESS NYLON TIRE, 7.35x14, replaces 7-00x14, tire has never been mounted and still has original paper label attached, \$10. Kleotka, 299-8198.
- 3-BDR., 2 baths, dbl. garage, excellent water, 1 acre, 1 1/2 miles south of 66 on 10, \$29,900. Flowers, 282-3458.
- '65 BSA motorcycle, 650cc.; two Lafayette transceivers, 5 watt. Littell, 255-2716.
- 3-BDR., 1 bath, 3/4 rough-in; daylight basement, separate DR and garage, approx. 2000 sq. ft. living area, 2.22 acres near Placitas. Nelson, 298-9290.
- STEREO amplifier, Sherwood, 50 watt, will run two 25-watt speakers, \$59.50. Henry, 256-2467.
- PHILCO electric stove, large auto. oven, white; Hotpoint portable dishwasher, full size make reasonable offer. Ricker, 256-2678.
- TWIN-SIZE Empire inner spring mattress, \$10. Brown, 255-0566.
- 80cc YAMAHA motorcycle, '65 model, cost new \$376, sell for \$225. Miller, 9901 Aztec Rd. NE, 298-1994.
- 3-BDR., 1 1/4 bath, den w/fp, NE Hts., landscaped, cfa, fenced front, walled rear, near schools, shopping, entertainment, \$1200 below FHA appraisal. Post, 298-0481.
- '57 DODGE, 9-pass. station wagon, R&H, AC, engine and auto. trans. overhaul, \$350. Appel, 299-3776.
- HARLEY SPORTSTER, '62 XLCH, 9300 miles, metallic blue and white, \$865. Sutton, 296-1157.
- 3-BDR., brick, 1 1/2 baths, carpeted, drapes, many extras. NE location, \$14,200; '62 TR-4, \$1195. Wilson, 298-0049.
- '63 YAMAHA motorcycle, 250cc, \$325. McAvoy, 256-3215.
- BUCKSKIN MARE, 8 yrs. old, very gentle, ideal for children. Folkins, Placitas, N. M., 867-2974.
- REFRIGERATOR w/separate freezer compartment; gas range; large window-type air conditioner. Gonzales, 247-1916.
- '64 AMERICAN WESTWOOD, 2-bdr. 12x57, cash or trade for equity in Heights home, \$6500. Belden, 344-0730.
- FREEZER, 25 cu. ft. Maytag upright, \$325 or best offer. Comiskey, 256-0617.

- 5 1/2" SKILL SAW; Benjamin air pistol w/holster; Japanese Luger; electric shoe polisher; Regency mobile converter; Meissner signal shifter; orbital sander. Rudolph, 298-0941.
- BICYCLE, Sear's 26", boy's, small tires, thornproof tubes, 2-speed Bendix brake, chrome and red finish, mouse trap carrier, \$35. Ford, 400 Valencia NE, 255-6617.
- \$75 NEW Electronic Minivas 601 computer, manufactured by Scientific Development Corp. Borg, 268-0285.
- '58 PLYMOUTH station wagon, V8, AT, PS, \$195; '59 Chev. 4-dr. sedan, PS, AT, \$295. Abbott, 299-8860.
- '63 IMPALA convertible, original owner, all power including air. Bascom, 298-1998.
- FREE KITTEN. Webb, 298-8139.
- '48 CHEVROLET 4-dr. sedan. Rainey, 255-5660 after 5.
- GAS DRYER; washing machine; sewing machine; floor polisher; swivel rocking chair; car seat. Daniel, 298-4213.
- KENMORE automatic 2-speed washer, 4 yrs. old, \$35; Electra electric lawn mower, 4 yrs. old, \$20. Zuckuski, 268-3105.
- '63 RAMBLER American 2-dr. HT, 6-cyl., bucket seats, stick shift w/OD, R&H, consider trade. Young, 268-3209.
- GERMAN SHORTHAIRED POINTER, from champion AKC breeding, male or female. Tessler, 296-1025.
- YOUNG female dog, 1/2 Collie, Collie features predominates, about 6 months old, \$5. Cox, 299-2395.
- FREE PUPPIES, 6 wks. old, part collie, part German shepherd. Dester, 298-9506.
- EXTENSION LADDER, VTVM, R-C bridge; Polaroid camera; bowling outfit; portable radios; photo copiers; time switches; planimeter; biography set. Quinlan, 296-3336.
- 2 FLOOR LENGTH Spring formals, 4 semi-formals, size 9-10. Shew, 299-8045.
- 3-BDR., 1 1/4 baths, many extras, near Sandia, \$450 down. Barker, 299-1483.
- 22" ROTARY LAWN MOWER, 3 hp Briggs and Stratton engine, \$20; 6-yr. crib and mattress; stroller; high chair. Workman, 298-8201.
- BRICK 3-bdr., 1 1/4 baths, disposal, enclosed patio, attractive entrance, drapes, carpeting, \$15,300. Schroer, 299-2090.
- '59 GALAXIE, auto., V-8, 2-dr., R&H, \$300, 5835 Fourth NW. Hill, 344-1069.
- GIRL'S 26" Schwinn bike. Ginder, 299-2937.
- BOY'S 26" bike, deluxe model, \$25; B&H Zoom movie camera and case, \$50. Butler, 299-5626.
- '59 BUICK Invieta 4-dr., PS, PB, AC, AT, \$450. Scranlon, 299-5720.
- '65 FORD camper special, 3/4 ton, V-8, 4-spd trans., heavy duty tires, inter-com, radio, truck under new car warranty, 6500 miles, new 8' over-the-cab Travel Queen. Fawer, 298-6579.

FOR RENT

- 3-BDR., 1 1/4 baths, AC, unfurn., built-in stove, water paid, walled yard, patio, sprinklers, no pets, 8811 Claremont, July 1, \$145/mo. Finley, 299-0739.
 - FURNISHED APT., modern 3 room duplex, full tile bath, carpeted, dbl. closets, TV, one apt. has twin beds, corner Candalaria and Arno NE, \$60, off-street parking. Browne, 344-9675.
 - 15' TRAVEL TRAILER, my personal trailer, reserve now for summer vacation, reasonable rate. Colp, 268-8035.
 - 3-BDR. and den, carpeting, drapes, stove, refrigerator, AC, near shopping and Bases. Hansen, 898-3173.
 - APT., 3 blocks from Sandia Base, 2-bdrs., unfurnished, carpeting, \$105/mo., concessions. McGuire, 255-5048.
- ### WANTED
- WANT to join driving pool from vicinity of Valencia and Claremont NE to Bldg. 880. Westman, 255-6048.
 - TRADE: \$3400 equity in 3-bdr. brick home, near Winrock, for late model car, truck, camper, or boat. Guerin, 299-4677.
 - SKILLED LABOR for laying brick in exchange for walnut bedroom set, Drexel "Profile"—bed, dresser, and mirror. Dossey, 256-0857.
 - THEATRE "angel" to give Old Town Studio used air conditioner in exchange for lifetime tickets. MacCallum, 242-4602.
 - WILL PAY cash for pistols and revolvers, Colt, S&W, GI '45's, Lugers, Mausers, Walthers, etc. Morgan, 299-2850.
 - NEED RIDE from 836 to 216 Espejo NE, after work. Cooke.
 - 3 OR 5-TON hydraulic jack. Burnside, 344-0818.
 - CEMENT MIXER w/ or wo/motor. Pitti, 256-1629.
 - PORTABLE net-type playpen, chest of drawers. Colgan, 243-4882.
 - FURNISHED HOUSES and apartments, 1, 2, 3, and 4 bdrs., from June until Sept. for Sandia Corporation summer employees. Employee Services Division, 264-2757.
 - RIDE to Bldg. 800 in mornings, vicinity of Girard and Burton. Jones, 255-3390.

LOST AND FOUND

- LOST—Small key, black Papermate pen w/silver top, 4 or 5 keys in lady's red leather case, tie chain w/15-yr. emblem, gold earring w/2 birds on perch, clip-on-type sunglasses, Father Pio (man w/beard and yellow halo) medal, prescription glasses w/black plastic rims. LOST AND FOUND, tel. 264-2757, Bldg. 610.
- FOUND—Blue Papermate pen w/silver top, clip-on sunglasses w/gold rims, yellow penknife w/3 blades, bifocal glasses w/brown top and silver lower rims, "gas" key. LOST AND FOUND, tel. 264-2757, Bldg. 610.



Base Fire Chief Honors Sandians

James T. Knott and Tom Silva, Jr., of Plant Systems Division 4511, were honored last week by Lawrence W. Walsh, Sandia Base Fire Chief, who presented each of the Sandians with a Defense Atomic Support Agency Certificate of Appreciation.

The award read, "for outstanding cooperation with the Sandia Base Fire Department in the maintenance of fire protection equipment."

The Sandians are responsible for regular inspection and maintenance of 107 fire protection water systems and 43 fire detection electrical systems at Sandia Laboratory.

Following the award ceremony, Plant Engineering personnel recognized Mr. Knott's years of service at Sandia with a break-time party and the presentation of a portrait-sketch signed by his co-workers. Mr. Knott retired from Sandia April 29.

HONORED—James T. Knott (left) and Tom Silva, Jr. (center) were awarded certificates of appreciation last week by the Defense Atomic Support Agency for "outstanding cooperation with the Sandia Base Fire Department in the maintenance of fire protection equipment." L. W. Walsh (right), Base Fire Chief, made the presentations.

Deaths . . .

Henry W. Carrejo, who retired from Sandia Corporation June 1, 1964, died April 17 after a long illness. He was 66. He had worked 12 years for Sandia primarily in salvage operations.

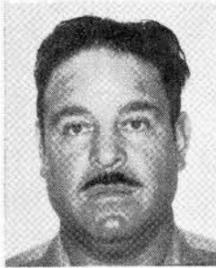
Survivors include his widow, seven sons, six daughters, 25 grandchildren, and one great grandchild.



Eduardo M. Chavez, Jr., a Sandia employee since October 1951, died suddenly April 30. He was 47.

He worked in Explosives and Material Handling Division 4614.

Survivors include his widow and a son, Arthur, age two.



New Method of Studying Metal Droplet Combustion Developed

A Sandia research team has established flash heating as a significant new method of studying metal droplet combustion—a poorly understood phenomenon—and has made several interesting discoveries during recent experiments.

The flash heating technique developed by L. S. Nelson and his assistant, N. Richardson (both 5234) consists of dropping small squares of metal foil down a glass tube, melting them with an externally located helical flash lamp, then observing the resulting molten droplets with high speed cameras.

Flash heating experiments have provided Sandia with information relative to burn-up of molten metal particles from vehicles (isotopic generators) re-entering the earth's atmosphere, but the technique is also expected to provide others with data on combustion of rocket fuels and carbonaceous materials.

The new technique has none of the disadvantages of other combustion study methods—grinding wheels, oxygen and plasma torches, and pyrotechnic mixtures (sparklers).

Greatest advantage of the technique is the contamination-free experimental environment made possible by the externally located heat source. Combustion studies have long been complicated by side effects introduced by contamination from the heat source.

Flash heating also permits precise control of droplet size and number, and allows pressure and content of atmosphere within the tube to be regulated exactly. The apparatus requires no warm-up time, is relatively inexpensive, and has the high ultimate temperature (10,000° K.) and

New Sanado Club Officers Will Be Presented at Formal Ball May 14

New officers of the Sanado Club will be presented Saturday, May 14, during the organization's annual formal dinner dance. The festive event, called "A Night in Spain," will begin with a social hour at 6 p.m., followed by a roast beef buffet from 7 to 8:30, and dancing to the music of the Lamplighters from 9 until 1 a.m.

The new officers are Mrs. J. N. Colquitt, president; Mrs. C. R. Pritchett, first vice president; Mrs. G. D. Horne, second vice president; Mrs. L. A. Fjelseth, third vice president; Mrs. B. E. Hickerson, fourth vice president; Mrs. Eugene Glaze, fifth vice president; Mrs. E. E. Ives, secretary; and Mrs. Stanley Landrith, treasurer. They will be presented during the ball by S. P. Schwartz, Sandia Corporation President.

For the evening, the Coronado Club will be decorated with typically Spanish accessories to complement the newly-remodeled Club interior and the new wrought iron chandeliers, handcarved doors and beams, and red velour draperies.

In the foyer where the new Sanado Club president and Mrs. R. W. Mottern, retiring president, will be greeting guests, a bubbling fountain will be set against a background of shrubs, flowers, and exotic birds.

Decorations for the event will be under the direction of Mrs. H. C. Olson. For the focal point of the ballroom she plans to display a large wrought iron bird cage filled with crimson hibiscus and brilliantly colored birds.

Lighted alcoves of the white Spanish fireplace will be decorated with lacy fans and wrought iron candelabra. These arrangements have been made by Mrs. Lewis Larsen assisted by Mrs. G. W. Treadwell, Mrs. M. M. Newsom, Mrs. D. W. Bauder, and Mrs. G. S. Kinoshita.

A balcony effect employing iron railings will be created around the stage. New backdrop to the stage is a green and gold damask drapery with a swag valance. Mrs. H. L. Crumley is chairman of this committee with Mrs. R. L. Eno and Mrs. K. C. Goettsche assisting.

Table decorations will consist of bird-cages with vines and flowers set amid candles on carved wood bases. Centerpieces will be made by Mrs. J. C. Eckhart, Mrs. E. E. Bylander, Mrs. R. E. Adams, and Mrs. A. G. Carpenter. Mrs. M. A. McCutchan is chairman of the committee.

Tickets are available at the Coronado Club office and table reservations will be made in the order in which they are received.



NEW PRESIDENT of the Sanado Club, Mrs. J. N. Colquitt (left), will be presented along with other new officers at the Club's annual formal dinner dance May 14. Mrs. R. W. Mottern (seated), retiring president, will greet guests.

Activities at the Coronado Club

Three Friday evening social hours climaxed with an adult go-go May 20 account for most of the activities planned at the Coronado Club for the next two weeks. Two big events—opening of swimming season and a "Hong Kong Holiday"—are scheduled later in the month and these are worth waiting for.

Social Hour

Tonight the Starlighters will provide the happy music and the chicken buffet will be served.

On May 13, Tommy Kelly's combo will play and the popular Mexican buffet is scheduled.

On May 20, Bud Fisher's group will be on the bandstand and the menu is the seafood buffet. Prices for all Friday night buffets are \$1.25 for adults, \$1 for children. The go-go follows at 8:30 p.m.

Sanado Club

Two Sanado Club women were honored last month during the annual Matrix Table luncheon, sponsored by Theta Sigma Phi, professional organization for women in journalism and communications.

Mrs. John Findlay was singled out for a Headliner award, given for contributions to the community. She was one of the founders of Sanado Woman's Club, is past president of the Symphony Women's Association, has worked with the American Field Service, and founded a Girl Scout troop.

Mrs. L. A. Fjelseth was the volunteer publicity contest winner for division four (organization with 101 or more members). This was the second year Mrs. Fjelseth has been recognized for her publicity work for Sanado Club.

TDP Families Picnic At Servis Country Home

All present and former TDP participants at Sandia and their families are invited to attend a barbecue May 8 at the home of Ed Servis (3134), south of Albuquerque near Valencia.

The social function is sponsored by the TDP Wives Club and is one of the group's regularly scheduled activities. Ed, in his work with University Relations Division, has had an occasion to meet many of the TDP students. Last year about 120 TDP men and their families attended a monthly meeting held at the Servis home.

Further information about this Sunday's barbecue may be obtained from Mrs. Jim Hyland, club secretary, at tel. 298-2398.

Club members are also reminded of the "after comps" party to be held Friday, May 13, at Sunset Inn from 5:30 to 11 p.m.

Sandian Arranges for Mental Health Arts, Crafts Exhibit

Howard Durham of Advanced Systems Research Staff 5590 is chairman of the Inter-institutional Arts and Crafts exhibit, part of the Mental Health Fair, now on display at Winrock Center. Howard was instrumental in arranging the exhibits from the 19 public and private mental health institutions in the state.

On display are paintings, leatherwork, basketry, and other crafts produced at the institutions.

Sandia's Safety Scoreboard

Sandia Laboratory:

26 DAYS
910,000 MAN HOURS
WITHOUT A
DISABLING INJURY

Livermore Laboratory:

125 DAYS
644,500 MAN HOURS
WITHOUT A
DISABLING INJURY