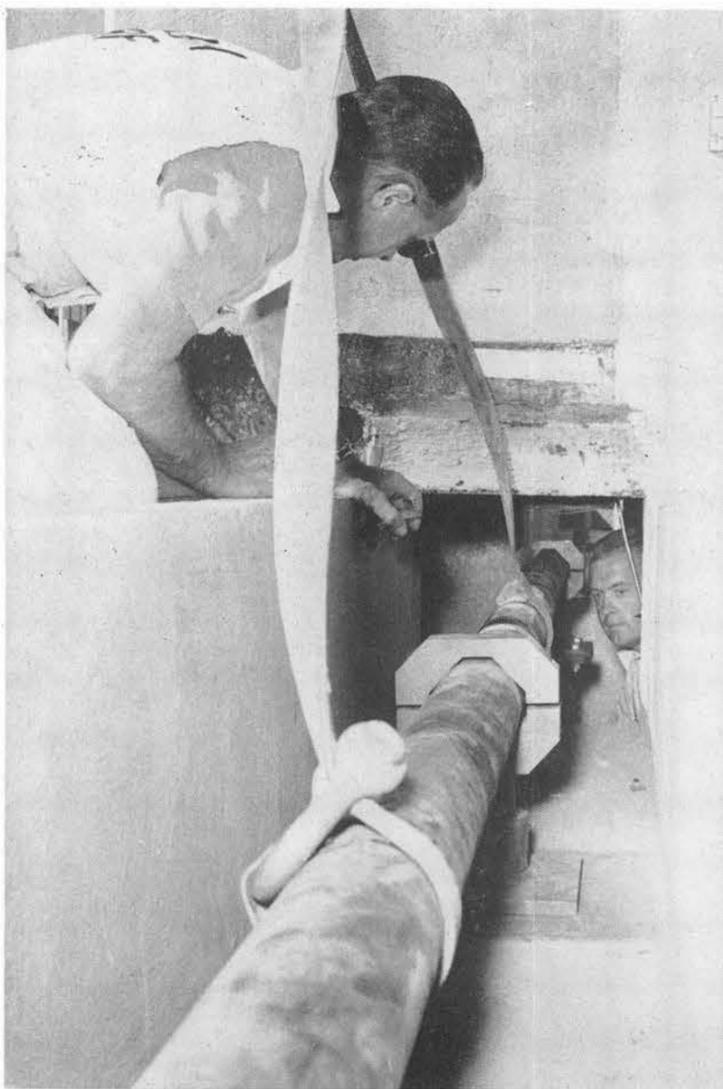




FIRST SECTION of the 80-ft. barrel of the new helium gun is positioned in a trench between two underground rooms. Millwrights are Sam Tabet and Manuel Lucero of Section 4512-1. Right are Sig Thunborg, Jr., and Earle Anderson (both 5134-1).



CHECKING ALIGNMENT of first section of the helium gun barrel are Earle B. Anderson, left, and Sig Thunborg, Jr. (both 5134-1) standing inside one of the underground rooms of facility.

Helium Gun Barrel Gently Lowered Into Place; Project Nears Finish

Last week the first section of the 80-ft. barrel of Sandia Laboratory's new helium gun was carefully lowered into position. The facility, located directly south of Bldg. 808, will be used by Physical Research Department 5130 for high impact tests.

Eyeing progress of the construction, Sig Thunborg, Jr., design project engineer for the helium gun, reported that the facility should be complete and the first test firing starting in about two months.

The helium gun barrel rests in a long trench between two concrete underground rooms. One room is the firing chamber and the other is the impact area. Using compressed helium under 5000 psi, the gun will be able to fire a one pound projectile at velocities up to 4000 ft. per second. Fre-

quently tested will be piezoelectric crystals which produce electrical charges when reduced by pressure. Control and firing of the gun will be performed from a control room located in the southeast corner of Bldg. 808.

Heavy concrete "lids" will cover the trench containing the gun barrel.

Plant engineering project engineer for the facility is M. B. Moore (4543).

Notice

Winter work hours, 8 a.m. to 5 p.m., will go into effect at Sandia Laboratory next Monday, Oct. 30.

Veterans' Day will be observed at Sandia Laboratory as a holiday on Friday, Nov. 10.

Sandia Employees to Hit \$140,000 in ECP Fund Drive This Year Committee Predicts

Sandia employees have established a new laboratory record in federated giving through the 1961 ECP fund drive. With the drive 95 per cent completed, employees have pledged \$126,274.80 by payroll deduction and contributed \$9,241.55 in cash for a total of \$135,516.35. This exceeds the previous high of \$124,000 set last year.

Sandia's corporate gift to the United Fund was \$13,500.

The ECP Committee is confident that this year's drive will reach \$140,000, since an additional \$5,000 is expected from employees enrolled in ECP by payroll deduction last year who have not yet returned their 1961 cards because of absence due to travel, sickness or vacation.

Preliminary statistics show that 58 per cent of employees not members of ECP by payroll deduction at the beginning of the drive made a contribution. Of these, 17 per cent joined ECP by payroll deduction, 11 per cent became members by a cash contribution of \$12 or more and 30 per cent contributed less than \$12 or made a contribution to specified agencies.

New records in average contributions were made in both payroll deduction and cash contributions. The average payroll deduction rose from \$24.42 last year to \$26.87. The average of cash contributions over \$12, which was \$27 last year, is now \$29.23.

The ECP Committee has requested that all employee cards

whether completed or not be returned as soon as possible in order that the drive may be closed. Although it was expected that final statistics and organizational standings would be available this week, compilation of these figures must await receipt of all cards by the Committee.

Employee recognition of the needs of the 34 agencies in the plan and individual generosity and response to the drive was praised by the ECP Committee. Team captains, solicitors and others who supported the drive were commended. Final organizational statistics of the ECP drive will be published in the Lab News on Nov. 10.

Sandia Corporation LAB NEWS

ALBUQUERQUE, N. MEX. • LIVERMORE, CALIF.

VOL. 13, NO. 22

Published every other Friday for the employees of Sandia Corporation, contractor to the Atomic Energy Commission

OCTOBER 27, 1961

Employees At Livermore Lab Give \$11,191 to Bay Crusade

A record high of \$11,191 was contributed by Livermore Laboratory employees to the 1961 United Bay Area Crusade, Chairman R. E. Maxwell (8225) has announced. This figure does not include the \$2000 Corporate gift, which put the Laboratory "over the top" of its \$12,000 goal.

The final report shows an average of \$15.46 contributed by each of the 724 employees participating. More than 75 per cent contributed.

"The success of the drive can be attributed to the loyal cooperation of employees, to the splendid cooperation of management, and the efficient campaigning of the

laboratory solicitors," Mr. Maxwell said. "I wish to express my appreciation and sincere thanks to all who took part."

The funds raised will be distributed among the 263 United Crusade agencies serving Alameda County and the Bay Area. Some Livermore agencies which benefit directly from the fund are the Community Chest, Welfare Council, Family Service Agency, Salvation Army, Retarded Children, YMCA, YWCA, Boy Scouts, and Girl Scouts.

Last year Livermore Laboratory employees contributed \$9,711 to the United Crusade.



Roger McKenzie (2642-1)
—Perfect Attendance Record—

Roger McKenzie Sets 10-Year Attendance Record to Shoot At

Roger G. McKenzie (2642-1) will complete 10 years' service with Sandia Corporation on Oct. 29 with a perfect attendance record.

During the past 10 years, Roger has not been late for work and has used no sick leave nor vacation absence in lieu of sick leave.

When asked how he managed to accomplish this, Roger replied, "I think a good deal of luck has been involved. However, I do arrive at the Base cafeteria about an hour before work for coffee and to read the newspaper."

"As for not being sick, my wife and daughter deserve a lot of the credit because they're pretty good about keeping after me to eat the right food and to take care of my health."

Roger, a Staff Assistant, Administrative, has been assigned to Electronic Systems Department 1420 for the past five years.

ASME Plans Non-Metallics Meet At UNM Campus November 17-18

"Designing for Non-Metallics" is the title of a symposium scheduled Nov. 17-18 by the New Mexico Section of the American Society of Mechanical Engineers and the University of New Mexico.

Planning and arrangements for the symposium are being handled by a committee of Sandians headed by C. L. Carpenter (7115). Serving with Mr. Carpenter are J. D. Cyrus (1332-4), A. B. Robertson (1112-2), J. E. Bear (7321-5), A. G. Bytheway (7321-4), and J. R. Martindell (2532-1).

Don Williams, Jr., (7311) is president of the New Mexico Section of ASME and E. H. Draper, Vice President, Development, is vice president of ASME Region VIII.

"Purpose of the two-day meeting on non-metallics," Don Williams reports, "is to help design engineers keep abreast of the lat-

est developments in this rapidly-changing field. A well-rounded program is planned with recognized experts coming from many parts of the country to bring to the symposium lectures and factual information that every design-engineer can use."

Kermit C. Gottsche (1111-1) will present a technical paper entitled "Encapsulation."

Technical sessions of the symposium will be held at the New Mexico Union on the UNM campus. A banquet is planned Friday night, Nov. 17, at the Western Skies. The Kirtland Officers Club will be the scene of the Saturday luncheon.

Following the luncheon, symposium delegates will tour the Non-Metallics Shop facilities at Sandia Laboratory and visit the Sphere of Science.



PLANNING COMMITTEE for the coming ASME-UNM Symposium on Designing for Non-Metallics is pictured above. From left are Dick Martindell

(2532-1), Jim Bear (7321-5), Alvin Bytheway (7321-4), and C. L. Carpenter (7115), chairman. Symposium will be held on UNM campus Nov. 17-18.

Editorial Comment

Outside Employment

The age-old question of the ability and propriety of serving two employers at the same time is confronting a number of Sandia Corporation employees. It is a matter of a conflict of interest. The problem raises questions of policy and as a result it seems appropriate to again express the position of the Corporation.

Employees should realize that the Corporation receives bids and places business on a competitive basis with many companies throughout the country, including those in New Mexico and California. It is important to our relations with all suppliers that no situation exist which might be construed as placing any one supplier in a more favorable position than his competitors. Such a situation could appear to exist where the skills, know-how, and knowledge possessed by our employees are made available to a supplier through dual employment.

Regardless of how scrupulously a Sandia employee may conduct himself in the outside employment, the mere fact that he is working for an actual or potential supplier could provide a basis for a claim of unfair competition by other suppliers.

This situation must be avoided and therefore Sandia Corporation must request its employees not to engage in employment with any outside company, partnership or individual doing business with or bidding for business with Sandia Corporation.

This prohibition applies especially to employment with firms who are engaged in the following activities. These are intended only as examples and are not all inclusive.

1. Production, manufacture, or fabrication in accordance with Sandia Corporation specifications.
2. Engineering, development, drafting services, manual preparation or editing, or testing services.
3. Building construction, construction engineering or architectural services.
4. Wholesale suppliers of materials or products.
5. Sales representatives of any of the foregoing types of activity.

In case any employee has doubts regarding the propriety of any outside employment he should consult his supervisor.

Corporation employees must at all times conduct themselves in such a manner as to maintain relations free from any possible appearance of favoritism or unfair practices.

"A Communist . . . no onlooker"

"A Communist," Nikita Khrushchev told the Central Committee on Feb. 14, 1956, "has no right to be a mere onlooker."

We don't like the way Khrushchev gets participation out of his countrymen, but we do have to admit that he has put his finger on one of the strengths of dictatorships — and one of the weaknesses of democracy.

Back in 1884 Oliver Wendell Holmes was worried over the tendency of the American to slip into the complacent role of the onlooker. He said, "As life is action and passion, it is required of a man that he should share the passion and the action of his time, at the peril of being judged not to have lived."

We cannot allow ourselves to simply stand by in a world where no Communist has the right to be a mere onlooker. We cannot allow ourselves the luxury of "being judged not to have lived."



NEW OFFICERS of Toastmasters Club 765 elected Oct. 5 include (seated l to r) Cmdr. Walter Hall, USN, sgt. at arms; L. A. Hanchey (7147-1), president; R. L. Baca (2643-3), executive vice president; (standing l to r) R. T. Sylvester (2542-2), historian; Capt. Wm. Clark, USAF, treasurer; C. F. Kyger (2544-1), secretary.

Congratulations

Born to:

Mr. and Mrs. Walter F. Scott (3462) a daughter, Lisa Jeanne, on Oct. 17.

Mr. and Mrs. Edwin F. Johnson (2344) a son, Drew Haydn Bijorn, on Oct. 9.

Mr. and Mrs. Ted Bryant (1413) a daughter, Beverly Jo, on Oct. 16.

Mr. and Mrs. R. L. Cline (8125-1) a son, Brett Andrew, on Oct. 8.

Mr. and Mrs. Louis A. Wright (8124-1) a son, Kevin Eugene, on Oct. 12.

Mr. and Mrs. Benny M. Garcia (4611) a daughter, Angela Therese, on Sept. 29.

Mr. and Mrs. K. E. Johnson (4232-3) a son, Eric William, on Oct. 13.

Mr. and Mrs. L. E. Williams (4232-3) a daughter, Paula Denise, on Oct. 15.

Mr. and Mrs. David C. Tafoya (3467-1) a daughter, Pamela, on Oct. 8.

Mr. and Mrs. Tony Gabaldon (4516-2) a daughter, Linda May, on Sept. 29.

Mr. and Mrs. Ralph Work (1432) a daughter, Tracy, on Sept. 28.

Mr. and Mrs. Paul Gammill (1431) a son, Thomas Wayne, on Sept. 21.



HALLOWEEN CUE to security is this jack-o'-lantern carved by Ben Aiken (8233-3) at Livermore Laboratory. Tipping Mr. "Q's" hat is Joan Tucker (8121) who reminds us that it is not much of a trick to treat security seriously by not giving away any secrets.

Sympathy

To Neta Tyler (3446-1) for the recent death of her mother-in-law in Los Angeles, Calif.

To Parker E. Wallace (3211-1) for the death of his father in Brownsville, Tex., Oct. 12.

To J. A. Beaudet (2544) for the recent death of his father-in-law in San Francisco.

To Alice Segrist (2622) for the recent death of her grandfather in Clinton, Okla.

To John Richardson (2621) for the recent death of his mother in Pendleton, Ind.

To Dennis Varley (8123-1) for the death of his son, Duane, on Oct. 14.

Cut-Price Tickets Available to Sandians For Ice Capades

Sandians are being offered special prices for the opening performance of Ice Capades on Nov. 20.

By ordering tickets in advance (before midnight Nov. 5), employees will get 50 cents off every adult ticket and one-half reduction on tickets for children under 13. Regular prices are \$2-2.50-3-3.50.

This offer is for one performance only and tickets must be ordered by mail in special envelopes available from Services and Benefits Division 3122, Bldg. 610.



TOASTMASTER OF THE YEAR, A. E. Hall (4221), recently elected by members of Toastmasters Club 765, receives gavel trophy for his achievement from Col. Ben Marshall, USAF, past president.

Toastmasters Honor Al Hall for Greatest Contribution to Club

Members of Toastmasters Club 765 elected A. E. "Al" Hall (4221) "Toastmaster of the Year" at their Oct. 5 meeting. Al achieved the honor for having made "the greatest contribution to the Club during 1960-61" in the opinion of members of the organization.

New officers elected at the meeting include L. A. Hanchey (7147-1), president; R. L. Baca (2643-3), executive vice president; J. T. Wheelis (2543-2), editorial vice president; C. F. Kyger (2544-1), secretary; Capt. William Clark, USAF, treasurer; R. T. Sylvester (2542-2), historian; and Cmdr. Walter Hall, USN, sergeant at

Winter Sports Fans Meet Despite Balmly Weather to Plan

Warm fall weather failed to deter some 30 winter sport enthusiasts last week from organizing a new interest group with the Coronado Club.

The Winter Sports Club will be headed by Ken Pilkington (4411), with Marion Sliwinski (4343), secretary, and Bill Weinbecker (4252), vice president.

Representatives from ski areas at Santa Fe, Sierra Blanca (Ruidoso), Red River, and La Madera, and a U. S. Forest Service snow ranger, were on hand to tell about winter sports facilities in New Mexico.

The next meeting will be held at the Coronado Club, Tuesday, Nov. 7 at 8 p.m.

Wedding Anniversary

Mr. and Mrs. Paul M. Montano (4624) marked their 25th wedding anniversary on Oct. 17 with a trip to Chihuahua, Mexico.

Horse Show Sunday

The Albuquerque Horsemen's Association is sponsoring a horse show on Sunday, Oct. 29, starting at 1 p.m. at the arena on Pajarito Rd. SW. For further information contact Betty Tatum (3321-1), TR 7-0997.



Jo Sena (7145)

Take a Memo, Please

Keep all floors dry and clear of grease or other substances that might cause someone to slip and fall.

Sandia Corporation LAB NEWS ALBUQUERQUE, N. MEX. • LIVERMORE, CALIF.

OFFICE OF PUBLICATION
SANDIA LABORATORY Employee Publications Division 3432, Bldg. 610 Sandia Corporation, Albuquerque, N. Mex.
LIVERMORE LABORATORY Publications and Public Relations Section 8233-1, Bldg. 912 Sandia Corporation, Livermore, Calif.

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Deadline: Friday noon of the week prior to publication



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Member Association Nuclear Editors, Border Council of Industrial Editor and affiliated with International Council of Industrial Editors.

FBI Official Speaks On Communism Topic At UNM Nov. 9

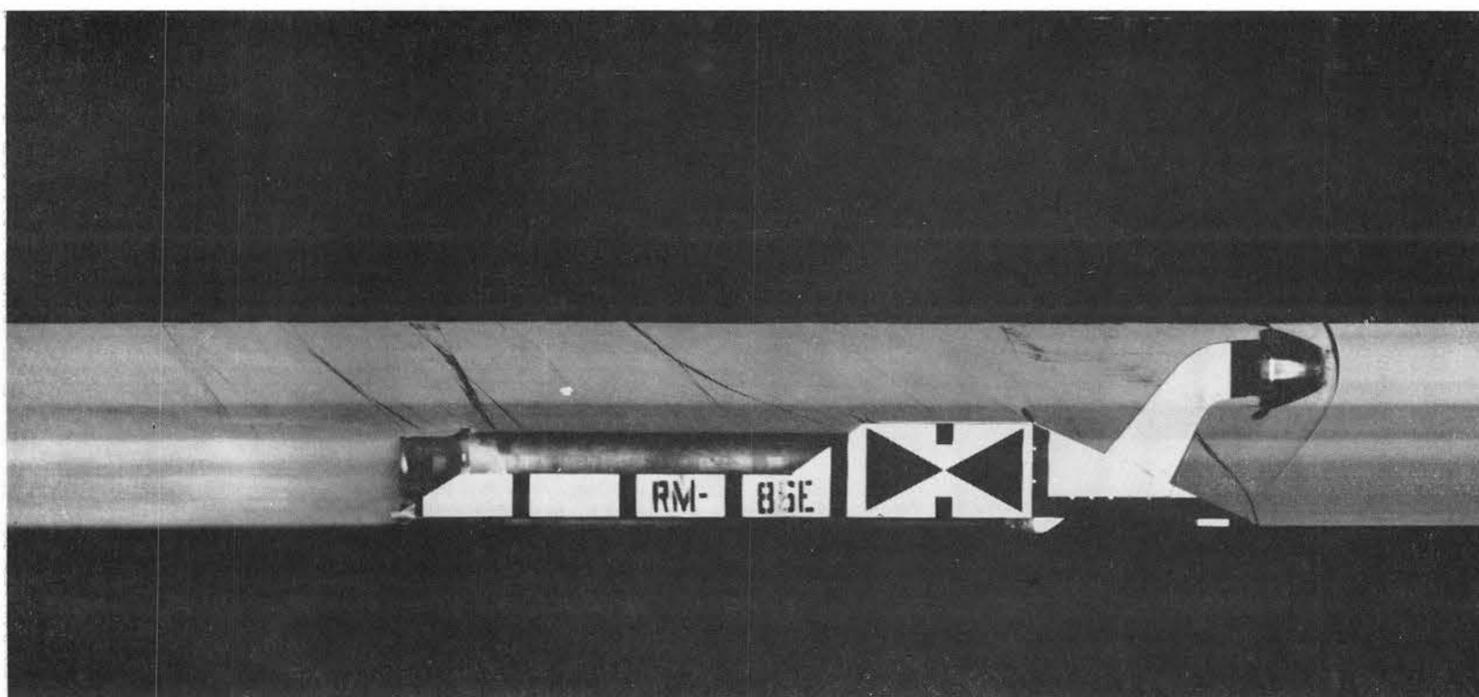
William C. Sullivan, assistant director of the FBI, will speak on "Communism in the United States Today" at the University of New Mexico Johnson Gym, Nov. 9, at 8 p.m.

His lecture was arranged through the cooperation of the FBI, UNM, and Mortar Board, senior women's honorary.

The public is invited to this free lecture.

W. A. Gardner Speaks In Detroit Oct. 9

W. A. Gardner (7300) presented a technical paper at a meeting of the Michigan Chapter of the Institute of Environmental Sciences in Detroit, Mich., on Oct. 9. His paper was entitled "Engineering Judgment and Environmental Testing."



STREAKING PAST camera station at 1865 ft. per second, this monorail rocket sled tests materials in the forward radome. Six thousand ft. of the run was through a man-made rainstorm. Black lines are shock waves. Photography details in accompanying article.

Sandia Lab Monorail 2-Stage Rocket Sled Fired at Holloman; 23 More Tests Planned

Earlier this month an 18-ft. two-stage monorail rocket sled designed at Sandia Laboratory roared down 23,300 ft. of the Holloman Air Force Base track. Some 6000 ft. of the run was through a 6-in. per hour rain created by a unique Sandia-designed rain system.

Jutting forward on the sled was a small radome. The purpose of the run was to test materials of the radome while moving at extreme velocity through drenching rain. Twenty-three more tests are scheduled in the series.

First stage of the sled contained two Viper rockets which kicked the sled to Mach 1.8. Within seconds the Yuma rocket in the second stage fired, pushing away from the burned-out first stage, and shoved the sled at 2000 ft. per second (1365 mph) for the remainder of the run. Maximum thrust achieved was 22,000 lbs. The sled was under power for a total of eight seconds and coasted some 10,000 ft. before slamming into a "water bag" brake — 500 ft. of water-filled polyethylene tubing taped to the single track.

For more than a mile, 1500 "spray risers," standing like fenceposts beside the track, spit a 6-in. per hour rain as the sled shot past.

Designed in 7311

Designed by Marcel Reynolds of Facility Planning Section 7311-1, the rain system can produce any desired rainfall rate between 4 and 12 in. per hour. The rate is held within 10 per cent through the entire 6000-ft. test section by control of nozzle pressure.

Average droplet size is variable between one and two millimeters in diameter. A 500 hp pumping system provides up to 4800 gallons per minute of water to the spray heads for a maximum period of six minutes per run. A 20,000 gallon water storage tank and make-up water coming into the tank permit two runs per hour through the system.

All of these features will be utilized in the coming series of tests.

According to John Allen of Mechanical Development Section 1422-4, project engineer for the radome development, various radome materials will be evaluated to determine resistance to erosion that takes place when the materials are subjected to various heavy rainfalls at supersonic speeds.

Different Materials Tested

Three different radome materials will be tested through rainfall at five velocities varying from 1100 to 2800 ft. per second. "Normally, people do not think of rain hitting a material as being particularly damaging," Mr. Allen said, "but at these high velocities, the rain can render tremendous destruction. The radome can be completely destroyed or eroded away in a matter of seconds. However, one of the sample radome materials, a ceramic, is expected to come through the tests undamaged."



RAIN SYSTEM at the Holloman rocket sled track stretches for 6000 ft. on both sides of the track. Bill Farmer, left, and Don Hansen work on the system which creates the rainfall.

In the 23 remaining runs of the series, the monorail sleds will be equipped with several different kinds of rocket motors in both the first and second stages to provide runs at speeds from Mach 1 to Mach 2.5, according to Bob Hedberg and L. F. Luehring (both 7323-1) who share project engineering responsibilities for the sled.

Overall responsibility for the tests rests with Ron Johnson, su-

pervisor of Field Test's Special Problems Section 7244-2. Working with Ron are Bob Beasley and John Banker of 7244-2 and D. C. Hanson, W. E. Farmer, and D. W. Berst of AFMDC Operations Sections 7244-3, stationed at Holloman.

In addition, Section 7244-2 provides the instrumentation packages and data recording directions for the sled. Data will be reduced by Data Services Department 7240.

Prizes Going to Best Costume Shown At Coronado Club's Halloween Party

Coronado Club members can dress like Napoleon and get away with it at the club's Halloween masquerade party tomorrow night. Prizes will be awarded for the best costumes.

The buffet will be served from 6 to 8 p.m., followed by dancing from 9 to 1 to the music of Lloyd Pond's band. The price is \$2.60 for members, \$3.60 for guests.

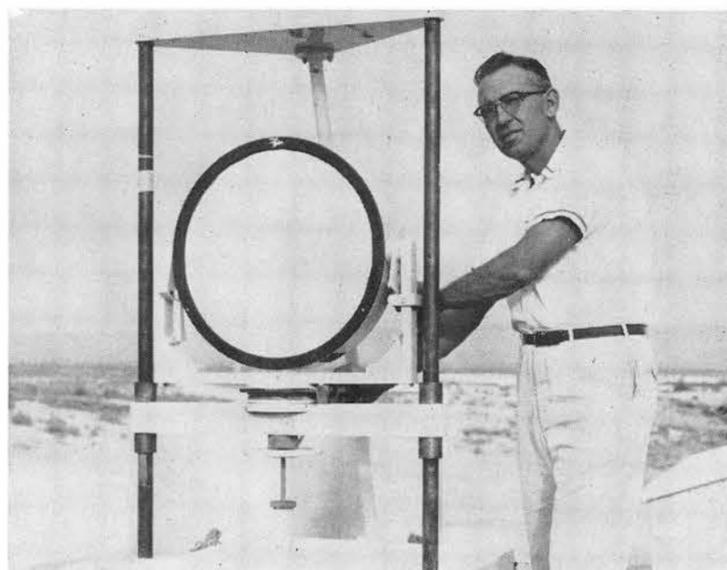
Tonight, a square dance will be held at the club from 8:30 to 12. Tickets cost \$1 for members, \$1.50 for guests.

"Ma & Pa Kettle at the Fair" is the free Family Nite movie on Sunday, Oct. 29. Cokes and popcorn will be served during the

show which starts at 6 p.m.

Two Saturday night dances are scheduled for the first part of November. The MBC Trio will play for dancing from 9 to 1 on Nov. 4, and Nov. 11 it will be Lee Sprague. Tickets cost \$1 for members, \$1.50 for guests.

Live music on Friday nights will be provided by the Four Brothers tonight, and Rex Elder next week. Social hour is from 4:45 to 6:15 tonight, but will change to 5:15 to 6:45 on Nov. 3. Tonight's buffet will be served from 6 to 7:30, and next week, 6:30 to 8. The buffet costs \$1.75 per person.



PARABOLIC MIRROR, part of equipment used to collect data on rocket sled tests, is adjusted by Dale Fastle (7244-1). New techniques enable photography showing shock waves and a sharp detailed image of speeding sled on the same piece of film.

It's Done by Mirrors . . .

New Photo Technique Gives Superior Data Record Picture

The photo above is a striking example of results achieved by a new photography technique developed by Dale Fastle of Sandia Laboratory's Technical Photography Division 7244.

Photographing shock waves is not unique, but producing in the same picture a sharp image of the object traveling at high velocity is. It took about two years of spare-time experimenting to achieve such a photograph.

Dale uses two 20-in. parabolic mirrors facing each other across the sled track. On one side is a small zirconium light source which is projected through a tiny .025-in.-diameter pinhole onto one mirror. This converts the light into thousands of parallel beams which strike the other mirror.

Offset at the same angle as the light source on the opposite side of the track, an image-motion camera is carefully positioned. This camera will synchronize the film plane motion with the image motion.

Hits Trigger

As the sled streaks down the track it hits a trigger mounted at a predetermined point in advance of the mirrors. This switch activates the film mechanism in the image-motion camera.

A flywheel inside the camera has been spinning and storing about 30 hp of energy. The trigger activates an electromechanical clutch that grabs the film mechanism and yanks about 10 ft. of film past a tiny slit, the camera shutter, in milliseconds.

Film velocity is carefully computed to match, in proper ratio, the velocity of the sled. This can be checked by an internal timing device which "blinks" a small dot on the film every .001 second.

The sled, as it passes through the collimated beams of light between the mirrors, is creating shock waves. These waves distort the tiny beams of light and appear in the finished photograph as black lines streaming in front and behind the sled.

Because the camera position is inside the focal point of the reflecting mirror, the film plane is moved forward from its normal position according to a mathematical formula; and this is the novel solution to the clear sharp image. The camera "sees" the thin vertical area in the center of the reflecting mirror. This space corresponds to the area of the shutter slit in the camera.

The image is "wiped" onto the film as light passes through the slit.

Useful Data

The resulting photograph provides much useful data to Sandia test engineers. Pattern of shock waves, condition of the sled, and actual velocity can be determined quite accurately from the print.

The length of the sled, as recorded and measured on the print, may be distorted or "stretched" in ratio to the velocity of the sled and the film. Here again, a math formula can provide velocity figures. In essence, the photograph has recorded distance versus time.

Dale has been at Sandia since September 1948 primarily in the technical photography area. He has participated in several of the major full-scale tests conducted in the past by Sandia Corporation.

Previously he was in the Research Department of New Mexico Institute of Technology. During World War II he served in the Army Air Corps as an aerial photographer.

Food Faddism Gives Rise to Quackery in the Medical Field

By S. P. Bliss, M.D.

Sandia Corporation Medical Director

Recently there has been a justifiable increase in concern for the elimination of quackery in the medical field. Interest has been directed toward improper claims of drugs, apparatus, and procedures. Food and drug laws, laws prohibiting false claims, are important tools for eliminating this problem. However, such tools are not available to prevent the false ideas about food that are circulated by food faddists and fringe promoters of vitamin and mineral products.

These promoters use all mediums for contacting the public, ranging from house-to-house calls, lectures, the written word, to radio and television. Many of them speak and write convincingly using the fear technique and promising quick cures. Their theme is generally one of undermining the public confidence in the nutritional value of the staple foods.

The following are the false ideas most commonly used:

1. The myth that most diseases are due to improper diet. The most commonly used is that disease is caused by chemical imbalance in the diet since it is almost impos-

sible for the average person to eat an adequate diet. The promoter always has the product that provides the missing element. In truth, deficiency diseases are rare in the United States.

2. The myth that soil depletion causes malnutrition. In truth, the quality of the soil has a definite effect upon the quantity of the crop but not the quality. These promoters also attack the use of chemical fertilizers. Extensive research by the federal government shows that this is not true.

3. The "wonder power of wonder drugs" such as yogurt, blackstrap molasses, wheat germ, honey, etc. These may be used if a person likes them but they have no special virtues over other foods.

4. Processing and cooking removes nutritional values, or the dangers of certain types of cooking utensils. In fact, modern methods of processing foods have been designed to conserve food value and none of the claims regarding cooking utensils have been substantiated.

Actually the modern grocery store can easily supply all our nutritional needs. The best way to buy vitamins and minerals is in Nature's packages — vegetables, fruits, milk, eggs, meat, breads, and cereals.

New Ion Accelerator Is Given Nickname of 'Microbevatron'

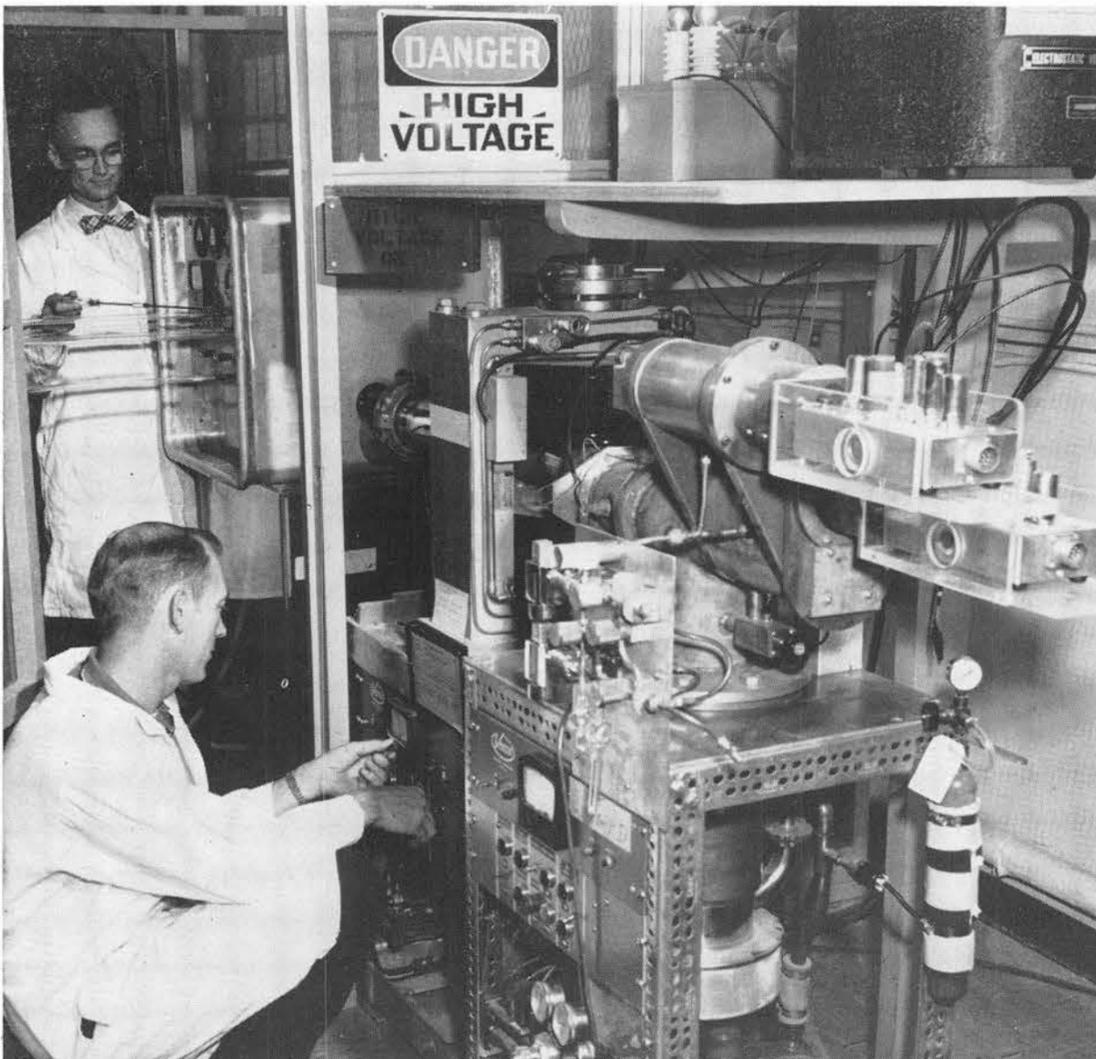
An ion accelerator with characteristics of a junior-size Cockcroft-Walton accelerator, yet of simpler construction, has been assembled in Research Division 5152 for use in experiments.

Nicknamed the "microbevatron," the device is being used by Gordon W. McClure, Division 5152 supervisor, for measuring charge exchange and dissociation cross-sections for several types of hydrogen ions and neutrals.

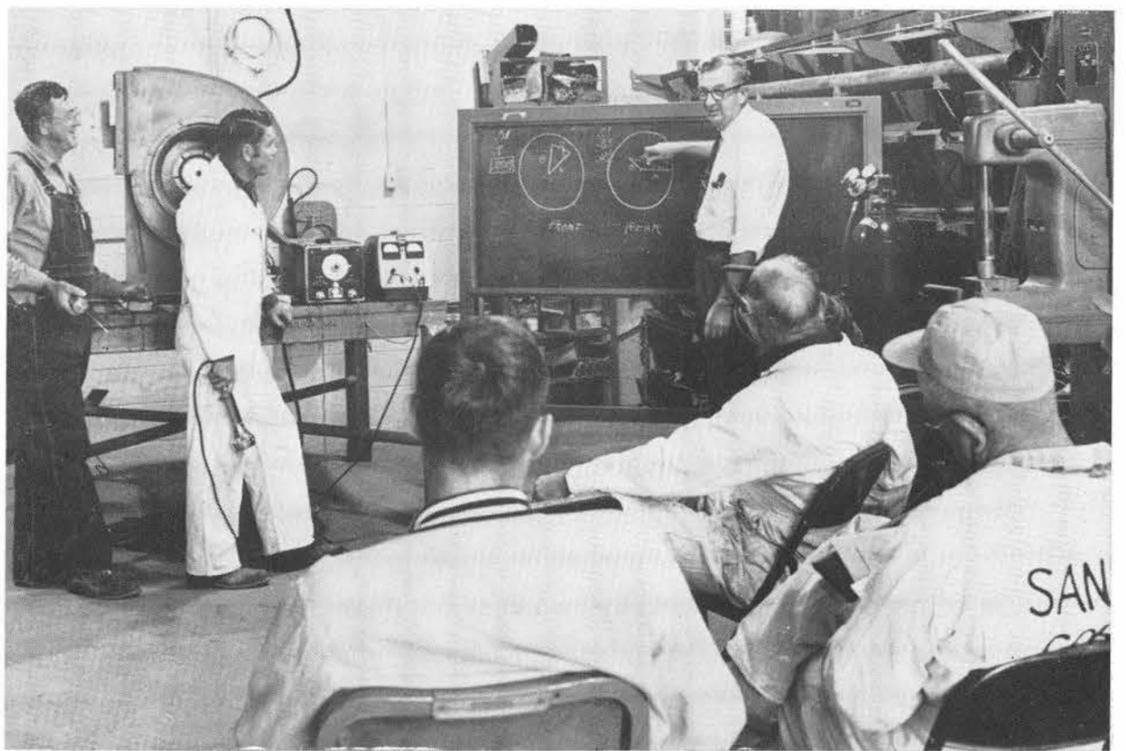
"Although we are presently accelerating ions of hydrogen, the machine is readily adapted to accelerate ions of other gases," Mr. McClure explains. The accelerator is useful for a variety of experiments in which a beam of mono-magnetic ions is needed.

The microbevatron covers the low energy range, 5-100 kilo-electron-volts (kev), compared to 30-250 kev with the Cockcroft-Walton, and 75-2000 kev with the Van de Graaff accelerator.

There are basic differences in addition to the energy range. The microbevatron uses standard full wave rectifier circuits, the acceleration takes place in one stage across a single accelerating gap, and the controls may be operated directly on the console. In comparison, the Cockcroft-Walton accelerator uses a cascade rectifier circuit, acceleration is in a sequence of six stages, and the controls are remotely operated by servomechanisms.



G. W. McClure (5152), standing, indicates where magnet analyzes and splits beam into different types of ions, and then directs the through magnet beside Dwight Allensworth (also desired type into the experimental apparatus.



PROBLEM in two-plane balancing is explained by instructor D. M. Wilkinson to members of precision balancing class held in millwork shop of Section 4512-1 under Sandia's out-of-hours training.

Classroom Call Answered in Force by Millwright Section

Employees of Sandia Laboratory like the out-of-hours training program sponsored by the Corporation this fall. But when it comes to enthusiasm, employees in Millwright Section 4512-1, under the supervision of J. M. "Jim" Winter, have an outstanding record. Thirteen employees in the section have made 23 enrollments in courses offered in the out-of-hours program.

"Interest in the program has snowballed," Jim commented. "It's like the team feeling you find in a football squad; the enthusiasm is contagious."

Most of the courses being taken by the group have to do with subjects directly related to the section's work, such as precision balancing, precision leveling, and blueprint reading. Out-of-hours welding classes are set up as units of a four-year series, and three men in Section 4512-1 are enrolled in the fourth year of welding. They have followed the series from the beginning.

"We're all happy to take the courses under Corporation sponsorship," Jim explained. "We've noticed already that the courses have definite effects upon our jobs and the way we do them. We find ourselves applying principles that we've learned to the problems that face us."

Jim encourages people to take advantage of the opportunity offered in the out-of-hours program.

A class in precision balancing instructed by D. M. Wilkinson (4543-2) is held two noon hours each week in the millwright shop. Seven of the Millwright Section personnel are enrolled.

Promotions

Alice I. Smith (3441) to Document Clerk
 Esther I. Stevenson (4131) to Payroll Clerk
 T. June Santiago (4135) to Invoice Clerk
 Terrance M. Weber (8232) to Document Clerk
 Mary Jane Leonard (4413) to Draftsman
 Derral W. Whitlock (4413) to Draftsman
 Loubera A. Culley (4413) to Draftsman
 John R. Woodworth (1122) to Laboratory Assistant
 Lennox B. Green, Jr. (8122) to Staff Assistant
 Paul E. Luers (8122) to Staff Assistant
 Kenneth L. Hankins (4412) to Staff Assistant
 W. Kendall Gentry (4412) to Staff Assistant
 Duane A. Benton (4412) to Staff Assistant
 William I. Zagar (4412) to Staff Assistant
 Donald L. Markwell (2444) to Staff Associate
 Woodrow W. Hunt (4412) to Staff Associate
 Willie L. Smith (4511) to Junior Tradesman
 Emiliano Sanchez (4254) to Machinist
 William R. Lincoln (4511) to Electrician
 M. L. Huelsewede (3126) to Secretarial Typist
 Marilyn J. Taylor (3126) to Secretarial Stenographer
 Carolyn A. Benzing (3126) to Secretarial Typist
 Onadell D. Dillard (3441) to Document Clerk
 Grace M. Worth (8212) to Secretarial Stenographer
 Canice M. Azevedo (8233) to Library Assistant
 Janice L. Maabner (8161) to Service Clerk
 James A. Martin (8224) to Office Equipment Investigator
 Glorianne M. Silva (3153) to Record Clerk
 Margaret K. Atkin (7212) to Secretarial Stenographer
 Harry E. Bell (7251) to Staff Assistant
 Robert G. Tant (4252) to Machinist
 Antonio L. Saavedra (4252) to Machinist
 Walter C. Mooney, Jr. (4252) to Machinist
 John A. Garcia (4253) to Machinist
 C. E. Jenkins, Jr. (4232) to Inspector
 Edna J. Bierner (4131) to Report Clerk
 L. Sandra Borgink (3121) to Personnel Clerk
 Walter F. Scott (3452) to Photographic Clerk
 Edna A. Utton (4172) to Accounting Clerk
 Carolyn S. Viel (8233) to Record Clerk
 Mary M. Watkins (8224) to Catalog Compiler
 K. A. Longfellow (3151) to Employment Clerk
 Sherrill O. Woodall (3442) to Staff Associate
 Buddy R. Osborn (4254) to Apprentice Machinist
 Thomas L. Cleveland (4254) to Apprentice Machinist
 Beverly A. McCrory (3126) to Secretarial Typist
 James L. Davis (3444) to Mail Clerk
 Dorothy W. Calloway (3452) to Record Clerk
 P. J. Finlayson (4211) to Report Clerk
 Clarence W. Green (7322) to Laboratory Assistant
 L. J. Fitzmorris (7322) to Laboratory Assistant
 Ruth M. Cowham (2620) to Secretary
 Lillie M. Sanchez (7160) to Secretary
Supervisory Lateral Transfers
 W. C. Hunter from 2442 to 5431
 F. H. Long from 4251-2 to 4254-4
 R. E. Butler from 7524 to 1443
 J. C. L. Leslie from 3431-1 to 3433-1

L. J. Paddison to Speak At Aircraft, Missiles Conference Nov. 10

L. J. Paddison, Director of Product Test Equipment Development 2400, will speak at the 11th National Conference of the Aircraft and Missiles Division, American Society for Quality Control, on Nov. 10, at Los Angeles, Calif.

His talk entitled "Design for Reliability" will be given at the Design Reliability session.

Supervisory Appointments

ELLIS L. ROPER to supervisor of Component Evaluation Division 7524, Quality Engineering Department.



Ellis has been at Sandia since August 1952 and has been a section supervisor in the Quality Assurance Department since February 1956.

Previously he worked five years as a mechanical engineer for Sherwood Brothers, Inc., Baltimore, Md., distributors of petroleum products, domestic and industrial heating equipment.

During four years with the War Department he was stationed in Albuquerque as an assistant engineer, in British Columbia as an associate engineer for maintenance of the Alcan Highway, and with Headquarters Second Army and Headquarters Fifth Service Command as a mechanical engineer.

Ellis also worked five years as a heating engineer in Raleigh, N. C.

He received his BS degree in mechanical engineering from North Carolina State College. He is a member of the American Society for Quality Control and is a registered professional engineer in New Mexico.

JAMES KETNER, III, to supervisor of Systems Section 7513-1, Review and Reports Division.



Jim has been working in the Quality Engineering Department since April 1953, except for a period of six months when he returned to his previous employer, the Metropolitan Water District of Los Angeles, as senior electrical engineer.

Before coming to Sandia Jim had been with the water district since early 1933 when the Colorado River aqueduct project was started. He was first concerned with construction, then was superintendent of operations, and later was acting field superintendent.

During World War II Jim served four years in the Navy in a technical branch of ordnance.

He attended the University of Missouri and Stanford University, where he received his Bachelor's degree in electrical engineering. Jim is a registered professional engineer in California.

Livermore Group Leaves Oct. 27 for Special Package Tour of Hawaii

A chartered plane bound for Hawaii will carry six Livermore Lab Sandians when it leaves Oakland Oct. 27. The flight is the beginning leg of a special rate 17-day package vacation arranged by the 184 Club of the Lawrence Radiation Laboratory.

Those joining the group of more than 90 travelers are Mary Clay (8241-1), Ken Mitchell (8241-2), Irwin Troyky (8241-1), Lorena Schneider (8100), Mr. and Mrs. John Larned (AEC-ALO), Pat Beavers (8232-3) and her husband Max.

Scenic and historic spots on the islands of Maui, Hawaii, and Oahu will be visited, with accommodations arranged at some of the islands' most famous hotels.

The plane will arrive at Maui early Oct. 28, where the travelers will be greeted with the traditional aloha bouquets of leis welcome.

After two days of sightseeing at Maui, and six days at Hawaii, largest of the islands, the group will spend the remainder of the time in Honolulu on the island of Oahu.

Highlights of the vacation include a visit to a coffee plantation, a cruise on a giant glass bottom boat over coral reefs, a pineapple cannery tour, and a Pearl Harbor yacht cruise where historical remnants still remain of the Dec. 7, 1941, holocaust, including the sunken battleships "Utah" and "Arizona."



ANNOTATED INSTRUCTIONS on preparation of new Office Procedures Manual. Above, Margaret correspondence and forms are a feature of the Platt (4112-1) checks final proofs on section forms.

New Office Manual Will Set Procedures For Sandia Corporation Correspondence

A new Office Procedures Manual will soon be in the hands of Sandia Corporation secretaries, stenographers, and typists. As early as 1948 at Sandia Laboratory, they were provided with a written guide to help them prepare Corporation correspondence. The guide served its purpose well in the first years of Sandia's existence. But as the Corporation grew, so did the need for a more comprehensive guidebook.

In 1952 Sandia Corporation published the Correspondence Guide. It provided information with examples on correspondence format. Since then additional information on grammar, punctuation, proofreader's marks, and how to type equations was added. It has been felt that consolidation of related information published by various organizations would provide a more comprehensive publication; hence a new manual is being prepared.

Prepared by 4112-1

Administrative Methods Section 4112-1, under the supervision of D. D. Dollahon, is preparing copy for the new book, the Office Procedures Manual, to replace the Correspondence Guide. The new manual contains information found in the Guide as well as new

sections on added subjects. Preparation of new material for the Manual and revision of the material from the Correspondence Guide are the responsibility of Margaret Platt (4112-1). M. J. Conners (8213-1) is coordinating for Livermore Laboratory.

In the past some secretaries considered the Correspondence Guide only as a guide and not as a requirement. However, it was authorized as the official standards for Sandia Corporation. That's how the new book will be used—as the written authority on Corporation correspondence and on the new subjects covered in the text.

The book will be released soon with a Corporation distribution of 700 copies. It will be used by all accountability station personnel, stenographers, and typists at Sandia and Livermore Laboratories. Copies will be available to others who have direct need for information contained in the book. It will also be utilized as a training manual by Technical Trades Training Division 3132, and Secretarial Services Section I 8212-3.

Three Achievements

"We think that the manual will achieve three things," Mar-

garet comments. "It should promote efficiency by speeding up and simplifying preparation of written material. We're confident that it will eliminate many of the delays involved in secretarial and stenographic work. We know it will promote standardization of office procedures."

The manual includes chapters on correspondence and telegraphic messages, typing and writing aids, accountability station procedures, the Corporation secretary, and forms. Also included is a section on photo-reproduction and printing methods which presents facsimile examples of printing done by a variety of means. The forms section consists of facsimiles of a myriad of Sandia Corporation forms, all correctly filled out and annotated. The manual is loose-leaf, which enables memoranda to be added and permits easy updating.

Binders for the manual are a distinctive turquoise blue. Reproduction and printing of the copy were handled by Graphic Arts Department 3460 at Sandia Laboratory and by Information Reproduction and Material Control Department 8230 at Livermore Laboratory.



"TAKE ME TO YOUR METER," says Verne McNabney (right) as he and Bob Hanzel display radiation monitoring equipment used by the Health and Safety Section (8241-3) at Livermore Laboratory. New machine at right collects airborne radioactive and toxic particulates; machine under Verne's foot monitors alpha radiation on floor; and Bob holds conventional geiger counter. Verne wears protective equipment, including a respirator, in addition to a lapel air sampler, and a pocket dosimeter.



DRAMATIC display boards for Livermore Laboratory observance of Fire Prevention Week were created by Frank Parr (8222-1), Livermore Labora-

tory sign painter. Frank is shown putting the finishing touches on a display of Livermore Laboratory's new and better fire alarm system.

H. E. Vaiden Marks 25th Anniversary With Bell Telephone Laboratories

H. E. Vaiden, supervisor of Electronic Components Division 1432, will observe his 25th anniversary with the Bell Telephone Laboratories on Nov. 2.

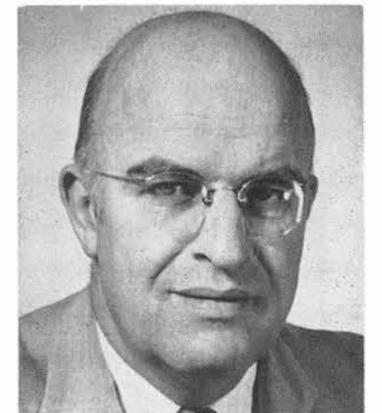
Mr. Vaiden began working at the Bell Lab's West Street plant in New York City in 1936 as an engineer in the Quality Assurance

H. M. Brown Retires From Sandia Corporation At End of October

Harold M. Brown, Sr., will retire from Sandia Corporation Oct. 31 after nearly 12 years here. He is a specifications engineer in Components and Equipment Specifications Section 4422-2.

Mr. and Mrs. Brown plan to move to San Diego, Calif., where their son lives. They also have a daughter in New Jersey.

Mr. Brown previously worked as a supervisor of inspection and testing for Western Electric in New York City and for the New York Telephone Company. He was also a supervising engineer with the Federal Telephone and Radio Co., Clifton, N. J., and a senior engineer with Eclipse-Pioneer (Bendix), Teterboro, N. J.



Mr. Vaiden

Department. In 1942 he was assigned to the Apparatus Development Department where he designed transformers.

He spent a short time at Murray Hill, N. J., in the early 1950s working in the Magnetic Applications group, and then returned to New York as a section supervisor in the Apparatus Development Department.

Mr. Vaiden came to Sandia in 1955 as a division supervisor.

Library Move Done Without Hitch--Thanks to Plans

Anyone who has ever moved a shelf of books can appreciate the problems encountered by Sandia Laboratory's Technical Library in relocating some 40,000 books, plus periodicals, technical reports, and cards in the new Bldg. 804 location.

Two months in advance Barney

G. C. Parkin Speaker At November Meeting Of Local ASQC Section

The Albuquerque Section of the American Society for Quality Control will hold its monthly meeting in La Cana Room at the Coronado Club Monday, Nov. 13. Buffet lines will open at 6:30 p.m.

Guest speaker is G. C. Parkin, staff consultant, Industrial Statistical Control, for the Minnesota Mining and Manufacturing Co. His topic is "Tests of Significance in Industrial Processing."

Myer (4542), move coordinator, and W. H. Richardson (3421), library coordinator, made their plans.

Thursday afternoon, Oct. 19, books began disappearing by the shelf-full from room 102, Bldg. 802, although a few staunch library patrons continued to study in the carrels through the din. By 4:30 p.m. librarians were still checking out books, but slips of paper had to suffice for record purposes—the circulations cards were packed away.

All day Friday the big move was underway with boxes and book shelves carefully numbered. Employees trying to return due books were asked to come back—at the new location—"next week."

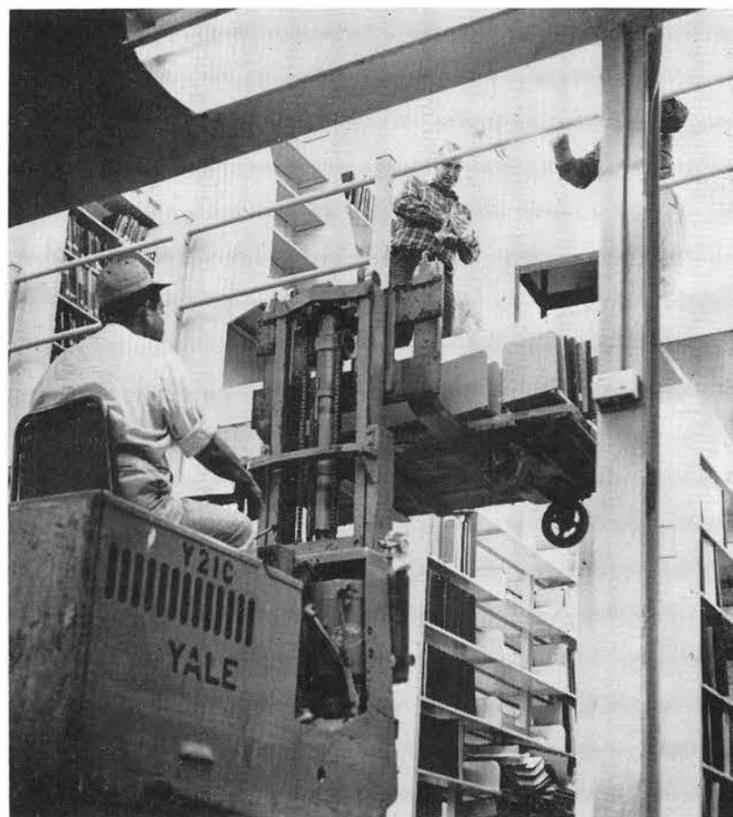
And sure enough, by Tuesday morning, there were the books, periodicals, reports, and cards all in their proper places, and there were the library users and tech library employees looking pleased.



STRAIGHT TO THE FRONT DOOR of Bldg. 804, the new technical library location, come the shelves of books. Library Section Supervisor Bea Allen watches as Elauterio S. Torres (4575) helps books.



NEW PHOTSENSITIZING technique for numbering circuit boards, discussed here by Don Tassano, right, and Jessie Berry, both of 8223-3, requires only one man-hour for entire process. Negative used to expose numbers on plate is shown in this photo on the light table behind Don.



EVER-HANDY FORK-LIFT was used inside Bldg. 804 to hoist shelves of books to the mezzanine. Fork-lift driver is Max Lopez, unloading are Andres Sanchez (left) and Manuel Silva (all 4575).

Old-Time Tintype Process Solves Modern Printed Circuit Problem at Livermore Lab

The same photographic technique that produced prized pictures during the Civil War is being used at Livermore Laboratory to speed the assembly of electrical circuitry for experimental nuclear weapons.

In Civil War days, metal plates were coated with a photosensitive solution which received the pictures projected from a camera lens when the shutter admitted light. These plates, known as "tintypes," were subsequently developed, becoming the "jumbo prints" of yesterday.

This technique of photosensitizing has been applied by Don Tassano (8223-3) in numbering connections on electrical circuit boards and other electronic equipment.

Each circuit board contains hundreds of tiny locations for terminal wire connections. Every one of these tiny locations must be numbered so that the correct wire is soldered to the proper terminal.

Replaces Hand Letters

"Previously, we numbered all the locations by hand using a special India ink lettering pen," Don said. "This took anywhere from a day to two and a half days depending on the number of locations to be lettered and the complexity of their positioning."

"Now," Don said, "with photosensitizing, the numbering job can be done in one man-hour."

Here's how it works. After a circuit board is sprayed with a photosensitive solution and dried, a negative bearing the set of numbers for terminal locations is placed on it and a light source exposes the numbers through the negative. The board is then dipped into a developer solution to bring out the numbers, which are then stained to a dark color and coated with a preservative.



OLD METHOD of numbering electrical circuit boards at Livermore Laboratory was done manually using this special lettering pen. Information was copied directly from engineering drawings and took up to two and a half days to complete.

"We make printed circuit boards with copper terminals and connections about the same way," Don said. "Only here, unwanted copper is etched away by chloride. We could number them this way also, but then the numbers would be conductive and might cause a short circuit."

Superior Method

The photosensitizing marking method proved to be far superior to all other non-conductive marking methods Don investigated for this purpose, including rubber stamping, stenciling, silk screening, decals, and engraving. It has proved successful so far on copper, steel, brass, phenolic, lucite, ceramic, and mylar, and on such items as terminal boards, dial plates, and chassis and panel layouts.

"Another advantage of this technique," Don said, "is that you can get excellent resolution in the tiniest numbers—not always possible by hand."

W. E. Boyes Speaks

"What Have You Proved?" is the title of a technical paper to be presented by W. E. Boyes (1440) at the Mid-America Electronic Conference (MAECON) to be held in Kansas City, Mo., on Nov. 14.



NUMBERED SHELVES OF BOOKS start on the move in Bldg. 802 where Jose J. Perea (left) and Fidel Gonzales (both 4575) lift them out the window onto gravity flow rollers. Jose Valdez (outside) makes sure the books are centered on the rollers.

15 Years



James L. Rowe
8220
Oct. 28, 1946



F. A. Leckman
2642
Oct. 30, 1946



A. B. Machen
2300
Nov. 1, 1946

10 Years

Oct. 28-Nov. 10

Raymundo P. Garcia 4611, Thelma B. Carpenter 4540, Daniel J. Alvino 4412, Roger G. McKenzie 2642, James M. Stueber 7232, L. T. McKenzie 3242, Jose I. Garcia 3241, Erlinda Dow 3126, William B. Leslie 1312, Mary Ruth Jansen 4411.

Ora W. Nairn 4213, Cora B. Beckes 3466, Alphonso Jiron 4514, Jack E. Rich 3242, Benjamin R. Armijo 4422, Thaddus N. King 3242, Lillian C. Kraus 3231, Tirico Ortega 4622, Gerald W. Hinman 4632, Jose T. Castillo 3466, J. J. Dearing 2542, Cecil C. Tolbert 7132, Mary M. Pasko 7513.

Eagle-Eyed Youngsters Shoot Well in State-Wide Tourney

Sharp shooting offspring of Sandia Laboratory employees won 37 medals, three state championships, and high girl honors in the recent New Mexico Junior Outdoor State Championship competition. All of the Sandia youngsters belong to the Sandia Base Junior Gun Club, hosts of the state-wide tournament.

Competitors shot from standing, kneeling, prone, and sitting positions; aggregate scores determined champions in the A, B, C, and D classes. In addition, team matches and a special Range Fund shoot-off were held.

John Blair, son of William Blair (2413), took the Class A championship with a total of 737-13X. Two of Lamar Tread-

well's (2532) youngsters competed in the tournament. Lamar, Jr., won the Class C championship, and Tom came in second in Class D.

Jim Mashburn, son of James Mashburn (2564), copped the Class D championship. The high girl award went to Patricia Dain, daughter of Frank Dain (4211), who competed in Class B.

Other Sandia and AEC youngsters who participated in the shoot-off included Craig S. Roepke, son of Myron Roepke (AEC); John and Beverly Hughes, son and daughter of Lorenzo Lopez (4613); Frank Bluestein, son of Howard Bluestein (2531); and John Starr, son of Tom Starr (2444).

Three Members of Nuclear Facilities Div. To Present Papers

Three members of Nuclear Facilities and Operation Division 5431 have prepared papers for presentation at national technical society meetings.

J. L. Colp will speak at a meeting of the Hot Laboratory Division of the American Nuclear Society to be held in Chicago on Nov. 9. His paper is entitled "Light Transmission Changes in Optical Glasses from Radiation Bombardment." At the same meeting, R. G. Struss will discuss "Sandia Pulsed Reactor Facility Building Design and Construction Details." Both papers will subsequently be published in the Transactions of the American Nuclear Society.

"Density Tests on Concrete Using Gamma Irradiation" is the title of a paper by R. M. Jefferson. He spoke at the 21st National Convention of the Society for Nondestructive Testing which was held in Detroit, Mich., Oct. 23-27. His paper was also published in the July-August issue of the SNT Journal.



PARKER BURNS (2643), singles horseshoe champion of Sandia Laboratory, displays trophy he won by defeating L. A. Eversgerd (4614) four out of seven in final matches.



DOUBLES CHAMPS of the Sandia Laboratory Round Robin Horseshoe tournament look happy as they admired their trophies last week. They are E. P. Monahan (4614), left, and L. A. Eversgerd (4614). The champs played 11 matches, lost only one.

To Surface Road, Parking Lot in Tech Area III

A \$45,028 contract for road and parking area paving in Tech Area III has been awarded by the AEC to Wylie Brothers Construction Co. The firm's bid was the lowest of five received.

Plant Engineering project engineer will be C. M. Morrisett (4543-3). Work will include construction of approximately 1-3/4 miles of road and parking areas. Miscellaneous culverts with concrete headwalls are included. The job is to be completed within 40 days after the contractor receives notice to proceed.

Don Yearout Takes Livermore Golf Tourney

Don Yearout (8156-1) was the first place trophy winner in the September Livermore Laboratory Golf Tournament, with a net score of 63. Second place was a tie between Bob Joseph (8232-3) and Ralph Morrison (8126-2), who both had a net score of 66. A prize was also given to Ralph for the fewest number of putts (27) for the 18-hole course.

Sandia Laboratory Football Standings

| Team | As of Oct. 23 | Won | Lost | Tied |
|------------------------|---------------|-----|------|------|
| 1300, 1400, 2400, 7100 | 7 | 7 | 1 | |
| 4200, AEC, 1100 | 4 | 4 | 3 | 1 |
| 7300 | 4 | 4 | 4 | |
| 2500, 2600, 4400, 7500 | 3 | 5 | 5 | |
| 3400, 4100 | 3 | 5 | 5 | |
| 7200, 3100 | 2 | 5 | 1 | |

SHOPPING CENTER

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

- Limit: 20 words
- One ad per issue per person
- Must be submitted in writing
- Use home telephone numbers
- For Sandia Corporation and AEC employees only
- No commercial ads, please
- Include name and organization.

FOR SALE

VIKING 4 TRACK record/play stereo recorder, uses 85 RMQ deck and 2 RP-62 amplifiers, cost \$345, sell \$199. Fite, AL 5-6943.

WESTERN CHAPS, tan and turquoise leather, outgrown by teenager, \$15; Arabian show halter, \$8. Galbreath, DI 4-4306.

'61 PLYMOUTH hardtop, red w/automatic transmission, R&H, padded dash, total mileage, 9600. Case, AX 8-1375, 1022 Grace NE.

'58 FORD Fairlane convertible, red & white w/white top, T-Bird Sp. V-8, power steering & brakes, auto. trans., 30,000 miles. Serna, CH 3-4364.

AUTOMATIC WASHER, Frigidaire, \$35. York, AL 5-3097.

TWO DESKS, children's, roll top w/pigeon holes and two drawers, \$12.50 each. Hall, 255-9740.

COMBINATION 21" TV, radio and 3-speed record player, mahogany finish, \$150. Pewe, AL 5-3518.

ELECTRIC STOVE, Tappan 442, w/base cabinet, less than 1 year old, \$200 under list. Sherman, AL 5-1160 after 4.

RECORD CHANGER, Webcor, three-speed monophonic w/GE cartridge, \$25. Henry, 1828 Florida NE, 256-2467.

TELESCOPE, six-inch reflector type, \$40, or trade. Banks, AL 5-2544.

DISHWASHER, \$30. Westman, AL 5-6048.

'59 LAMBRETTA SCOOTER. Haskell, AX 9-2490, 9408 Euclid NE.

'60 PLYMOUTH, 4-door, V-8, auto. trans., fact. air cond., \$1950; pair maple bunk beds w/mattresses, \$30; \$50 swing set, \$20. Corn, AX 9-0601 after 5.

'54 BUICK, lots of city miles left, has new brakes, \$295. Belden, AX 9-3867.

SMALL REFRIGERATOR, \$40; pedigreed poodles, \$85; Stauffer reducing equipment, \$150. Pope, AL 5-6702, 816 Val Verde SE.

3 BRM HOME, den, family-size kitchen, a/c, w/w carpeting, large patio, landscaping, \$1200 down new FHA. Rush, AM 8-4230 after 3:30 p.m.

RANCH OAK dining table with four chairs. Fenstermacher, AX 9-0200.

BRICK HOME, 4 1/2% interest rate, 3-bdr., 1 1/4 baths, carpeted, drapes, corner lot, near schools, Winrock. Smith, 7702 Cutler NE.

PAIR LAMPS, \$8; new \$25 coffeematic, \$8; 2 fans, \$10 and \$3; red taffeta dress, size 8, \$7. Kambourelis, AX 8-2148.

TRANSMITTER, Heathkit DX-40 with VFO, \$59. Welker, AX 9-1179.

COTTON SHAG RUG, 9'x12', light brown, like new, \$16; GE electric blanket, used one winter, dual control, \$12. Lenz, AL 6-7037.

USED ALTO SAXOPHONE, reasonable. Trull, DI 4-1229 after 5 p.m.

SE 3-BDR. HOME, 1 1/2 bath, panelled den, fireplace, new wool carpet, drapes, central heat, \$600 down or trade. Smith, AL 5-6487.

BOAT, 16' aluminum Lone Star, 16 hrs., Elgin motor, trailer, \$400. Nelson, AX 9-1959.

'58 BUICK SPECIAL, 2-dr., blue and white, R&H, automatic transmission, \$1095 or trade; '53 Plymouth station wagon, R&H, first \$145 takes. Garcia, CH 3-3473.

STORKLINE CHIFFOROBIE, full-length drawer, 3 drawers center-guided, dust shielded, closet w/pull-out rod, maple finish, \$22.50. Baff, 2001 Erbbe NE, AX 9-7030.

'57 FORD station wagon, 4-dr., 6-passenger, V-8, R&H, Ford-o-matic, \$750, under book wholesale. Holt, AX 9-5943.

MARTIN GUITAR, Spanish, w/case, original cost \$108, used 4 months, yours for \$75. McDowell, AM 8-5014 after 6 p.m.

FULL RACE OLDS ENGINE, newly rebuilt, '56 specifications, Isky E-2 cam, reworked heads, three carbs, new crank. Leonard, AL 5-4825.

CUSTOM HOME, 2150 sq. ft., 13x30' filtered swim pool, 3-bdr., study, playroom, 2 baths, \$1100 to new FHA \$16,800 loan. Vermillion, AL 6-6249.

PUPPY, 9 month old Toy Beagle, can be registered, \$35. Gay, AX 9-6567.

3-BDR 1 1/2 baths, Hoffman brick homes, one currently leased, will sell both substantially below market price, flexible terms. Grymkoski, AX 9-4053.

ONE HOUR LENGTH recording wire; English riding boots with pull-on hooks. Jones, 255-3390 after 6 p.m.

STEP TABLE, limed oak, feels out of place among walnut furniture, wants to make a change. Mick, 2621 Rhode Island NE, AX 9-5814.

PARADE DRUM, complete, sticks and harness, \$20. Cully, DI 4-7055.

'53 FORD Ranch Wagon, V-8, 2-dr., Ford-o-matic, light green, R&H, \$200. Asselin, AX 9-9270.

'54 HARDTOP DeSoto, Firedome, 2-dr., R&H, new tires, good battery, \$250. Caldwell, DI 4-8287.

NEXT DEADLINE
FOR SHOPPING CENTER ADS
Thursday Noon, Nov. 2

MARLIN RIFLE, model 336A, .35 caliber, Redfield peep sights, \$55; Smith & Wesson pistol, K-38 Special, \$55. Bowland, AL 6-1861.

HAULING TRAILER, 6'x10', new bed and side boards, new paint, metal frame, \$50. Fulcher, AX 9-8888.

PING PONG TABLE, 1 piece 5/8" plywood top w/3/4" plywood support frame, very sturdy, \$18. Hansen, 3119 Lykes NE, AX 8-0308.

AKC registered Airdale pup, female, 8 weeks old, show quality, has had distemper shots, \$35. Fimple, AX 9-4703.

FRIGIDAIRE, \$50. Brown, AL 5-0566 evenings or weekends.

TABLE AND LAMPS, mahogany gate-leg table, \$25; pair of Chinese lamps and shades, \$20. Metzger, 298-5054.

HIDE-A-BED DIVAN, rust brown, \$75; overstuffed chairs, cheap; 16' dory type boat, like new, \$75. Vermillion, AL 6-6249.

3 BEDROOM, den, 1 & 3/4 bath, brick, hardwood floors, carpeted, built-in range, oven, corner, sprinklers, fireplace. Low down payment. Dollahon, AX 9-8107.

SOFA BED and chair, \$15; baby buggy, can be used as car bed, \$6. Wilkinson, DI 4-9610.

'60 FORD Zephyr, auto. transmission, \$1195; upright freezer, \$125; stereo tape recorder, \$115; Wallensak recorder, \$90. Atkinson, AX 9-3250.

3-BDR, den, wbf, dining room, 1 1/4 bath, garage, utility-storage rooms, a/c, landscaped, FHA \$15,000, \$450 down. Prentice, 1517 Hoffman Dr. NE, AX 9-4595.

ROBERSON, 3-bdr., 1 1/4 baths, carpeting, venetian blinds, a/c, no down payment GI, shown by appointment. Alexander, 9619 Arvada NE, AX 9-7967.

SUNBEAM SHAVER, Rollomatic, \$10; power mower 18" reel-type, \$25; '96" modern couch, makes 3/4 bed, \$35; mahogany Duncan Phyfe table, \$25. Barth, AX 9-2668.

NEW MOSSMAN, all brick, 3 bedrooms, 1 1/4 baths, fully carpeted, fireplace, air conditioned, landscaped, leaving town, sacrifice. Dudley, AX 8-1648, 7125 Edwina NE.

'60 NASHUA, 10'x50', 2-bdr., w/w carpet, front kitchen, cooler, all gas. Naumann, 298-1953.

SEWING MACHINE, portable, all attachments, \$35. Gardner, DI 4-2547.

TWO BEDROOM, dining room or third bedroom, large utility room, air conditioned, carpeted, \$11,250 FHA. Gasta, AL 5-0266.

COMPLETE PRINTING OUTFIT, 6x10 letter press, type cases, over \$100 worth of type, everything needed at half original price, \$125. Shew, AL 5-0263.

'49 FORD pickup, 4-speed, 1/2 ton, \$140; Buick Super '51, straight 8, R&H, \$225. Elskes, AL 5-1260 after 5:30.

'51 CHEVROLET 2-dr. Burtnett, 298-4291 after 5:30.

STEREO SET, RCA Victor automatic record player, AM-FM radio, 4 speakers master unit, 3 speakers separate cabinet, blond oak. Quinlan, AM 8-5665.

GE DRY IRON, new, \$7; travel iron, \$5; swivel rocking chair, \$35; pool table, \$6. DeZeeuw, 4015 Ponderosa NE, DI 4-7392.

'54 OLDS, hardtop, auto transmission, PB, PS, R&H, WW, AC, AD, RSS, new battery. Larson, 4104 Ponderosa NE, DI 4-2684.

RIFLE, Remington 722 model, 300 Savage cal., 3-power scope, \$75. Baumann, 298-2386.

2 BDR AND DEN, fireplace, hdwd. floors, central heat, utility room, 50'x135' lot, SE Heights. Amato, AL 6-2558.

MINOLTA subminiature camera with filters, \$20 or trade for transistor radio; Heathkit VTM, \$25; vibrator type paint sprayer, \$10. Singleton, AX 9-1613.

KENMORE 30" gas range, w/griddle, automatic pilots, oven light, timer, 1960 model. Amos, 298-4470.

LIONEL 027 4x8 layout for two-train operation, two locomotives, many extras, sacrifice \$75 or best offer. Elledge, AM 8-5354.

COFFEE MAKER, Westinghouse, automatic 10-cup; Dormeyer auto fri-well deep fryer; 6-year baby crib w/mattress; \$10 each. Smith, AX 8-0557.

OLD COVERED WAGON WHEELS. Sowards, DI 4-5487 after 5 p.m.

3-BDR, 1 1/2 baths, hardwood floors, carpeting, a/c, sprinklers, patio, barbeque, four blocks west gate, \$15,500. GI. Smith, 1029 Florida SE, AM 8-1349.

'60 GE Mobile Maid dishwasher. Holmes, DI 4-6995 after 5 p.m.

REGULATION POOL TABLE, almost new, make bid. Wiseman, AX 9-2503.

GIRL'S ROLLER SKATES, white, size 8, slightly used, aluminum case, \$7. Costick, 210 Charleston NE, Apt. 1, AL 6-4093.

SELMER FLUTE, Bundy model with case; Norwood music stand, two books of \$75. Angel, AX 8-0384.

A BEAUTIFUL BRICK HOME can be purchased for substantial cash outlay. Neighborhood well established. Professional people. Pearl, 256-6541.

RIDE, vicinity of Bryn Mawr SE between Coal and Highland to and from 880 or 892 parking. Harrison, AL 6-0216.

USED 300 Savage dies. Haskell, 9400 Euclid NE, AX 9-3550.

PIANO, reasonably priced, willing to re-work finish. Pace, AX 8-1112.

RIDE or join car pool from 10104 Los Arboles NE. Tuthill, 298-0265.

TO SWAP, child's 3-quarter mple bed, springs and mattress for old .22 repeating rifle. Finley, AX 9-0739.

CHILDREN to keep in my home. Bishop, 1520 Martha NE, 299-8782.

CHILD to care for in my home for working parents. Jones, 608 Richmond SE, 255-3390.

CANVAS butterfly chairs; family to share cost and facilities of blast shelter, in vicinity of 328 Mankin NE. Rush, 1828 Del Norte SW, 877-1252.

RIDE near San Pedro and Central SE, Bell or Zuni. Williams, AM 8-7159.

RIDE from vicinity of Moon and Candelaria to Bldg. 800. Mathes, AX 8-1706.

RECENT MODEL sewing machine and attachments. Dollahon, AX 9-8107.

RIDERS to New Orleans or thereabouts. Leaving Nov. 3 and returning Nov. 19. Heimer, AX 9-4501.

RIDERS or to join or form car pool in Bosque Loop area. Schooley, TO 5-9596.

FOR RENT

CLEAN 2-BDR HOME, new electric stove and refrigerator, garbage disposal, drapes, hardwood floors, screened patio, garage, \$95/month. Vanderlaan, 513 San Pablo NE, evenings, AM 8-0514.

ROOM with or without board, 1337 Boat-right NE, convenient to buses and Winrock, bus service. Storms, AX 9-0317.

APT., 4-room, 1/2 block to city bus; water and garbage paid; \$58/month. Glory, CH 7-3145.

2-BDR DUPLEX, completely furnished, walking distance to Federal Building, carport, utilities paid, Evans, 1117 Vista Grande NW, CH 2-3736.

3-ROOM FURNISHED APT, all utilities paid, no pets, close to bases. Chavez, 644 Louisiana Blvd. SE, AL 5-9996.

HOUSE, newly redecorated, close to both bases and Bataan Hospital, one block from shopping center, bus stop. Orendorff, AM 8-9753.

FOR SALE AT LIVERMORE

WEDGEWOOD GAS STOVE, still in crate, 4 burners, griddle and incinerator, \$150. Fones, HI 7-1643.

REFRIGERATOR, 9 cu. ft., \$40. Hauff, HI 7-4699.

'56 VW BUS, (seats 9), trade for VW sedan or other foreign sports car, or will dicker for outright sale (about \$700). Givens, HI 7-0190.

G.E. washing machine, \$25. Harrison, HI 7-3297.

WANTED AT LIVERMORE

PLAYPEN. Hodgkins, Ext. 2605.

WANTED

PART ARABIAN MARE or Filly, must be registered or eligible for registration with International. Galbreath, DI 4-4306.

RIDE WANTED or would like to form a car pool to Bldg. 802 from vicinity of San Mateo to San Pedro and Candelaria to Menaul. Westman, AL 5-6048.



LEW LONGMIRE grins with pleasure after a test flight of "Sikumbang," the little airplane he designed and built in six months of spare time. The

plane has achieved a top speed of 120 mph and a 750 ft. per minute rate of climb without full throttle. Lew takes it easy with the rebuilt 65-hp engine.

Do-It-Yourself Airplane Now Getting FAA Certification Tests

When Lew Longmire was a kid of 16 back in Tennessee he wanted to fly more than anything else in the world. He lived on a farm and flying lessons were out of the question. So he built a glider.

"It was a crude effort," Lew says, "but it was a start. I built two more gliders and I learned to fly."

Lew's latest effort (through the years there have been other gliders, two rotary wing aircraft, and a complete rebuilding of a wrecked airplane) is a sleek, low-wing, single-place "pleasure craft." It looks more like the Bendix racers of the mid-'30's.

The little plane with a 24-ft. wingspread and a 65-hp Continental engine was built in spare time over a period of six months. Lew designed the plane and did the complete fabrication job. Only the wheels, motor, and instruments were purchased and Lew completely rebuilt the motor.

There were several design considerations. Lew wanted a high performance airplane with inherent stability and safety. The long wing, in comparison to the moment arm (length of the fuselage from the center of gravity to the tail section), was a partial design solution. Large control surfaces also help.

But the greatest contribution to high performance is the light weight construction of the plane—it weighs only 500 lbs. With Lew aboard and a full gasoline tank, the weight is about 750 lbs.

Certification Tests

The airplane is still going through its testing period prior to certification by the Federal Aeronautics Administration. Lew's flights have been limited to low level runs around the Seven-Bar airport on the West Mesa.

Lew will have to log 50 hours in the air on the plane and pass an FAA examination before it is permanently licensed to fly.

"It handles beautifully," Lew says. "Top air speed so far is 120 mph and the rate of climb is about 750 ft. per minute. The plane responds quickly to the controls and seems altogether satisfactory."

This performance has been achieved without full power—with a completely rebuilt motor. Lew is not giving it full throttle until the engine is "broken in."

Construction of the airplane, which was done with conventional woodworking tools, is primarily



WHIZZING OVER the Seven-Bar runways, Lew Longmire logs more test time in his homebuilt airplane. Made of hardwood, plywood, fabric, and a little aluminum, the plane weighs only 750 lbs. with Lew and a full tank of gasoline aboard.

of wood—a hardwood frame covered with thin plywood on the fuselage and fabric on the wing and control surfaces. Thin aluminum sheeting is used around the engine.

"Part of the purpose in building the plane," Lew says, "was to give my older sons an opportunity to learn something about airplanes and airplane construction." Helping were Larry, 18, and Jerry, 14.

The family is currently working on a 38-ft. sailplane which is about half finished. "This one will be towed behind a car and with it, the boys can learn to fly," Lew says.

Owned Early Planes

Other than the early gliders Lew built, he has also owned a Spartan biplane and a Culver Cadet which he completely rebuilt from a wrecked condition.

When he was about 18, Lew worked with a barnstorming team in West Texas. "We did everything," Lew says, "from driving automobiles through flaming walls to parachute jumps. Part of my job was to keep the equipment running."

With the new airplane, he recaptures part of the thrill of those days. "This is a very personal air-

plane," he says. "I have to fly it every minute at the controls. It's fast and responds quickly. It's a real pleasure to take it up plus I have the satisfaction of knowing that I created this plane. Sometimes I feel like a kid again."

Lew is a Staff Assistant in Advanced Development Division 1322. He has been at Sandia Laboratory 10 years.

Welcome Newcomers

Oct. 9-20

| | |
|----------------------------------|------|
| Albuquerque | |
| Patricia L. Anderson | 7512 |
| Esther M. Coffman | 4321 |
| Ramona H. Daugherty | 4344 |
| *Eleanor B. Hedge | 4622 |
| Clyde C. Holland | 7212 |
| *B. Jean Jeffs | 3421 |
| Robert B. Lale, II | 3444 |
| Terry A. Leighley | 3444 |
| Kay I. McDonald | 4132 |
| Edwin E. Young, Jr. | 3444 |
| Georgia | |
| Julian G. Bartlett, Chamblee | 7311 |
| Indiana | |
| Ann J. Van Camp, Westfield | 1122 |
| Kansas | |
| Wilbur D. McLachlan, Kansas City | 5133 |
| Massachusetts | |
| Roy F. Ellison, Jr., Dorchester | 1314 |
| New Mexico | |
| Aurora M. F. Bustos, Santa Fe | 4333 |
| Albert A. Rodriguez, Espanola | 4574 |
| Ohio | |
| J. Reed Holland, Dayton | 5132 |
| * Denotes rehired | |
| Returned from Leave | |
| Edsel L. Gunn | 4612 |
| Dorothy A. Stees | 3126 |

AEC Seeking Bids for Construction Projects in Sandia Lab Tech Area

Bids will be opened in November for three construction projects in technical areas of Sandia Laboratory.

Bids will be open Nov. 16 for work associated with a thermal test trailer. The project will include relocation of the trailer and associated equipment, two prefabricated metal buildings, a pressure vessel, two air compressors, and six transformers. Also included are removal of existing utilities, relocation and extension of a chain-link fence, construction of a 55 by 80-foot concrete slab and miscellaneous foundation slabs, construction of a sub-station, and installation of utilities to serve relocated and new equipment. Plant Engineering project engineer is C. K. Rudy (4543-1).

Bids on modifications to Bldg. 892 in Tech Area I will be opened Nov. 14. The building will be oc-

cupied by Product Test Equipment Development Organization 2400.

Work will include partition remodeling, mechanical and electrical modifications, door revisions and architectural finish modifications. V. E. Kerr (4543-3) is Plant Engineering project engineer.

Bids are scheduled to open Nov. 1 on construction of a new gate house in Area III and relocation of Bldg. 866 in Tech Area I.

The project consists of construction of a building of approximately 500 square feet, including motorized gate, vehicle canopy, chain link fencing, paving, and architectural, structural, mechanical, and electrical facilities.

Relocation of Bldg. 866 includes dry sprinkler system, capping of utility lines at the old location, and architectural, structural, mechanical, and electrical facilities. Plant Engineering project engineer is J. C. Snowden (4543-3).

Sandians Who Serve

Children's Zoo Brings Satisfaction To Sandia Park Board Members

This is another in a series of articles describing the community activities of Sandia employees.

Opening of the Children's Zoo in Rio Grande Park recently brought a special kind of satisfaction to Jack Hueter (2563) and Jim Marsh (3422), members of the Albuquerque Parks and Recreation Board.

Both of the men through their work on the Board have helped in the planning and construction of the new zoo attraction. Jack has been a member of the Board since 1953 while Jim has served since last February.

The seven-man Parks and Recreation Board functions as a liaison and advisor group between the public and the Albuquerque City Commission. The Board is responsible for long-range planning of park facilities and City recreation programs.

"Budget is a primary concern," Jack says. "We try to see that the greatest number of people benefit from the amount of money available to spend on parks and recreation."

The new Children's Zoo is only a small part of the overall program of expansion. "Plans have been approved," Jim says, "for a new elephant house at the zoo."

The Board considers not only youth recreation programs but

also recreation for the entire city population. Operation of four community centers and the new Hospitality Home for older residents is also under the general policy direction of the Board.

"The Board policy," Jack says, "is to try to balance special interest recreation that brings in revenue such as the Los Altos Golf Course or the two City swimming pools with free recreation that appeals to the whole population."

The new Children's Zoo is a prime example of the latter.

"Everybody takes his children to the zoo," Jim says, "and already the kids have made this new facility their own. The little barn with the farm animals is built to a child's scale and the kids love the baby animals. Even the pet skunks."

Jack adds that every animal in the Children's Zoo is carefully chosen by the Zoo staff for its docile behavior and acceptance of people.

"By next spring," Jack says, "the Children's Zoo exhibits should be complete. We are grateful to the Albuquerque Junior League for its contribution to the facility and to others who are donating exhibits."



NEW CHILDREN'S ZOO in Rio Grande Park is inspected by City Parks and Recreation Board members Jim Marsh (3422), left, and Jack Hueter (2563), center. Children in the picture view a pet skunk held by Assistant Zoo Director John Roth.

Sandia's Safety Record

Sandia Laboratory HAS WORKED 735,000 MAN HOURS OR 21 DAYS WITHOUT A DISABLING INJURY

Livermore Laboratory HAS WORKED 424,000 MAN HOURS OR 81 DAYS WITHOUT A DISABLING INJURY