

SAILPLANE with G. A. Fowler at controls soars over Albuquerque's west mesa area. In this Schweizer 1-26, owned by the Albuquerque Soaring Club, he set a new high altitude record of 28,300 feet for sailplanes in New Mexico.

Work, Recreation Require Effort For Satisfaction, G. A. Fowler Says

On Feb. 23, at 28,300 feet altitude near the little town of Manzano, Sandia Vice President Glenn A. Fowler set a new high altitude record for sailplanes in New Mexico.

In a Schweizer 1-26, he rode a rising wave of air in the FAA-designated glider area downwind from the range of mountains topped by 10,000-foot Osla Peak. It took an hour to reach the record-setting altitude in the motorless craft, and then Mr. Fowler took another hour to enjoy the view.

A typical reaction, he has been combining achievement with pleasure throughout his life.

Any kind of achievement requires concentration, he says, along with intensive effort and basic skill. If you work hard at your job, then your recreation should demand an equal concentration of effort to be effective, to provide the total break in routine which allows you to return to your job refreshed and with renewed enthusiasm.

Soaring provides this kind of recreation, he says. After being towed to a couple of

thousand feet altitude by a towplane, it requires concentration and skill to gain altitude in a sailplane. You search for the thermals or mountain waves, watching the ground and the clouds for clues, and concentrate on the variometer, an instrument which indicates the rising currents of air. When you "top out the wave," then you can stay aloft for awhile — free in the silence of the clouds.

As a Sandia Vice President, Mr. Fowler is concerned with decisions — long range decisions which affect the future of Sandia (Continued on Page Two)



SANDIA LAB NEWS

VOL. 20, NO. 6, MARCH 24, 1967

SANDIA LABORATORIES

ALBUQUERQUE, NEW MEXICO; LIVERMORE, CALIFORNIA

OPERATED BY SANDIA CORPORATION FOR THE U. S. ATOMIC ENERGY COMMISSION

O. M. Stuetzer, New IEEE Fellow Honored at New York Banquet



Otmar M. Stuetzer, manager of Technical Physics Research Department 5140, was one of the recently-elected Fellows honored by the Institute of Electrical and Electronics Engineers in New York City this week.

The annual banquet, at which the Fellows are recognized and major awards are presented, was part of the IEEE International Convention and Exhibition. Howard W. Johnson, president of Massachusetts Institute of Technology, was the main speaker.

Mr. Stuetzer was honored by IEEE "for contributions to semiconductors and electrohydrodynamics devices, microwave systems, and management of applied science." The grade of Fellow is IEEE's highest grade of membership and only scientists and engineers making outstanding contributions in the fields of management, engineering, or education are elected to receive this recognition.

At the section level, Mr. Stuetzer has been a guest speaker at several meetings and has served in an advisory capacity for many committees. He is technical program chairman for the IEEE Region Six Conference to be held in Albuquerque, May 9-11.

Mr. Stuetzer has been with Sandia Laboratory since 1962 and is responsible for research in ferroelectric and magnetic components and devices. Previously he was with General Mills' former Electronics Division for eight years; was in research at Wright-Patterson AFB in Ohio for 10 years; and prior to 1946, was with research institutes operated by the German Air Force.

He has undergraduate and graduate degrees (a Master's and two PhD degrees) in the fields of physics and engineering from the University and Institute of Technology in Munich, Germany.

Mr. Stuetzer holds a number of patents in this country and abroad. He is a registered professional engineer, a Fellow in the American Physical Society, a member of the American Institute of Aeronautics and Astronautics, and the American Ordnance Association.



NEW AREA III CAFETERIA building is complete with only additional equipment remaining to be installed before the opening in early April. T. C. Morgan, left, and C. B.

O'Keefe (both 3126) discuss menus for luncheon service. The entire north side of the building contains large windows with a view of the Sandia Mountains.

Sandia Serves in Study of Spectrum

Rocket Launched into Aurora Borealis

A team of Sandians launched a Nike-Tomahawk rocket into an aurora borealis (northern lights) display Feb. 28 from Fort Churchill, Canada. The rocket carried three Los Alamos Scientific Laboratory instruments to probe the physics of the auroral spectrum.

Three scientific instruments were flown — a filter-wheel photometer, an ultraviolet spectrometer, and an electron spectrometer. Performance of the latter two instruments could be checked only in a vacuum, hence the entire instrument compartment in the nosecone was evacuated to a pressure of 10^{-4} torr with a high vacuum pumping system. The vacuum was maintained while the vehicle was on the launcher.

The Sandia group's role in the project included designing the electronic systems for the LASL instruments, engineering the instruments into a 12-inch Nike-Tomahawk rocket system, providing the logistics for shipping 32,000 pounds of equipment to Fort Churchill, and handling the rocket launching operations at the range.

The Sandia operations were conducted by Upper Atmosphere Projects Department 9220. V. K. Smith, supervisor of Instrumentation Development Division 9226, was project supervisor in the field. T. C. Looney was project leader. LASL project director was H. Milton Peek and the project sci-

entist was J. Karl Theobald.

Fort Churchill, operated by the National Research Council of Canada, is only 600 miles from the Arctic circle and situated directly under the zone where auroral displays most frequently occur. Mid-winter weather ranges from miserable to impossible.

When the Sandians arrived at the station, the weather had "warmed up to 35 degrees below." During the three weeks they were at the site, the Sandians experienced a "heat wave" of 23 above and only one "white-out"—a period of almost zero visibility caused by fine snow and driving winds up to 50 mph.

The purpose of the LASL instruments was "to study the unexplored ultra-violet emission of natural aurorae in relationship to the visible output, and to gain, indirectly, information of the magnitude and energies of the primary particle fluxes."

Aurorae, and the disruptions that accompany them, are caused by activity on the surface of the sun which hurls hydrogen atoms through space—the so-called "solar wind."

When these atomic particles approach the earth—travel time is about 23 hours from the sun—they meet the earth's magnetic field.

These particles emit no light but gen-

erate radiation when they strike atomic and molecular particles in the earth's upper atmosphere. Most of the auroral light is created by collisions of these particles at altitudes slightly greater than 100 kilometers.

The aurora is a phenomena for upper atmosphere research which cannot be duplicated in the laboratory.

The Sandians report that two of the instruments functioned as expected, but data were not obtained from the electron spectrometer. However, the data obtained should provide an extension and refinement of knowledge of the physics of natural aurorae.

In addition, the technique of evacuating the nosecone of the rocket (to provide for pre-launch check of instruments designed to operate in outer space) proved successful. It will have applications in other high-altitude research projects.

The vacuum pumping system equipment was operated by C. R. Byrne of Leak Detection and Vacuum Standard Section 4631-1. While operating at Churchill, the system required 2650 gallons of liquid nitrogen.

In addition to Mr. Smith and Mr. Looney, other department 9220 personnel participating in the project were P. E. Herrington, W. R. Pfarner, R. D. Myers, and L. G. McConahy (all 9226); T. P.

Area III Cafeteria To Open in April

In early April the brand-new Area III cafeteria will open. The 1500-square-foot building at the entrance to Area III is complete, and workmen are completing the finishing touches and installing equipment.

Designed to serve the 370 employees in Area III, Area V, and Coyote Canyon, the new facility will provide a complete luncheon cafeteria service plus a carryout selection of sandwiches and packaged snacks.

Cafeteria hours will be from 11:30 until 1 p.m., Mondays through Fridays. Seating capacity is 72.

The building was designed by G. R. Sharp of Planning, Budgeting, and Control Division 4541 with T. C. Morgan of Employee and Secretarial Services Division 3126 consulting on food service facilities.

Krein, O. L. Howard, and D. G. Westfall (all 9221); and W. C. Womack, J. J. Colwell, and J. M. Bodene (all 9224).

Other personnel included H. I. McLaren (2551) and D. Q. Matejka (9324).

The project was called Caribou II and was a continuation of a similar experiment performed in February 1965 when Sandia and LASL scientists launched two instrumented Nike-Tomahawks from Fort Churchill.

Many technical problems arose during the preparation for the experiment, and the project group recognizes and appreciates the efforts of many Sandia organizations who helped them meet the test deadline of February's auroral "season."



G. A. FOWLER, Vice President 9000, pursues demanding recreation, such as soaring, for a complete change of pace from the demands of the business environment.

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Effort Yields Satisfaction

and the nation. He manages those who direct projects involving hardware for space projects such as the Vela satellite program or rockets for test readiness and high altitude research. He is contributing to the JTF-2 program for evaluating low altitude effectiveness of attack aircraft and to the development of unattended seismic observatories for detecting nuclear detonations.

In the past, he has headed Sandia's field test activities, electronic development, weapon systems development, as well as the research efforts. Earlier he helped to develop radar systems at M.I.T. and then joined Headquarters, Army Air Corps, to get the systems into use. He has been in the nuclear weapons field since 1945 when he joined Los Alamos Scientific Laboratory. He was in a B-29 orbiting the scene at the time of the first atomic test in New Mexico. Later that year he moved to Sandia to head field testing.

"I have been fortunate throughout my career," he says, "to be involved in work vital to our nation, national programs of importance. I find great satisfaction in this."

Key ingredients of performing work well, he says, are know-how and enthusiasm. And enthusiasm results from the successful accomplishment of a difficult task. It is a continuing and regenerating cycle.

"A manager strives for success in the projects under his direction," he says. "With success enthusiasm can be maintained, as well as all of those things which are part of large undertakings by many people working together — motivation, cooperation, achievement of common goals, and individual satisfaction."

He believes that solutions to really difficult problems offer the best rewards to the individual and team. The tough ones are remembered with pride — not the easy ones. He has faith in the "creative process" known and experienced by everyone, and his concentrated pursuit of recreation is part of that process.

"You experience," he says, "that sudden inspiration when the solution to a complex problem falls into place in your mind. Or the particular alternative to a knotty situation appears — and suddenly you know it is the best course of action to take."

"These inspirations occur after a complete immersion in a situation, after studying all the details, and carefully exploring the alternatives. Later, when your conscious mind is occupied with something else, you often get the answer. The unconscious mind seems to work this way."

"Not all problems are solved this way, but enough are to make the method worth pursuing. I find a complete change of activity helps."

Changes of activity include white-water boating — riding a kayak through the rapids of the San Juan or Rio Grande — trout fishing, and other outdoor recreation requiring concentration and physical effort.

He participates in technical society activities — he is a Fellow in the Institute of Electrical and Electronics Engineers, an Associate Fellow in the Institute of Aeronautics and Astronautics — and works year 'round in the Kit Carson Council of the Boy Scouts of America. He is currently Vice President of the Council.

In addition, he holds the rare position of Deputy Camp Chief on the International Training Team in charge of conducting Wood Badge Training (sometimes called the PhD of Scouting) in this geographic area. This is the highest training program for adult leaders in the Scout Program and there are only about 100 Deputy Camp Chiefs in America.

He conducts a Wood Badge training program each year, an intensive eight-day encampment for volunteer Scoutmasters, Committeemen, Commissioners, and other adult Scout leaders. The training concentrates on the methods of developing boy leadership in Scout troops, the outdoor skills needed to operate in the field effectively, and the basic philosophy of Scouting.

"Part of the training," Mr. Fowler says, "is the requirement for a written discussion of such questions as 'Why are you in Scouting?' These lead to searching answers involving a personal philosophy of service and the goals of living."

Mr. Fowler began putting his personal philosophy together years ago while becoming an Eagle Scout in Fresno, Calif., and he's still developing it.

"There is a deep personal satisfaction," he says, "in being a key member of a hard-working technical team which is solving some of the tough problems facing our nation today. There is another kind of satisfaction which comes from working with the leaders in the Scouting program as they help young men to develop the self-reliance, good character, and a sense of responsibility needed to meet the problems of tomorrow. I derive a feeling of fulfillment by contributing to the needs of both today and tomorrow."

Events Calendar

- March 26—continuing—"Fabric for Living" exhibit, International Folk Art Museum, Santa Fe.
- March 26-29—Easter dances and ceremonies, most Indian Pueblos.
- April 2—Guadalupe Peak in the Manzanos. New Mexico Mountain Club, leader Paul Geissler, tel. 299-8851.
- April 4—Hans Conreid and all Broadway cast in "Generation." UNM Concert Hall, box office tel. 277-3121.
- April 6-9—"Matrix: a Dance-Happening." Old Town Studio, 1208 Rio Grande NW. For reservations tel. 242-4602.

For High Altitude Rocket Tests

Land-Use Agreements Will Enable Extension of Tonopah Test Range

Plans to extend intermittently the boundaries of Tonopah Test Range — through a joint-use agreement with ranchers and miners — for high altitude rocket tests, were announced recently by the Atomic Energy Commission.

Involved are 4000 square miles of land somewhat north and east of the present 600-square-mile Test Range. The AEC's action, which will not involve any land acquisition, is intended to acquire use permits for land needed to meet impact area requirements for new high-altitude rocket testing programs. About 10 or 12 rocket firings are expected to take place each year.

Sandia's Carrier Development Division 9224 is currently developing a number of high-altitude research rockets — including the Nitehawk 12 and the boosted Sandhawk — which require a greater impact area than is now available for testing purposes.

The AEC's action grew out of a feasibility study conducted by C. M. (Mel) Vick of Data Reduction and Real-Time Computing Division 9425. Mel's continuing assignment is flight safety statistical analysis and review for all Sandia rocket programs.

In computing the projected trajectories of the new rocket systems and the requirements for safe impact, it became obvious that the present Test Range and the adjoining Nellis Air Force Base Range (which Sandia uses under agreement) were too small.

Recovery of the rocket systems is an important part of the development program. Switching the testing program to another test range (most impact over water) would add considerable cost to the development programs.

Mel suggested the intermittent land-use arrangement after his preliminary investigation revealed that most of the required impact area was government-controlled land.

About three-fourths of the area is in public domain under the jurisdiction of the Bureau of Land Management and involves three districts: Las Vegas District, Ely District, and Battle Mountain District. Most of the remainder is public land under the jurisdiction of the U. S. Forest Service and is in the Humboldt National Forest Range. Additionally, there are scattered private holdings.

The government land is leased to some 35 or 40 ranchers, who in many cases do not live within the area. In addition to the government acreage, there are 72 parcels of private land, ranging from about 40 to 320 acres, and some 80 mineral plots. There are two or three active mines which are operated periodically. Fewer than 100 persons reside in the area.

The AEC plans to obtain use agreements under which residents would evacuate the area during tests after receiving registered letters specifying the test dates. Residents would be paid per diem plus round trip mileage to their normal shopping town.

State Highway 25 crosses the proposed area. The AEC plans to arrange for the closing of Highway 25 for brief intervals during rocket firings, with access controlled by the Nevada State Police.

The AEC plans to complete all land-use arrangements for the new area by Aug. 1. C. J. Kaspar of Planning, Budgeting, and Control Division 4541, and Buford Allen, AEC attorney, Nevada Operations Office, are negotiating the agreements with ranchers and miners in the affected area.

E. H. Draper Memorial Building Will Be Built at New Girl Scout Camp

In memory of Eaton H. Draper, Sandia Vice President, and in recognition of his contributions to the Girl Scouts, the Chaparral Council will dedicate a structure to his memory at their new camp.

The camp will be located 22 miles east of Cuba on the Rio de las Vacas. A capital fund drive, approved by the Albuquerque United Community Fund, is currently underway to raise the \$375,000 to build the Girl Scout camping and recreation center. The campaign is being conducted in all communities throughout the Council.

The Chaparral Council serves 8700 girls in eight New Mexico counties plus the Navajo reservation in Utah and Arizona. The Eaton H. Draper memorial building will be one of the camp's administration buildings. (See accompanying drawing.)

Mr. Draper was a member of the steering committee which outlined plans for the new Girl Scout camp, and was active in the planning for the fund drive.

H. E. Lenander, director of Manufacturing Development 2500, will head the memorial portion of the fund drive. He will be assisted by F. E. Bell (3453), L. A. Dunn (2548), R. P. Kelly (2554), and R. H. Schultz (2120).

Contributions to the memorial fund for

this structure may be made by contacting any of the Sandians listed or by mailing the gift to the Chaparral Girl Scout Council, 609 Fourth NW. There will be no in-plant solicitation.

The Girl Scout summer camp, which was built near Ponderosa 30 years ago to accommodate 378 girls in a summer, has been serving 860 each summer with a long waiting list of those wishing but unable to attend.

By 1970, the Council will have need to serve 4000 girls with summer camp activities. The new site, 1200 acres in the Jemez Mountains, was purchased by the sale of Girl Scout cookies. When completed in 1970, it will serve the projected needs of the council for year around camping for troops, facilities for adult training, and will provide an outdoor recreation area in some of the most beautiful scenery in the state.

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SANDIA LAB NEWS

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Operated for the United States Atomic Energy Commission by Sandia Corporation

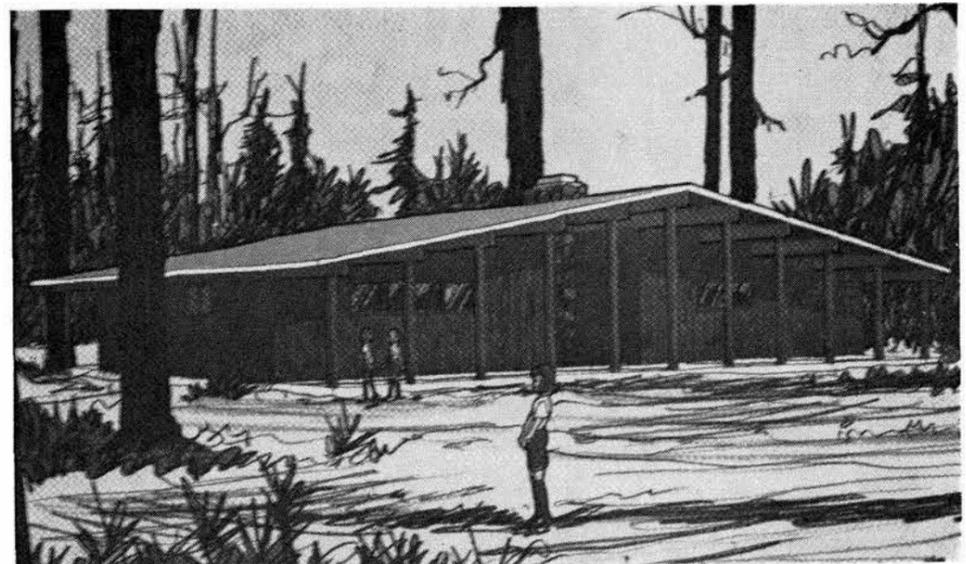
Editorial Offices, Albuquerque, New Mexico
Employee Publications, Rm. 112, Bldg. 800,
Tel: 264-1053
Editor: Robert C. Colgan

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

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

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

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ARTIST'S DRAWING of the Eaton H. Draper memorial building shows the structure in its proposed setting in the new Girl Scout Camp in the Jemez Mountains. It will be one of the Camp's administration buildings. A \$375,000 capital fund drive is now underway to construct facilities to serve 4000 girls at the 1200-acre site.



HIGH SCHOOL TEACHERS learn about printed circuit techniques they expect to teach in their electronics courses. Participants in the workshop at Livermore Laboratory were (l to r) J. L. Rowe (8220), A. D. Andrade (8223-5), Calvin Boyd, Granada High, and William Spragge, Livermore High.

High School Teachers Learn About Printed Circuits at Livermore Lab

Two high school teachers from Livermore recently attended a one-day workshop at Livermore Laboratory to learn how printed circuit boards are made. The teachers will use the information to broaden their present high school course in electronics.

Using equipment in Sandia's printed circuit lab, William Spragge of Livermore High School and Calvin Boyd of Granada High School fabricated a single-sided printed circuit board.

In a parallel operation, A. D. Andrade (8223-5) demonstrated how the printed circuit board could be made using equipment and chemicals normally found in high school chemistry laboratories.

J. L. Rowe (8220), who sponsored the workshop, believes that students can be

trained in high schools to make printed circuit boards. Courses in drafting, photography, chemistry, and electronics can be applied readily to the process. Thus, if students do not continue their education, they have learned a skill that is in demand in private industry.

Mr. Rowe has served as chairman of the Industrial Arts Curriculum Committee of the Livermore High School District. He reports that three industrial supply companies from the West Coast have offered to donate an initial supply of chemicals and board materials to the high schools.

Informal reports from the schools indicate a decided interest in augmenting their electronics course with practical printed circuit work.

LIVERMORE NEWS

New Method for Plating Thick, Pure Nickel Developed at Livermore Lab

High purity, electroless nickel coatings can be produced with a new process developed by J. W. (Jack) Dini and Paul R. Coronado of Materials Application Division 8133. They have defined a chemical solution and a set of operating conditions which will coat brass or steel with fine-grained, 99 percent pure nickel up to 10 mils thick.

Although similar work by electroless plating methods has been done by other researchers, none have reported nickel deposits of such thickness or high purity.

The Sandians discarded electroplating and immersion plating methods early in their development work and concentrated on the electroless method as the most promising for the desired high purity, thick, and uniform nickel coating with corrosion-resistant properties. The electroless method is an immersion process where the object to be plated and the solution used have catalytic properties—the ability of a substance to cause or speed-up chemical reaction without the substance undergoing change. Previously published literature on electroless plating indicated that their studies should be confined to the process that uses hydrazine as a catalytic agent in the solution (hypophosphite caused brittleness in the deposit).

In order to determine the solution that would produce the desired plating characteristics, the Sandians varied the concentration of each chemical in the solu-

tion. They also varied the pH (acid-alkalinity balance) and the operating temperature of the solution.

If the chemicals had been added in improper order, they would not have dissolved or the solution would have decomposed.

It was further determined that the highest quality reagent-grade chemicals produced the most stable solution. (A practical grade of hydrazine, however, did not alter the stability of the solution.)

The solution had to be maintained at a pH of 11.0 and a temperature of 194° F. for the best plating results. The plating rate decreased rapidly if the pH was lower; nickel deposits on the object developed numerous cracks if the temperature was allowed to go beneath 194° F.

A steel plate six-inches-square was placed in a liter of the solution for nine hours. From this, a nickel deposit of 10 mils was obtained. X-ray examination revealed that the nickel was extremely fine-grained.

The nickel deposit on the plate was analyzed to determine the flexibility and adherence to the steel surface. Results were good.

When the steel plate was bent double, cracks appeared in the nickel, but it did not separate from the plate. The plate was slightly warped, though, which indicated that the nickel deposit caused some stress.

Jack and Paul then decided to see what effect heat treatment would have on nickel deposits.

For these experiments, a nickel coating about three mils thick was deposited on the outside of an aluminum form. The form was then dissolved leaving only a nickel sample.

After heating the sample in a vacuum for one hour at temperatures ranging from 400° to 950° F., the nickel lost its hardness and became soft.

When the temperature was increased to 1400° F. for 10 hours, the density of the sample dropped by seven percent. This was due to voids in the sample caused by decomposition of non-nickel material. Even so, the deposit remained 99 percent pure nickel.

Nickel deposits which had not been subjected to heat treatment were brittle. After heat treatment, they could be bent back and forth many times without breaking.

At the outset of the experiment, the Sandians were interested in the effect their hydrazine process would have on nickel's corrosion-resistant property. It was inferior to that of the hypophosphite electroless plating process, and heat treatment at 400° F. had no helpful effect. Nickel deposits placed in a 20 percent salt spray for 24 hours developed rust spots and greenish corrosion products. Dark spots were also noticed which would eventually turn into rust spots.

Jack commented, "Even though the need for high-purity chemicals increases the cost of the process, our method provides pure, thick, uniform nickel deposits which cannot be obtained by other processes."

Supervisory Appointment



GERALD L. WILLIAMS to supervisor of the newly created Second Shift Computer Operations Section 8145-2, effective March 16.

Gerry joined Sandia in December 1957 as a keypunch operator in documents. After six months he transferred to the print shop where he worked as a plate-maker for the offset presses until May 1961. He then transferred to environmental testing where he worked as a laboratory assistant. In June 1964 he moved to computer operations division as a computer operator. Two years later he transferred to Satellite Systems Division II 9234 where he has been working on the nuclear detection satellites.

Gerry received a BS degree in physical education from the University of New Mexico in June 1966. With the exception of his job assignments in environmental testing, he worked nights at the Laboratory and attended classes at UNM during the day to complete his course requirements.

Livermore Notes

R. O. Sundahl and S. Folkendt, both of Acceptance Equipment Division 8118, are the co-authors of a technical article which appears in the March 1967 issue of ELECTRONICS DESIGN NEWS magazine. The article is entitled "Linear Scale Ohmmeters."

Advance tickets at discount rates are available to SCLL employees for "Floralia," the 1967 California Spring Garden Show, May 5-14. Staged in the new Oakland-Alameda County Coliseum arena and exhibit hall, the show honors the mythical Roman goddess, Flora, and features a water cascade from a Roman temple to the main garden area. The garden show is sponsored by the First District Agricultural Association, and is designed to promote California's vast floricultural industry and to further acquaint the public with nature's beauty.

Tickets on a first-come, first-served basis can be obtained from Employee Benefits at \$1. Admission at the door is \$2.

SCLL employees who wish to contribute to the Sandia Blood Bank may do so during the LRL Blood Bank Drive scheduled for March 29 in LRL's east cafeteria, Bldg. 130. The donation receipt should be turned in to Employee Benefits Division 8214. Further information may be obtained by calling ext. 2254.

Welcome . . . Newcomers

Feb. 23 - March 9

California	
L. Gay Adams, Livermore	8235
Joseph D. Ambrulevich, Walnut Creek	8213
Ronald N. Hoffman, San Diego	8215
Richard B. Kenyon, Oceanside	8211
Linda L. Mamaros, Livermore	8235
Michael J. Nicholson, Fresno	8156
Marie L. Robles, Livermore	8235
Timothy C. Roudsbush, Livermore	8235
Alabama	
*Donald A. Clarin, Huntsville	8135
Arizona	
Don F. Ritter, Phoenix	8252
*Donald L. Werner, Phoenix	8123
Minnesota	
Steven W. Taatjes, Minneapolis	8252
Oregon	
Donald E. Warne, Corvallis	8155

* Denotes rehire

Congratulations

Mr. and Mrs. Bob Jacob (8143), a son, Brian Ellery, March 5.

Mr. and Mrs. Paul Kalato (8155), a son, William John, Feb. 17.

Mr. and Mrs. Jim Gibson (8126), a daughter, Pamela Kaye, March 3.

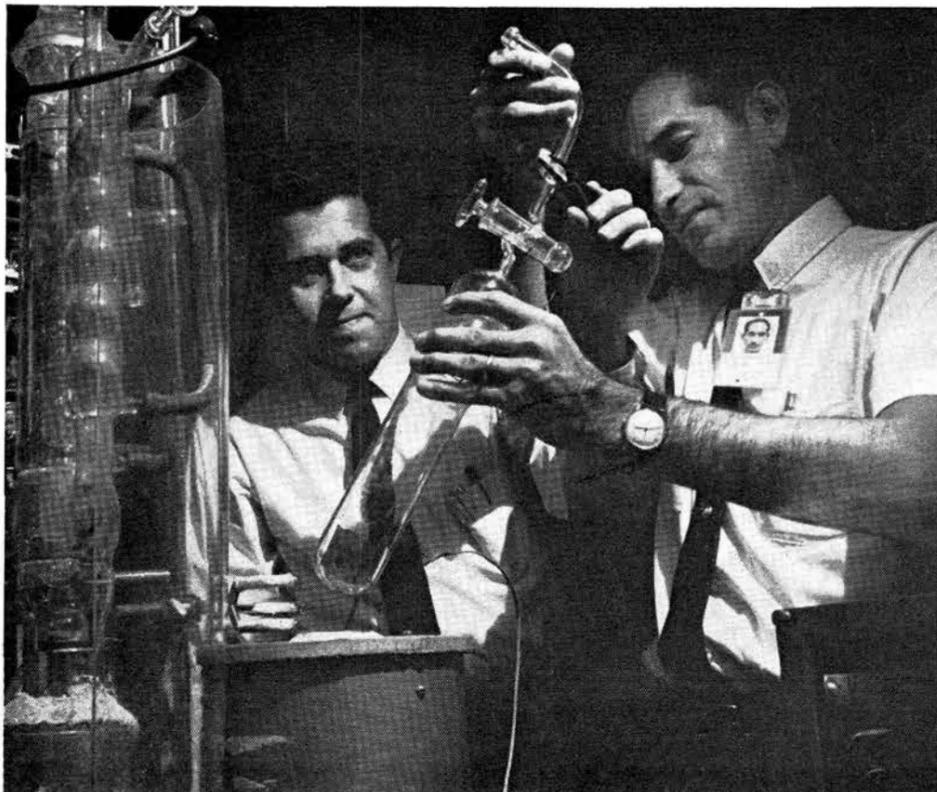
Mr. and Mrs. C. M. Leonard (8131), a daughter, Betsy Louise, March 3.

Sympathy

To Walt Muncy (8116) for the death of his father-in-law in Los Angeles, Feb. 21.

To Gary Drummond (8243) for the death of his father in Albuquerque, Feb. 22.

To Viola Banfield (8253) for the death of her father in Oakland, March 6.



HIGH TEMPERATURE TEST APPARATUS is assembled by Jack Dini (left), and Paul Coronado (both 8133) to determine effect 400° F. will have on a nickel sample. Test was part of a research study which produced thick, pure nickel by electroless plating process.



EDUCATIONAL MILESTONE—Thomas C. Corpe (1325) admires his technical institute equivalency certificate during a brief presentation ceremony last week. Tom completed the mechanical technology curriculum offered under Sandia's out-of-hours technical institute program. On hand to congratulate him were (l to r) L. A. Hopkins, Jr., director of Electro-mechanical and Chemical Component Development 1300, and R. E. Day (3132).

Study Habits Continue After Completing Technical Program

Thomas C. Corpe (1325) gave up smoking about a year ago, but he kept another of his habits—studying.

Another milestone in Tom's educational pursuits was recognized last Friday. He was presented a technical institute equivalency certificate for having completed the mechanical technology curriculum in Sandia's out-of-hours technical institute program. He is the second Sandian to complete the program.

While the certificate marks the completion of the mechanical technology course, Tom continues to study. Currently he is taking a course in machine design in Sandia's out-of-hours program in addition to a course in woodworking one night a week in the Community College at the University of New Mexico.

Even before the technical institute program was inaugurated at the Laboratory in early 1961, Tom had completed seven out-of-hours courses. From 1957 to 1960, he took electronics II and III, college algebra, dynamics, strength of materials, basic statics, and elements of engineering.

Tom also took a number of courses during his career with the U. S. Navy before coming to the Laboratory. Aside from several naval subjects, he studied algebra and completed an International Correspondence School course in instrumentation.

To complete the 20-course requirement for the certificate, which is equivalent to a technical institute degree, he devoted over 900 hours to classroom work and from two to four hours of home study each night.

His curriculum included all of the classical and modern physics courses offered, all of the math courses through calculus, and such mechanical subjects as statics, strength of materials, mechanisms, and dynamics. He also took several electronics courses.

Tom has worked on various electromechanical devices since he joined Sandia in

May 1957. Before that he served 20 years with the Navy, mainly as a chief instrument man.

Tom's interests also extend beyond studying. Up until two years ago, he was active in competitive pistol shooting. A collection of trophies and a trip to the national competition attest to his marksmanship.

The holder of a private pilot's license and owner of a Piper Tri-Pacer, he spends some of his free time flying.

Currently 1237 Sandia employees are enrolled in the Laboratory's out-of-hours program. There are 384 enrollments in the technical institute program with some 40 employees having completed more than one-half of their course work toward a certificate.

Four different technical-institute-level programs are offered by Employee Training and Education Division 3132. They are electronics, drafting and design, mechanical, and industrial technology. 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 during the lunch hour and after working hours without charge to Sandia employees who meet the prerequisites. The students study on their own time and must maintain a satisfactory scholastic standing.

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

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ECLIPSE TELEVIEWED—M. M. Robertson (1122), scientific commander of the Sandia expedition to study the eclipse off the Brazilian coast last November, is shown discussing the eclipse with Tom Duncan during a videotaping session in the KNME (Channel 5) television studio. Mr. Duncan was moderator of the TV program which was televised recently.

Supervisory Appointments



K. DAN HARDIN to supervisor of the newly created Connectors and Cables Division 1434, effective March 1.

Dan joined Sandia in June 1953 and worked in vacuum tube and gas tube development for electronic systems. In July 1959 he was promoted to section supervisor of tube development. Since February 1963 he has been project leader of the Microelectronics and Resistors Group in Microelectronics Division. In this capacity he has been responsible for development of thin film processes and devices and for the application of thin film components in hybrid microcircuits.

Dan received his BS degree in electrical engineering from the University of Oklahoma in June 1953. He has done graduate work in mathematics, electrical engineering, and solid state physics at the University of New Mexico since 1962.

Dan has authored and co-authored a number of papers on vacuum tubes, thin film components, and instrumentation for magnetrons.

He is a registered professional engineer in the state of New Mexico and a member of Tau Beta Pi, Sigma Tau, and Eta Kappa Nu. A senior member of the Institute of Electrical and Electronics Engineers, Dan is presently editor of the BLAST, the Albuquerque Section publication, and vice chairman of the 1967 IEEE Region Six Technical Conference.



GARY L. WEST to supervisor of Electronics Measurements Division 7231 at Tonopah Test Range, effective March 16.

After joining Sandia in July 1956, Gary worked on designing and testing electrical mockups for nine months before he transferred to field testing organization. In September 1959 he enrolled at the University of New Mexico to study electrical engineering and worked in field testing during his summer vacations. In June 1963 he returned to the Laboratory to work in range electronics and participate in the technical development program. Since June 1965, he has been in the Electronics Measurements Division at Tonopah where he has design responsibilities for a computer complex.

Before coming to the Laboratory, Gary was an electronics technician in the U.S. Coast Guard.

He received an associate degree in electrical engineering from Valparaiso Technical Institute in June 1956 and his BS and MS degrees in electrical engineering from UNM in June 1963 and June 1965 respectively.

Gary is a member of Eta Kappa Nu, the Institute of Electrical and Electronics Engineers, and the Electronic Trajectory Measurement Working Group of Inter-Range Instrumentation Group.



EDWIN C. HAWN to supervisor of the newly created Physical Electronics Branch Shop Section 4233-5, effective March 16.

Ed joined the Laboratory in November 1958 as an electronics technician in a fabrication and cable making group. In May 1959 he transferred to printed circuitry as a layout operator and became a layout and lead man two years later. Since August 1964, he has been designing and jiggling component parts in Physical Electronics Section 4233-4.

Ed was with an engineering division of Boeing Aircraft in Seattle from January 1958 until he joined Sandia.

During 1961-62, he took a number of engineering courses at the University of New Mexico. Currently he is working for a technical institute equivalency certificate in Sandia's out-of-hours technical institute program.

From September 1955 to January 1958, he served as an electronics technician in the Coast Guard.



MRS. TESS K. REISS to supervisor of Secretarial Section 3126-4 in the Employee & Secretarial Services Division, effective March 1.

Tess joined Sandia in August 1949 as a secretary and worked in that capacity for almost seven years. During that period she served as a division secretary, department secretary, and as secretary to the director of research. In April 1956, she transferred to the employment group in personnel where she worked as an employment interviewer until September 1959. She then transferred to placement where she has been a personnel representative.

Tess received her bachelor of business administration degree from the University of New Mexico in June 1949. Since then she has taken some graduate courses in business administration at UNM.



FRANK SAYNER to supervisor of the newly created Support and Logistics Section 2554-3, effective March 16.

Frank joined Sandia as a material handler in field test support in September 1956. In March 1959 he transferred to Employee Training and Education Division where he developed and taught a course on the operation of material handling equipment. In October 1959 he rejoined Support and Logistics Section 2551-3.

Before coming to the Laboratory, Frank was a stock farmer in Texas and then New Mexico.

He received a BS degree in agriculture from A. and M. College of Texas in June 1941. Since then he has completed the course requirements for admission to the University of New Mexico's Graduate School of Business Administration and has taken several graduate courses.

From June 1941 to February 1946, Frank served as an officer in the Army Quartermaster Corps.

Sympathy

To Dorothy Jones (4152) for the death of her father in Plano, Texas, March 10.

To James M. Winter (4513-2) for the death of his mother in Albuquerque, March 9.

To Robert R. Johns (4253-3) for the recent death of his father in Albuquerque.

Deaths . . .



H. E. Sloane



J. F. Salazar

Howard E. Sloane, a dimensional standards calibration technician in Sandia-Albuquerque Measurement Standards Laboratory 2413, died suddenly March 10. He was 52.

He had worked at Sandia since November 1954.

Survivors include his widow, two daughters, a son, and three grandchildren.

Jose F. Salazar, a retired Sandia employee, died March 13 after a brief illness. He was 75.

He worked as an oiler in Plant Maintenance Division 4512 from January 1950 until he retired in October 1959.

Survivors include his widow, three sons, three daughters, and 15 grandchildren.

Rose Marie Gladow, a systems analyst in Fiscal Activities Division 4115, died March 20 in Chicago, Ill., after a long illness. She was 26.

She had been employed at Sandia since July 1963.

Survivors include her husband, Dean E. Gladow (9233), and her mother in Webb City, Mo.

Service Awards

15 Years



J. S. Armijo
4234



B. F. Blythe
4332



G. E. Chaffee
4631



E. M. Chavez
4622



T. V. Crawley, Jr.
9232



Ginny Dalesandro
3241



Ruth Darrick
2526



E. G. Dyllo
4311



R. L. Farnham
2212



P. L. Field
1325



Jesus Gutierrez
4611



Salomon Hidalgo
4513



B. C. Holt
7242



L. E. Leierer
4254



G. T. Leyba
7322



F. W. Lovato
4573



J. L. Martinez
7267



E. E. Montano
4512



M. O. Murphy
1332



K. V. Nixon
9221



Ismael Ortega
7332



Deana Piper
2112



H. M. Rowe
4575



R. W. Russell
7332



D. O. Salazar
4234



Bernice Sanders
3153



O. M. Schroll
2546



Mike Silva
4511



J. T. South
4224



J. J. Weber
5134



J. R. Wimborough
8161



T. E. Zudick
3465

10 Years

March 24-April 6

Alice K. Winchell 4112, R. E. Zumwalt 7233, A. J. Derby 8243, R. W. Galbraith 9211, L. P. Billmaier 9234, D. L. Field 2433, G. C. Wayland 3114, G. E. Cheek 4221.
A. B. Anderson 7334, R. J. Johnson, Jr. 2211, R. G. Gonzales 4518, J. L. Davis 4614, C. M. Barnes 1432, R. J. Reed 2442, Shirley S. Blake 4123, W. L. O'Trimble 4331, D. A. Lloyd 7253.
A. W. Kellom 8123, J. E. Deveney 9314, P. L. Class 1541, G. F. Hastings 2211, T. K. Smith 2554, H. D. Sivinski 2570, J. M. Baca 3242, R. L. Negus 4254, H. E. Morse 1524, C. W. Huddle 5134, and O. C. Thomas 8169.

Sandia Golf Tourney Schedules Announced

The Sandia Employees Golf Association has announced the schedule of summer golf tournaments for both men and women's leagues. Memberships or additional information on league play are available from O. J. Foster (3126), Bldg. 610, tel. 264-7775.

The schedules are as follows:

- Men**
- April 15—1967 Opener (low handicap)—Socorro.
 - April 22—1967 Open (high handicap)—Socorro.
 - May 6—Spring Classic—Arroyo Del Oso.
 - June 3—Fred Given Open—Los Altos.
 - June 17—Summer Classic—Paradise Hills.
 - June 8-9—SEGA Championship—UNM (new course).
 - July 29—Scramble—Arroyo Del Oso.
 - Aug. 19—Los Alamos Act I—Los Alamos.
 - Aug. 19—High Handicappers—UNM (old course).
 - Aug. 26—West Side Open—Paradise Hills.
 - Sept. 16—Los Alamos Act II—UNM (new course).
 - Oct. 7—Socorro Open—Socorro.
 - Oct. 21—Fall Classic—Los Altos.
 - Nov. 10—Post Season—Paradise Hills.
- Women**
- May 20—Opener—Socorro.
 - June 17—Summer Classic—Los Alamos.
 - July 22—Summer Special—UNM or Arroyo Del Oso.
 - Aug. 19 and 26—Fall Tourney—Los Altos short course.
 - Sept. 23 and 30—Fall Tourney—Los Altos regulation course.



Patti Harvey (3126)

Take A Memo, Please

Putting all your eggs in one basket can be crushing. There are many safety rules to observe. Get hopping; it's no yolk.

Sandia Authors

W. B. Estill and M. M. Robertson (both 1122), "Electron Microprobe and Electron Microscope Investigation of Identical Areas," December issue, REVIEW OF SCIENTIFIC INSTRUMENTS.

R. A. Lefever (5154), "The Paramagnetic Resonance Spectrum of Ce³⁺ in Yttrium Gallium Garnet," January issue, JOURNAL OF APPLIED PHYSICS.

K. H. Jones (5213), "Radiolysis of Cyclohexane and a Mixture of Cyclohexane and Benzene," February issue, JOURNAL OF PHYSICAL CHEMISTRY.

Albert Narath (5150) and A. T. Fromhold, Jr. (former Sandian), Auburn University, "Transient Nuclear Magnetic Resonance Study of the Conduction Band of Metallic Na₂WO₄: ¹⁸W Relaxation," Dec. 9 issue, PHYSICAL REVIEW.

J. M. Worrell, Jr. (5261), "Concerning a Theorem of Lavrentieff," January issue, NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY.

J. D. Williams (1433) and L. E. Terry (former Sandian), "Textural and Electrical Properties of Vacuum Deposited Germanium Films," February issue, JOURNAL OF THE ELECTROCHEMICAL SOCIETY.

F. R. Sweet (7265), "Technology Forecast," January issue, METALS PROGRESS.

Welcome . . . Newcomers

March 6-17

Albuquerque		
Glenn O. Corbett	4214	
Guadalupe Dominguez	3153	
Robert J. Jaramillo	2213	
Rosemary Montoya	3153	
Flora L. Ortiz	3154	
Jake M. Romero	3415	
*Thomas M. Schultheis	7231	
David W. Straub	7246	
Stephen A. Winters	7247	
California		
William L. Bishop, Glendora	7226	
Richard H. Yoshimura, Stockton	7324	
Illinois		
A. Thomas Faro, Chicago	1131	
Robert W. Vaughan, Urbana	5132	
Nevada		
*David R. Begeal, Las Vegas	1413	
Texas		
*Marvin J. Sektnan, Garland	3111	
Billie G. Self, Arlington	1411	
Utah		
*David K. Overmier, Ogden	7244	
Washington		
Dennis J. Moltern, Seattle	9333	
Donald A. Nissen, Richland	1323	
* Denotes rehired		

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 REAL ESTATE

- 3-BDR., carpet, AC, drapes, storage bldg., walled, low equity & closing costs, assume \$78/mo. payments, 508 Texas SE, Glanzer, 256-1302.
- 5-BDR., 3 baths, 3140 sq. ft., recently re-decorated, Ashcraft construction, below appraisal, will trade for land. Doney, 256-0857.
- 3-BDR., 1 1/4 baths, carpet, drapes, AC, walled, pitched roof, near Base, \$14,500, low down, 433 Gen. Stillwell NE, Fox, 299-9031.
- 3-BDR., built-ins, carpeting, drapes, AC, payments \$89/mo., assume present loan, Brane, 299-0148.
- 18 ACRES in Manzano Mountains w/cabin; also 5 acres unimproved. Luehring, 299-6031.
- 1/2 ACRE in Bosque Farms, all utilities, 50x10 patio, 8x16 shed, chain link fence, irrigation well, Dunbar, 299-2686.
- 3-BDR., den, formal DR, utility, 1 1/4 baths, drapes, carpeting, AC, many other extras, near elementary school, assume 5% FHA loan, \$15,900, Fjelseth, 299-8642.
- ONE ACRE Holiday Hills on N.M. #217 South of U.S. 66, city electricity and water available, \$1450 or best offer, Elder, 268-7479.
- LAND: SW Mesa, one 10-acre and one 20-acre parcel, \$100 per acre, cash only, Sarason, 299-2443.

CARS AND TRUCKS

- '63 FORD Squire station wagon, 9-passenger, AC, PS, PB, below book, \$1250. James, 298-0709.
- '55 CHEVROLET 4-dr., 283 stick, new clutch, needs brake job and a little body work, \$325. Reed, 299-7425.
- '60 1/2-ton Pickup, V8 engine, 4-speed., \$450. Louie, 243-1846.
- '17 CAMPER CHASSIS mounted to 1-ton truck w/dual rear wheels, intercom, self-contained. Mauck, 268-5560.

- '66 CHEVROLET Malibu, 4-dr. HT, low mileage, under warranty, AC, PS, PG, radio, V8 motor, white and turquoise. Pannell, 298-3338.
- '67 428 CUBIC INCH Ford engine, new, 1000 miles. Reif, 265-7264 after 5.
- '65 FORD CAMPER Special, PS, radio, bumper, 6000 miles, \$2200; '62 Coupe DeVille, air, new tires, \$1700. Hadady, 299-2119.
- '60 CHEVROLET PB, PS, OD, 50,840 miles, \$380. Chavez, 299-8194.
- '62 FALCON, AT, \$580. Candelaria, 344-9028.
- '64 BEL AIR station wagon, low mileage, AT, R&H, \$1550; '61 Impala HT, low mileage, AT, R&H \$775. Browne, 344-9675.
- '57 CHEVY station wagon V8, AT, R&H, original owner, \$285. Reynolds 265-8905 after 5:30.
- 1920 MODEL T FORD in running condition, motor recently overhauled. Will consider any offer. Jones, 268-5236.
- '56 BUICK SPECIAL, radio, \$250 or make offer. Cotter, 265-8631.
- '65 MUSTANG, 6-cyl., 9000 miles, radio, stick shift, bucket seats, white interior, \$1685. Reed, 299-1684.
- '64 TR-4, factory HT, back window glass, center of roof removable, includes soft top, \$1450. Jones, 268-4954.
- '62 CORVETTE HT and conv. top, new tires, \$1500 or best offer. Smith, 299-3166.
- '66 MUSTANG, 4-sp., 2-2, tachometer, R&H, \$2000, still under warranty. Pace, 299-5036.
- '57 FORD 6-cyl. stick, 2-dr., \$200 or best offer. Morrisett, 298-2884.
- '61 DODGE truck, walk-in delivery body. \$350. Lynes, 268-0144.
- '62 OLDS convertible, PS, PB, power seats, AT, rear seat speaker, factory air, below book. Hamilton, 299-6680.
- '62 MERCURY Comet station wagon, 4-dr., AT, R&H, AC, bucket seat console, wsw tires, \$799. Black, 299-3369.
- '59 FORD V8, straight shift, new license. Coughenour, 296-4146.

MISCELLANEOUS

- 21" MAGNOVOX TV, Early American cabinet, \$60. Roberts, 256-3901.
- 2-PIECE beige sectional, 94" and 48" long, heavy nylon cover, hardwood construction. Seaburn, 299-2215.
- '62 CHEVY trailer hitch, \$6; steel casement window, 53" h x 50" w w/3x4 lites, right & left crank outs, 3 lites, \$10. Roberts, 255-9527.
- 2 BED DIVANS, oak frame, beige frieze, \$60 & \$40; 2 lv. portable swamp-type air conditioners. \$30 ea. Schuetz, 1220 Marquette Pl. NE, 242-3510.
- SNOW TIRES and rims, 4-ply, 6:70x15, mounted on 15" rims, fit Rambler or Chevrolet, two for \$25. Holzhauser, 242-7131.

- BICYCLE, Schwinn 26" boy's, red, Bendix 2-spd. brake, light, basket, \$40. Ford, 255-6617.
- ONE SET Jenny Lind twin beds without mattresses, \$15. Murphy, 256-1130.
- BOY'S 24" bicycle, \$15; boy's 26" Schwinn bicycle, as is, \$7.50. Houghton, 1413 Guaymas, 299-3386.
- MOTOROLA AM-FM tuner, \$40. Miller, 1300 Dallas, Apt. 12, 265-4266.
- CAR RADIO, Smith, 877-9399.
- HI FI equipment, Eico HF-12 amplifier, Collora changer, Garrard transcription turntable w/GE arm and cartridge. Schmitt, 296-3267.
- GARAGE DOOR, 15'6" by 6'6", plus hardware, \$30. Leslie, 299-2040.
- BOIT aqua lung regulator and tank w/tank brace, complete, \$125. Werker, 344-3312.
- DINETTE round table, 4 chairs, \$40; blond twin bookcase headboard, nite stand, chest, \$50; matching porch glider, chaise, \$50. Littrell, 255-4620 after 5:30.
- DACHSHUND puppies, black & tan, not eligible for registering but well marked, \$10 ea.; 21" Hoffman Easy Eye View TV, console w/radio. Shinn, 299-6238.
- SCHWINN 24" girls' bike, \$20; Schwinn 26" 3-spd. boys' bike, \$30, both w/thorn-proof tubes. Hof, 255-5915.
- PHILCO refrigerator and electric stove, white, about 12 yrs. old, will discuss price. Ricker, 296-2191.
- WASHING MACHINE, Kenmore automatic, top loading, w/hose connections, \$25. Stump, 268-7754 after 4:30.
- REMINGTON Rolling Block, 7mm w/2 boxes ammo, \$45; Savage single shot boys' rifle, .22 LR, \$18. McDonald, 299-9269.
- SEAR'S orbital sander, \$10; Sear's 21" TV, all channel, blond cabinet w/doors, \$35; flying model airplanes. Adams, 268-5943.
- MINIATURE POODLES, chocolate, 7 wks. old, AKC registered. Magnuson, 268-5955.
- MOBILE HOME, '59 Geer, 10'x46", 1-bdr., front kitchen, carpeted living rm. 11028 Cochiti SE. Russell.
- 11 CU. FT. refrig., \$20; electric range, \$13. Morgan, 256-7994.
- SKATES: Men's Nester Johnson racing skates, size 8, \$7.50. Mellone, 298-6449.
- WURLITZER blond spinet piano, \$325; 9-piece dining rm. suite, \$100. Edwards, 298-1362 after 6.
- SHOTGUN BERETTA Companion, 12 gage, single hammerless, N.R.A. perfect, box shells and case, \$40. Rechner, 344-6148.
- .30 CAL. full patch Gov't. bullets, 1c each; 4X Prominar rifle scope, \$17; "Gunsmithing" by Clyde Baker, \$3. Larsen, 255-6407.

- BICYCLE, boys' 26", \$15. Oberst, 299-1224.
- CAMPING TRAILER, Fireball 16', sleeps 6, self-contained, electric brakes. Toft, 298-5678.
- IRONRITE ironer, w/metal top and contour chair, \$95. Webb, 298-8139.
- 5 BLOND TABLES: 30" square, 23" round, 28" square coffee table w/glass top, 2 step tables, \$25 for group. Coberly, 268-5320.
- 30-06 REMINGTON auto; 30-06 FN Commercial; 264 Sako; 270 Sako; 30-30 Marlin; 22 Hornet, also will trade. Alexander, 256-0570.
- BABY CRIB and mattress, \$10; Ethan Allen maple coffee table, \$25. Perkins, 298-4546.
- TUBE and resistor tester, Eico model 666K, reads GM, GP, leakage, MU etc. Starkovich, 298-5847.
- TREADLE MACHINE; canary & cage; comb. radio-phonograph; Early American coffee table; elec. bean pot; .44 Magnum ammo; bathtub rail. Moore, 255-5272 or 268-4135.
- MAG WHEELS, American, two 7x13, two 8x13 w/Dunlap R-6's; 4 1/2" four-bolt pattern, all new, \$250. Krimmell, 265-6385.
- AKC REG. Westhighland white Terrier puppies, 6 wks. old, Mar. 29. Archuleta, 11001 Haines NE, 299-0912.
- MATERNITY swimsuit by Phil Jacobs, predominantly white, size 9, new \$16, sell for \$8. Damerow, 255-7155.
- BABY CRIB and mattress, \$12.50. Garcia, 2251 Hooper Rd. SW, 243-3473.
- FIVE MIXED PUPPIES, mother part Highland Collie, \$1 and a good home. Spickler, 298-8367.
- CELLO, full-size, w/new carrying case, \$130. Hahn, 268-5475.
- PIANO, Baldwin Howard spinet, full size, light walnut finish, will move. Randall, 256-1853.
- 2 KEYSTONE mags, 14". \$25 each. Cowham, 298-4249 after 5:30.
- SHRINE LAPEL PIN, 12 diamonds, \$135. Magee, 256-1358.
- FENDER electric guitar, Jaguar model w/tremolo, sunburst color, dual pickups; Craftsman air compressor w/tank, 1/3hp. VanVickle, 299-1240.
- BABY BED w/waterproof mattress, \$15; folding metal cot w/pad, \$5; backpack, \$3; 2 mess kits. \$1 ea. Atkisson, 299-7536.
- GE refrigerated air room conditioner, \$60. Henfling, 255-1746.
- REVERSE MODEL 80 movie camera, variable framing speed, adjustable view finder, Da-Lite 30"x40" screen, used 4 times, \$20 for both. Moyer, 345-0567.
- 10" WALKER-TURNER floor model saw; chain saw; wading pool. Wenz, 299-5488.
- KENMORE WASHER, DRYER, working condition, \$25 ea., both for \$40; large formal dinette table w/4 chairs, \$25. McNeely, 299-4232.

- FLYING CLUB membership, Rainbow Flyers, Inc., 1959 Skylane; five members total. Risse, 299-5002.
- RAINBIRD SPRINKLER heads, 4 for \$10; girls' ice skates, white boots, size 2 1/2, \$5; Scott fertilizer or seed spreader, \$3; misc. furniture. Chandler, 877-2855.
- MONTGOMERY WARD belt sander, used twice, \$35; girls' 18" bike w/puncture proof tires, \$10; Somermeyer, 299-9271.
- WINCHESTER Model 70, 30-06 w/4X Bushnell scope; King pivot mts., sling w/QD swivels, recoil pad, \$130, will trade. Zaluga, 344-1564.
- SEAR'S 1/2" sabre saw, \$7; or trade for good 1/4" drill; 20 watt amplifier, 12" speaker and enclosure, \$15. Duggett, 299-7957 after 5.
- MOBILE HOME, '64 10x57 American, front kitchen, comp. carpet, GE washer, air, 10x50 awning in Carlisle Plaza by app. Elder, 344-1740.

WANTED

- RETINA Ilic 80mm Longar telephoto and 35mm Cutar wide angle lenses. Fuller, 299-4785. Call after March 27.
- GIRLS' bicycle, 16" or 20", fair to good condition. McMillan, 268-0216.
- BUY OR RENT, in good condition, tent, camper, or travel trailer that sleeps five, for three-week vacation. Halliday, 256-6685.
- TENT, prefer 9x9 or larger, umbrella; cots, prefer aluminum. Starkovich, 298-5847.
- TABLE-TYPE disc and belt sander, 4" or 6". Roberts, 255-9527.
- INDIAN RUGS, will pay cash for old original Navajo rugs; also want old hunting knives. Smitha, 299-1096.
- 12" LOG-LOG bamboo type slide rule; will pay \$20 for A3-03 30-06 rifle. Windham, 256-9455.
- 2-WHEEL BIKE w/training wheels for 5-yr.-old boy. Yaple, 298-9244.

FOR RENT

- NEW rustic A-Frame, extremely large, in mountain setting, 2-bdr., 2 baths, riding horses, 10 mins. to Sandia, \$250/mo. Bascom, 296-4186.
- FURNISHED efficiency apartment, \$75; small furnished house, \$95, including utilities on both, 121 High St. NE. Tucker, 247-8687.

LOST AND FOUND

- LOST—Keys w/green rabbit foot, silver filagree pin w/blue set, size 5 knitting needle, black blouse. LOST AND FOUND, tel. 264-2757, Bldg. 610.
- FOUND—Silver filagree earring, black glass case, colored glasses w/black frames, keys. LOST AND FOUND, tel. 264-2757, Bldg. 610.

Take Note



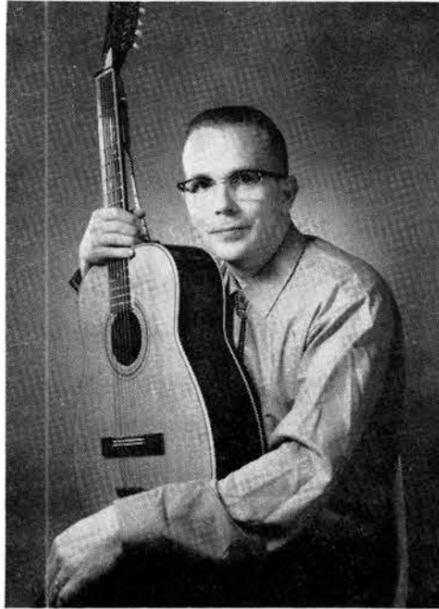
SANDIA'S DAISY BELLE—Betty Jo Rivera (3241) represented Sandia Corporation at the kick-off breakfast for the city's annual cleanup campaign on March 21. Other activities included a parade on Central Avenue in downtown Albuquerque.

F. R. Sweet (7265) attended the semi-annual meeting of the American Society for Metals' Education Technician Committee, held March 21 in Cleveland.

This is the second year of Mr. Sweet's three-year term on the committee. The six-member group is concerned with certification of engineering technicians, the curriculum offered by both two- and four-year technical schools, and the preparation of examinations for certification.

A. W. Mullendore (1122) was installed March 3 as 1967-68 president of the New Mexico Society of Electron Microscopists. The organization has about 33 members from Sandia, Los Alamos Scientific Laboratory, Kirtland AFB, Lovelace Foundation, University of Texas at El Paso, New Mexico State University, and University of New Mexico.

Richard T. Dillon (5590) was recently presented the Air Force Association's "Civil Air Patrol Member of the Year" award from Governor David Cargo. Dick, who is commander of the CAP's New Mexico Wing, received the certificate and a wristwatch during the Association's banquet at Kirtland AFB. He has been active in CAP since 1959 and was named commander in December 1965. Since Dick assumed command, the wing has climbed from 47th to 19th in the Air Force's national ranking of CAP groups.



JIM EBERHART (1123) will present a program of folk songs for children at the St. Anthony Home for Boys the evening of March 29. He has been entertaining children during Library story hours and at local hospitals for the past five years.

Sandia Speakers

H. W. Schmitt (1541) and R. L. Lowrey, Oklahoma State University, "Contact Separation Due to Impact in a Redundant Contact System," ASME Vibrations Conference, March 29-31, Boston.

M. M. Sluiter (9321) and K. J. Touryan (9326), "The Magnetoaerodynamics of a Rotating Cone During Re-entry," 8th Symposium on Engineering Aspects of Magnetohydrodynamics, March 28-30, Palo Alto, Calif.

L. F. Shampine (5262), "Solution of Nonlinear Boundary Value Problems," 30th Meeting of the Special Interest Group on Numerical Analysis, Los Angeles Chapter of the Association for Computing Machinery, March 8, Los Angeles.

R. L. Schwoebel (5123), "Crystal Growth from the Vapor Phase," Electrical Engineering Department Seminar, University of Arizona, March 9, Tucson.



INTERNATIONAL FOLK DANCERS of the University of New Mexico will entertain during the forthcoming "Slovak Festival" scheduled at the Coronado Club Saturday, April 1. A Slovakian buffet will be served starting at 7 p.m.

'Slovak Festival' to Feature Hofbrau Menu and UNM Folk Dancing

A whirling, twirling troupe of fast-moving dancers, 20 members of the University of New Mexico's International Folk Dancers, will entertain during the forthcoming Coronado Club "Slovak Festival."

Scheduled Saturday, April 1, the event will start with a Slovakian buffet with variations on a Hofbrau menu from 7 to 8:30 p.m. The MBC trio will play for dancing starting at 9 p.m.

Tickets (\$3.50 for members, \$4 for guests) should be picked up by 9 p.m. March 31 at the Club office.

Social Hours

Tonight, Social Hour will feature the music of Max Madrid and the Banditos followed by the Coronado Club's famous Mexican food buffet. A bargain at any price, the buffet costs \$1.25 for adults, \$1 for kids.

On Friday, March 31, the Rhythm Masters will be on the stand for Social Hour dancing. The seafood buffet will be served.

On April 7, Bud Fisher and the Mafia will play for dancing while an Italian buffet is served.

Retiring . . .



Lloyd E. Lincoln of Shop Services Section I 4211-1 in the Development Shop's Control Department, retires March 31. He was employed by Sandia in June 1951 as a model and instrument maker in the model shops.

In 1952 he assumed his present job and most recently has acted as technical liaison with local suppliers.

Before joining Sandia, Lloyd worked with the Naval Research Department, Madison, Wis., the chemistry department at the University of Wisconsin, and worked for two years at Los Alamos Scientific Laboratory.

Mr. and Mrs. Lincoln have two married daughters and six grandchildren living in Wisconsin. Following retirement, they plan to return to Madison, where Lloyd will join the staff of the physics department at the University of Wisconsin.

Lloyd says he has no particular hobbies, but he does enjoy bowling.



Walter Hall, manager of Mechanical Department 4250 in the Development Shops, will retire March 31. He joined Sandia over 18 years ago—August 1948—as a machinist. From 1954-56 he worked in the receiving inspection organization and in 1956 assumed his present job as department manager.

Before coming to Sandia, Walter had worked for two years as a machinist at the New Mexico School of Mines and two years in a supervisory capacity at Los Alamos Scientific Laboratory.

"I have been on schedules for so many years," Walter says, "that the only retirement plans I've made are for three months of travel." Mr. and Mrs. Hall will vacation in the West, Northwest, and Canada. They have a son, daughter-in-law, and three grandchildren living in San Francisco, and a daughter in Illinois.

Walter has a variety of interests, primarily boating and fishing, and also enjoys woodworking and amateur photography. "I don't pursue any particular 'hobby,'" he says. "Mostly I like the outdoors, but there are times when I prefer something restful and relaxing such as reading or music."

"I have mixed emotions about leaving Sandia. My work has been challenging and I've made many friends, but I'm also going to enjoy my retirement."



TIME ALOFT—Maj. C. W. Cummings, commander of the 317th Troop Carrier Wing Detachment at Kirtland AFB, recently presented R. A. Case (left) and R. L. Peabody (both 9228) Air Force certificates and pins in recognition of their having completed 1000 hours of flying time. The two Sandians accumulated the equivalent of 125 working days in the air as members of the Laboratory's technical crew operating instrumentation systems aboard C-130 aircraft in support of Joint Task Force-Two activities from May 1964 through September 1966.

Bridge

Monthly master point duplicate bridge competition will be played Monday, March 27, at 7 p.m. The duplicate bridge group meets Monday, April 3, at 7 p.m. ACF Bridge meets at 7 p.m. Wednesday, April 5. Ladies Bridge meets at 1:15 p.m. Thursday, April 6.

Knee Injury Downs Sandia Safety Record

An employee suffered an injury to his right knee in early February while working on the undercarriage of a lathe in the Development Shops. When he stood up, he felt a "pop" in the knee. The injury subsequently required surgery.

The employee is convalescing at home.

At the time of the accident, Sandia Laboratory employees had worked 23 days or 805,000 man-hours without a disabling injury.

Sandia's Safety Scoreboard

Sandia Laboratory:

34 DAYS
1,190,000 MAN HOURS
WITHOUT A
DISABLING INJURY

Livermore Laboratory:

148 DAYS
757,240 MAN HOURS
WITHOUT A
DISABLING INJURY