

Governor Names J. A. Chacon to State Boards

J. A. "Andy" Chacon (4342) is another Sandia Laboratory employee who has been appointed to important state boards and commissions by Gov. Jack M. Campbell.

Mr. Chacon is vice chairman of the New Mexico Public Welfare Board. "The board," he explained, "is attempting to find a solution to the ever-increasing problem of public assistance. We are working with other state agencies in an attempt to rehabilitate some of those persons on the welfare rolls who can be trained, retrained, or otherwise helped to become useful and productive members of our society."

This week, Mr. Chacon is in Washington, D. C., representing the New Mexico Public Welfare Board at the annual national conference.

He has also been appointed by Governor Campbell to serve on the New Mexico Cuban Refugee Committee. Each state has such a committee, charged with the responsibility of relocating throughout the United States some 165,000 refugees from Cuba.

J. C. Moody Metrology Articles Reprinted by Sheffield Corporation

An article by J. C. Moody (2411), which appeared in the October issue of *The Tool and Manufacturing Engineer*, has been reprinted by the Sheffield Corporation as data sheets for precision measurement and also in the *Sheffielder*, company publication. Title of the article is "Geometrical and Physical Limitations in Metrology."

Another article written by Mr. Moody which was published in the February 1960 issue of TME was similarly reprinted by the Sheffield Corporation. Requests for this article, "How Temperature Affects the Measurement of Aluminum," recently required a second reprinting.

Tonight - Midnight - Is Change Hour for Base Telephone System

After midnight tonight (Dec. 6), all telephones on Sandia Base will convert to direct inward dialing. This will not affect dialing from one extension to another on Base, and "9" must still be dialed before Albuquerque numbers. However, after midnight, calls made from off-Base may be placed by dialing the seven-digit extension directly instead of dialing the Base number and asking an operator for the extension.

Sandia Laboratory employees are reminded that "117" is the correct number to dial in case of fire, and "264-5045" should be dialed for ambulance service within company premises.



VOL. 15, NO. 25

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

DECEMBER 6, 1963



John Fitzgerald Kennedy
May 29, 1917 — November 22, 1963

Plans Develop to Bring Christmas Joy to Needy

"Operation Santa Claus" is how it has become known, and already organizations throughout Sandia Laboratory are making plans to spread holiday festivity among less fortunate families.

The Christmas projects have replaced the exchange of greeting cards between employees who see each other daily.

For the sixth year, members of Design Definition Department 4410 will sponsor their Christmas Baskets for the Needy drive. A. L. Ouellette (4411-4) is again serving as chairman. The committee, comprised of one representative from each of the 15 sections, will collect money to be used for the purchase of food baskets for 24 families. The names of the families are obtained from both Catholic and Protestant churches. The baskets will be delivered on Dec. 24, and Chairman Ouellette usually picks up a few free Christmas trees so that each family will have one. Toys in good condition are also desired.

Employees wishing to donate presents for the event may place them in collection boxes located throughout the Tech Area. Boxes are in Bldgs. 802, 880, 892, 894, 840, 806, and 836.

Sandia United Unions, EBEW #1988, Office Employees #251, and Machinists #1689, will again sponsor a Christmas party for youngsters at the Riverview Elementary School. On Dec. 21 there will be a gaily-wrapped present for each child and a treat sack containing apples, peanuts, and candy. Entertainment will also be provided. On Thursday, Dec. 19, the last day of school, the unions will sponsor a turkey dinner, prepared at the school cafeteria, for the 350 children at Riverview. Arrangements and costs of the two events are being shared by members of the three unions.

Another project well underway is the Military Liaison organization's annual Shoes for Kids drive. Al Hachigian (2313) heads the committee of representatives from each of the 10 divisions in 2300. The drive for contributions starts today and will continue until Dec. 16. On Dec. 18, the children will be taken to a local shoe store for their fitting. Desi Baca, principal of the Riverview Elementary School, has estimated that there are 75-80 youngsters at the school in need of shoes. Last year \$330 was collected and used for the purchase of 77 pairs of shoes in December plus a few extra pairs later in the school year.

AEC Readies 'Atomsville' for Young Fair Visitors

Young visitors at the 1964 World's Fair in New York City will receive special attention in a section of the Atomic Energy Commission's exhibit which will introduce the principles of atomic science to the youngsters as they operate interesting new science-educational devices.

This children's section, called "Atomsville, USA," is designed to appeal to youngsters between the ages of 7 and 14. The rest of the exhibit, titled "Radiation and Man," is also devoted to explaining principles of nuclear science, but for older students and adults. It includes other new educational displays and a large percentage of audience-participation devices.

The AEC exhibit, to occupy 3500 sq. ft. in the Hall of Science, is a part of the Commission's continuing public education effort which includes a program of exhibits for the entire country. The

World's Fair exhibit is being designed and fabricated by the Oak Ridge (Tenn.) Institute of Nuclear Studies, the contractor which operates the Commission's national exhibits program under the direction of the AEC's Division of Technical Information.

The "Atomsville" exhibit will pose a number of questions about atomic energy which will be answered when the youngsters press buttons, push levers, and otherwise activate various displays.

Adults will be able to observe the children in "Atomsville" on closed-circuit television or through one-way glass portholes. Photographs can be made through these portholes.

Research Reactor

One of the chief displays will be a simulated pool-type research reactor demonstrating the characteristic bluish-white glow from Cerenkov radiation, charged par-

ticles passing through the water.

Children will be invited to manipulate the controls to "operate" the reactor while listening to a tape-recorded explanation of the science involved in terms they can understand. If they bring the simulated reactor up to power too fast, it will "scram" (shut down) as would a real reactor.

There will be mechanical hands for handling make-believe radioactive materials. This operation will teach the children about shielding for protection from radiation.

Other special devices in the children's exhibit include a control board at which the young visitors may create patterns of different atoms; an atomic model viewed through a small aperture which gives the impression that the viewer is actually inside matter; a "pinball" machine to demonstrate the effect of shooting a neutron into a uranium-235 nucleus; and

an "atomic scale" on which a child can read his weight in atoms.

The children's exhibit will also include such items as an oscilloscope, a geiger counter which youngsters may use to check material for the presence of radiation, an electroscope, a thermal-electric display, and a graphic representation of the processes involved in the production of uranium.

'Radiation and Man'

The "Radiation and Man" section of the AEC exhibit also covers highlights of the basic science of nuclear energy, with emphasis on the effects of radiation on living tissue.

This exhibit includes animated devices that demonstrate such things as how radiation falls off in intensity with increasing distances, how radioactivity decays with time, and what happens when a person is X-rayed.

A "Radiation in Perspective" display compares the amount of

radiation in natural background to which people are exposed all the time with that from watch dials, X-ray machines, and other sources.

The "Radiation and Man" exhibit includes an electroscope unit which visitors can charge and discharge by various means.

A featured unit of the exhibit is a short motion picture projected from overhead to give a 360-degree image on a horizontal, bowl-shaped screen below. This film shows the tracks of subatomic particles as they appear in cloud chambers, bubble chambers, and spark chambers.

There will be another short motion picture on power reactor installations throughout the country.

After the World's Fair, both "Atomsville, USA" and "Radiation and Man" will be available to museums through the Commission's national exhibit program.

Sandia Scientist Completes Five-Month Russian Visit

Charles Stein (1124-1) returned to his job at Sandia Laboratory recently after spending five months in Moscow as an exchange scientist.

He had applied to the U.S. National Academy of Sciences for an exchange visit for foreign study while still in graduate school at Massachusetts Institute of Technology and left last April. The trip was arranged through cooperation of the National Academy of Sciences of the USSR.

While in Russia, Mr. Stein conducted research in deformation of metals at elevated temperatures at the Institute for Metallurgy (A.A. Boikov Institute) in Moscow. He specifically studied the creep of high purity nickel and aluminum, including the effect of changes in stress level and temperature on dislocation density and subgrain size, and determination of changes in dislocation density along serrated grain boundaries.

"Work being conducted at the Boikov Institute in this field had been from an applied standpoint, whereas I'm more interested in the theoretical aspects," he explained. "The Russians were very cooperative. I was provided with several assistants and laboratory equipment (which was not as versatile as ours). My requests of the machine shop received special attention."

Mr. Stein had studied the Russian language for two semesters. He found that the Russians were most anxious to improve their spoken English. The Russian scientists were able to translate

English technical articles into their own language, but frequently called upon Mr. Stein to interpret meanings.

He was the only American at the Institute during the five months; however, another American scientist is expected in November or December. At the present time, there are only 29 research people in the whole exchange program.

Mr. Stein's work in Russia is directly connected with research he performed at MIT and has conducted since becoming associated with Sandia Corporation in July 1962. "I'll be able to use much of the data acquired in Russia after verifying some of the results of the tests conducted there," he said.

Although restricted to the Moscow area, Mr. Stein did receive permission to visit another metallurgical institute in Leningrad. (Russian exchange counterparts in this country are similarly restricted in movement.)

"Life in Russia is grim," he said. "Living conditions are poor, but particularly noticeable are the general attitude and grim outlook of the people."

Mr. Stein has a Bachelor of Metallurgical Engineering degree from Syracuse University and an MS in Metallurgy, Metallurgical Engineer degree, and ScD degree in Metallurgy, all from MIT. "Due to my long association with MIT, many of the Russians I met thought that Albuquerque was like Cambridge—just across the river from Boston," he concluded.

Gus Simmons Astute Student Of Ancient Oriental Origami

"You take a piece of paper and start folding," said Gus Simmons (9101). But it's really not that simple. The paper is a special type, the creases have names, and the end result may be a lifelike grasshopper or a miniature donkey with panniers.

Gus is a follower of the ancient Oriental art called "origami." Originated in China but now nearly extinct there, the folded paper art was adopted in Japan where annual exhibitions of "origami" are now held. The Sandian became interested in the art while in the South Pacific after World War II.

Last year Gus spent an afternoon showing school children at San Antonito (a mountain village in the Sandia mountains) how to make Christmas decorations from paper. He'll be doing the same thing this year. After being folded, strings are attached, the decorations are dipped in paraffin for permanence, and glitter may be added.

In addition to the simple decorations, the children can easily learn how to make birds with flapping wings, elephants, sailboats, whales, and ducks. The more elaborate folds include herons, dragonflies, Chinese junks, and peacocks.

In fact, in some South American countries paper folding replaces coloring in the first two grades of school. The children fold all the letters of the alphabet from strips of paper and learn manual dexterity at the same time.

The best examples of origami are made from Japanese rice paper which is lacquered (and usually colored) on one side. This paper is lightweight but takes a crisp fold.

Gus has some 17 books on origami, including a copy of 100 pages from the "Kanamado," an encyclopedic work of Japanese scholars 150 years ago which documented Japanese culture. The original volumes were lost in the war; however, the pages on paperfolding were copied in 1926 by an American scholar and were recently discovered in the Library of Congress. The copy of the Japanese text and brush drawings, with annotated comments in English, was published in Washington, D. C., last year.

His collection of books also includes several in Spanish, published in Buenos Aires. The books are unusual in themselves: the pages are bound with cobblers' nails, and each page is individual rather than part of a signature. "The folds described are by far the most complicated and the results the most beautiful," Gus said.

The first mention of origami in English was included in the only book written by the famous magician, Houdini. It was published in 1922. Gus also has a copy of this.

In competition, a figure is downgraded if the paper is cut to achieve the desired results, or if features are touched up with paint.

If folding sounds simple, try it sometime.



—Gus Simmons (9101)—
Frogs, herons, chicks, turkeys, locusts, and glitter balls

Supervisory Appointments

MRS. B. R. ALLEN to supervisor of Technical Libraries Division 3421.



Mrs. Allen has headed Library Section 3421-1 since coming to Sandia in May 1957. Immediately prior she was head librarian of the AFSWC technical library at Kirtland AFB, with which she had been associated since January 1950.

A graduate of Carlton College in Minnesota, she has a BA degree in French from that school, and a MS in library science from the University of Michigan.

Mrs. Allen worked in various public and university libraries before moving to Albuquerque.

She is a member of Rio Grande Chapter of Special Libraries Association, New Mexico Libraries Association, Albuquerque Libraries Association, the Society for Technical Writers and Editors, and the Southwestern Library Association.

JOSEPH M. ZANETTI, JR., to supervisor of Technical Information Division II, 3412.



Joe has been in technical information work since he came to Sandia in August 1958. He was assigned to Livermore's Tech Writing and Public Relations Section 8233-1 for nine months before returning to Sandia Laboratory in September 1961 as supervisor of Publications Section 3423-1.

Previously he taught high school English for a year in Pleasant-hill, Calif., and English and speech for a similar period in Piedmont, Calif.

Joe has a BA degree in English from St. Mary's College, and has taken graduate courses at the University of California and San Francisco State College.

From 1951-53 he served in the Navy.

He is a member of the National Society for Programmed Instruction and Alpha Pi Gamma Upsilon, scholastic honorary.

THOMAS B. HEAPHY to supervisor of Technical Information Division I, 3411.



Tom has been at Sandia nearly 12 years and has been a section supervisor since 1957. His work has been in the area of editing and publications.

Before coming to Sandia he was taking graduate courses at the University of New Mexico. His undergraduate work was mainly at Fordham University, but both his Bachelor's and Master's degrees in English are from the University of New Mexico.

During World War II, Tom served four years in the Navy.

LANDIS L. PARSONS to Buyer 4341-1, Subcontract Department III, 4340.



Landis has been with Sandia Corporation since July 1959 and has worked in purchasing organization at Livermore Laboratory. He has a BS degree in business from the University of Colorado, and is completing his last semester of graduate courses for a Master's degree in business administration from the University of New Mexico.

Landis served two years in the Army, including one year of combat in Korea.

Welcome Newcomers

Nov. 18-29	
Albuquerque	
Evelyn L. Analla	4432
Nancy C. Chavez	3126
Marian R. Clark	3126
Clorinda J. Garcia	4333
Laura M. Kurtz	3126
Dan E. Myers	3427
Miriam S. Neas	3126
Thorabelle M. Rode	4342
Dorothy J. Tyson	3421
Texas	
Robert E. Cuthrell, Austin	1121
Returned from Leave	
James A. Gilbert	1121

Sandia Speakers

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

P. T. Schoenemann (9120), "Techniques for Analyzing Non-stationary Vibration Data," 33rd Symposium on Shock Vibration and Associated Environments, Dec. 3-5, Washington, D.C.

C. T. Duffey (8154-2), G. R. Dunbar (8115-2), and L. H. Bakken (8118-2), "Results of a Test Program for Filament-Wound Cylinders," Sixth Annual Meeting, Society of American Plastics Engineers, Seattle, Wash., Nov. 19. The paper was presented by J. M. Brierly (8115-2).

Stanley J. Swihart (8231-1), "A Systems Study of a Corporate Library," Symposium on the Analysis of Library Systems, Joint Annual Meeting, California Chapters of the Special Libraries Association and the California Library Association, Dec. 14, San Francisco. Program chairman for the symposium will be Mrs. Elizabeth Bodie (8232-2).

E. S. Roth (2564), "Future Developments in Numerical Control," San Antonio Chapter of ASTM, Nov. 13, San Antonio, Tex.



Lupe Sanchez (2632)

Take a Memo, Please
Make your own life safer by being aware of potential causes of accidents.

Sympathy

To Paul Martinez (1414) for the death of his father, Nov. 2.

To Ramon Metzgar (4575-1) for the recent death of his brother in Albuquerque.

sandia corporation

lab news

albuquerque · livermore

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7600 Tackles Big Sandia Lab Data Processing Job

W. C. Scrivner has been named Director of Computing 7600, a new organization to handle Sandia's greatly expanded electronic computing activities. He was formerly Director of Technical Information and Publications 3400.

A University of New Mexico graduate, Mr. Scrivner served as a research assistant at New Mexico Institute of Mining and Technology from 1944-1947. He came to Sandia in 1947, and was named supervisor of an engineering design section in 1950. He served as manager of Test Data Department, Field Test Project Department, and Systems Development Engineering Department at Sandia; and Product Development Department at Livermore Laboratory. He was named Sandia's Director of Inspection in July 1959, Director of Personnel in February 1961, and Director of Technical Information and Publications in September 1963.

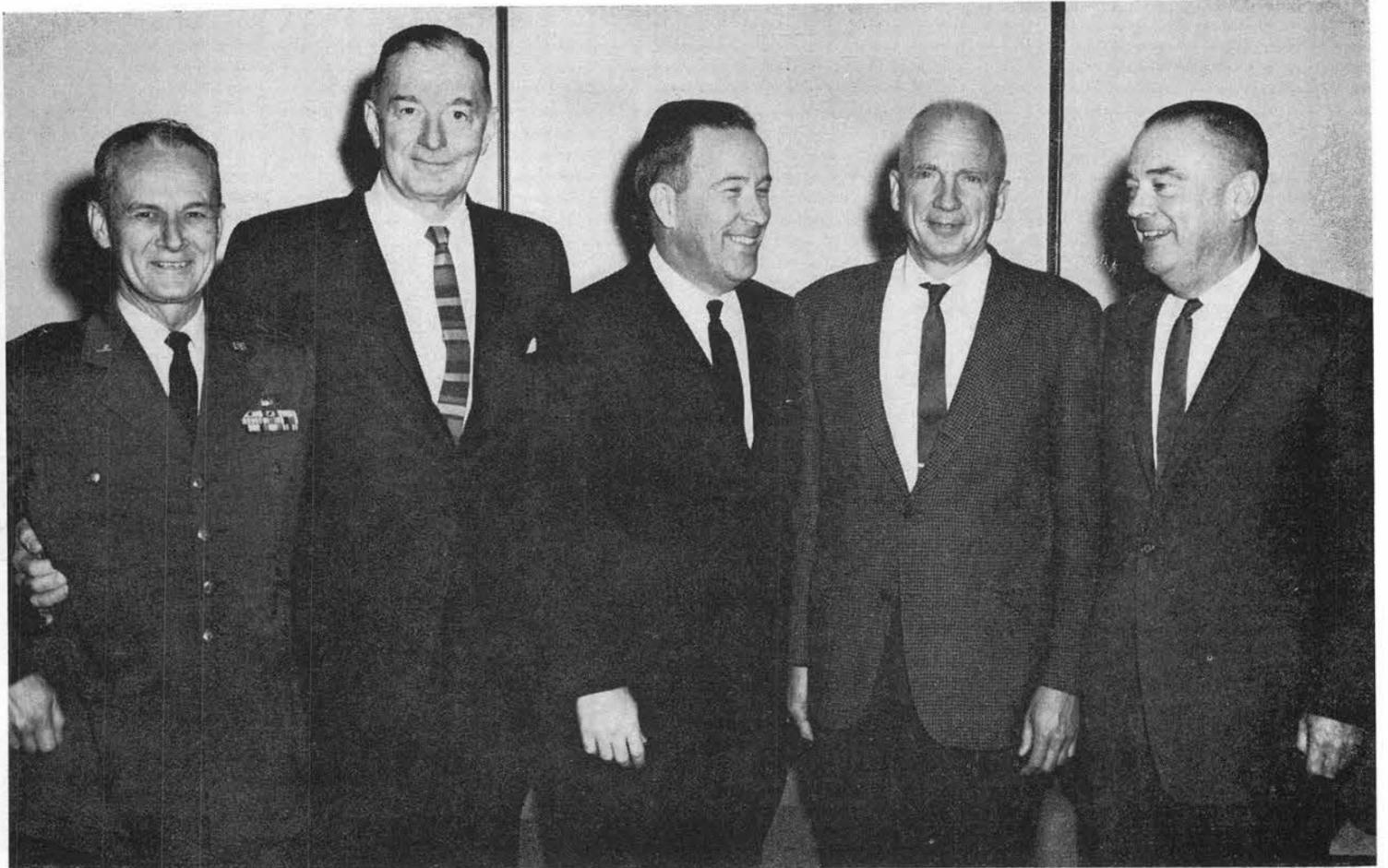
Organization 7600 is comprised of Data Center and Operations Department 7610, managed by L. E. Mahuron, and Programming Department 7620, managed by J. L. Tischhauser. Department 7610 consists of 7090 Operations Division 7611, supervised by C. E. Katzenberger; 1604 Operations Division 7612, supervised by L. E. Mahuron (Acting); Data Center Division 7613, supervised by Robert Lynes; and Product Record Division 7614, supervised by G. D. Horne, Jr.

Programming Department 7620 is comprised of Systems Programming Division 7621, supervised by D. A. Young; Data Reduction Program Division 7622, supervised by J. L. Tischhauser (Acting); Administrative Programs Division 7623, supervised by R. M. Allen; and Consultants and Training Division 7624, supervised by D. K. Robbins.

Sandia's use of computers has increased rapidly in recent years—an increase brought about, in large part, by the staggering amount of data generated by weapons development activities. The Laboratory's two major computer installations (CDC 1604 and IBM 7090) are used for solution of research problems in physics and mathematics, simulation of phenomena such as bomb drops or missile trajectories, analysis of data from development tests and other experiments, analysis of product cost data, and analysis of certain administrative functions. The new directorate will facilitate and centralize these operations.

2500 Holiday Party To Be Held Dec. 13 At Four Hills Club

The annual 2500 organization Christmas party will be held Friday, Dec. 13, at the Four Hills Country Club, with dancing from 8:30 p.m. to 12:30 a.m. to the music of George Davies' Stardusters. Chairman for arrangements is J. F. McDowell (2564).



SENATOR HENRY M. JACKSON (center) of Washington visited Sandia Laboratory last week in connection with his Senate committee work. Pictured here with Sen. Jackson are Maj. Gen. John W. White, Commanding Officer, AFSWC; S. P. Schwartz, President, Sandia Corporation; Norris

Bradbury, Director, Los Alamos Scientific Laboratory; and K. F. Hertford, Manager, Albuquerque Operations, AEC. Sen. Jackson serves as Chairman of the Interior and Insular Affairs Committee and is a member of committees on Atomic Energy, Armed Services and Government Operations.

'Just plain right'

WE President Urges Industry To Level Opportunity Barriers

The National Urban League has presented its 1963 Equal Opportunity Day Award to Western Electric president H. I. Romnes "for outstanding contributions toward the Urban League goal of equal opportunity."

The annual award was made Nov. 19 at the League's Equal Opportunity Day dinner held in the Waldorf-Astoria Hotel in New York City. Harry Van Arsdale, president of the New York Central Labor Council, AFL-CIO, was similarly honored at the event.

In accepting the award, Mr. Romnes said, "The businessman's responsibility for advancing equality of opportunity doesn't stop at the factory gate. No company is an island. Its fortunes are bound up with the community around it, from which it draws its people."

He urged businessmen at the community level "to join with their fellow citizens in finding ways to level the barriers to opportunity — barriers which, if they deny the legitimate aspirations of some of the community's citizens, will in the long run, deny to all of them their fullest potential for growth and progress."

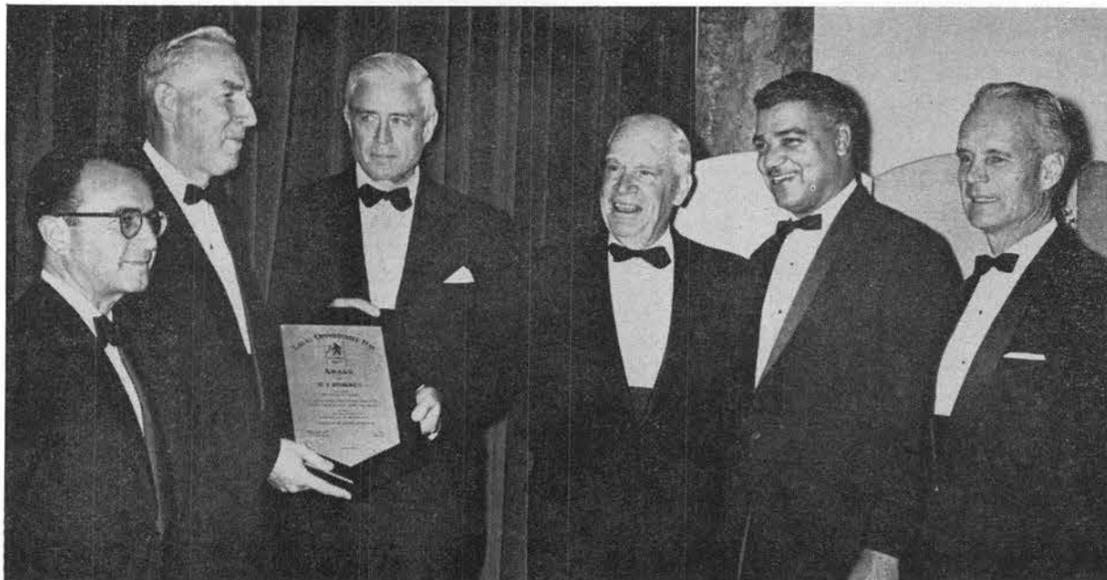
"The motives that have yielded the most heartening progress toward equal opportunity in indus-

try," Mr. Romnes continued, "haven't been — strictly speaking — business motives." Instead, he pointed out, "They have been the growing conviction in the hearts and minds of countless people at all levels in companies like my own, that expanding opportunities for all, and not just for some Americans, are not only right for their company, right for their community, right for their country, but just plain right."

In conclusion, Mr. Romnes said, "We look on this award not so much as an occasion for satisfaction for what has been done, but as a reminder of how much more needs to be done . . . We have work to do."

This year's Equal Opportunity Day dinner marked the 100th anniversary of Lincoln's Gettysburg Address and the Centennial of the Emancipation Proclamation. The annual dinner has been held by the National Urban League since 1956.

Last year's recipients of the Equal Opportunity Day Award were Thomas J. Watson, Jr., board chairman of International Business Machines Corporation, and A. Philip Randolph, president of the International Brotherhood of Sleeping Car Porters and a vice president of the AFL-CIO.



WE PRESIDENT H. I. ROMNES, second from left, holds the National Urban League's 1963 Equal Opportunity Day Award which he received at League's annual dinner, Nov. 19. On hand after the award presentation to offer congratulations are, left to right: Martin E. Segal, a member of the League's board of trustees;

Thomas J. Watson, Jr., board chairman of International Business Machines Corporation and last year's award recipient; Luther H. Hodges, U. S. Secretary of Commerce; Whitney M. Young, Executive Director of the League; and Henry Steeger, League president. The award was for equal opportunity achievement.

15 Year Service Awards



John N. Garcia
4231
Dec. 7, 1948



E. J. Allen
4252
Dec. 7, 1948



Joy C. Lewing
4511
Dec. 7, 1948



Robert Findlay
4570
Dec. 8, 1948



Garvis A. Chandler
4224
Dec. 9, 1948



Samuel DeHaan
2641
Dec. 10, 1948



Mary Alma Bascom
2643
Dec. 10, 1948



Harold E. Bolser
4516
Dec. 10, 1948



Billy W. Duggin
7325
Dec. 10, 1948



Alfred F. Fields
2624
Dec. 13, 1948



Juan Perea
4234
Dec. 13, 1948



Mariha M. Belmonte
4574
Dec. 13, 1948



Carl Csinnjinni
2441
Dec. 14, 1948



Ruth V. Keyser
3321
Dec. 14, 1948



Kenneth B. Stiver
4513
Dec. 14, 1948



Harlan P. Kelsey
7512
Dec. 14, 1948



Malcolm L. Shannon
7332
Dec. 15, 1948



Fred Buttrey
4224
Dec. 17, 1948



George H. Matvichuk
1323
Dec. 20, 1948



Herbert E. Anderson
1443
Dec. 20, 1948



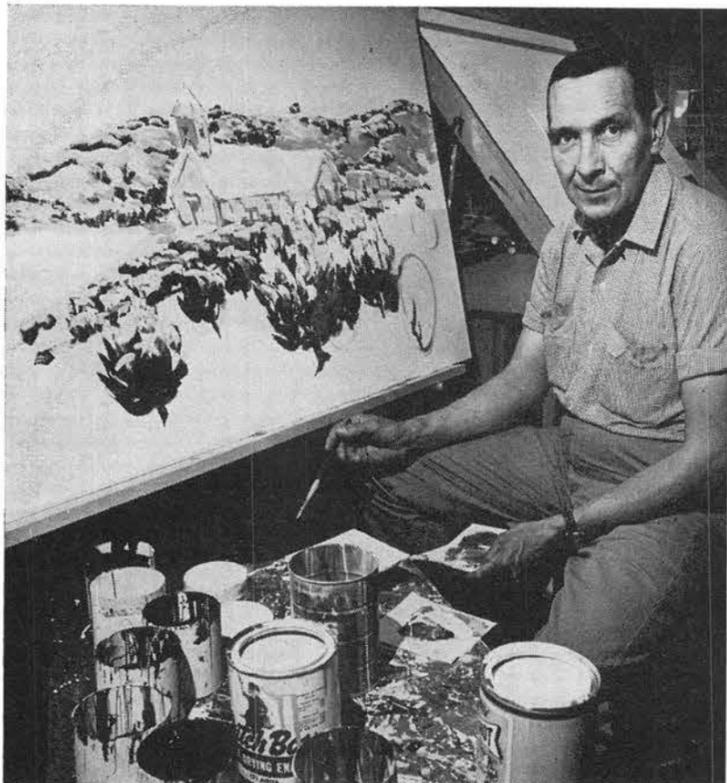
Ralph B. Larsen
4253
Dec. 20, 1948



Charles F. Martin
5321
Dec. 20, 1948



Albert E. Clamp, Jr.
7511
Dec. 20, 1948



HOLIDAY GREETINGS will be proclaimed at the entrances to Tech Area I by these large 4'x8' panels painted by Felix Padilla (4516), above, and Ken Stiver (4513), below. Eight of the panels, with New Mexico landscapes painted on each side, were produced by the artists who averaged about four hours work for each scene. The signs should be up by Friday.



S. P. SCHWARTZ, Sandia Corporation President (center), met informally last week with members of the Employees Contribution Plan committee. Well pleased

with the results of the ECP drive, Mr. Schwartz termed the Plan "a real achievement" of Sandia employees. Sandians contributed or pledged \$182,599.

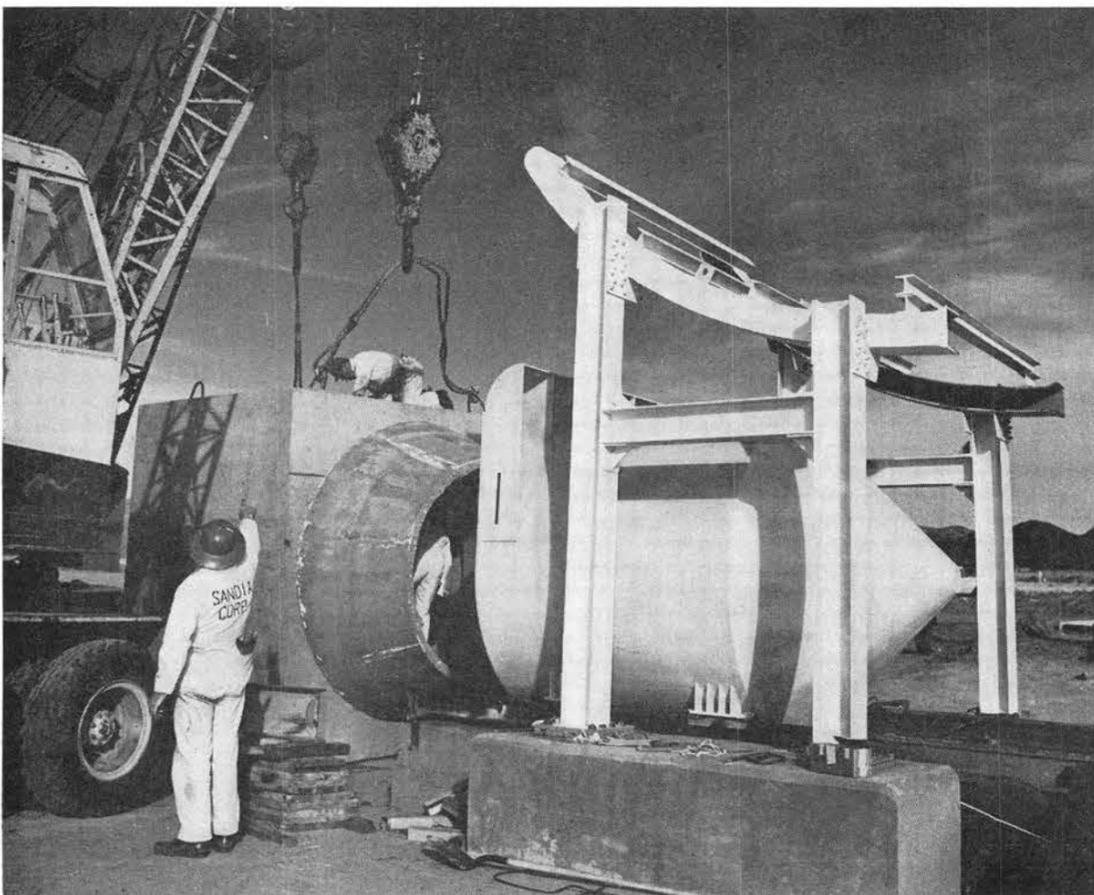
Seen on The Sandia Scene

*People, places, things
all help make
the Sandia story.*



SCORING TOPS out of six teams of finalists competing for the championship of the Sandia Laboratory Duplicate Bridge Tournament were (from left) J. J. Miller (7431), George Arnot, Jr. (1422), P. H. Arnold

(7624), and Walter Howerton (7215). Some 80 Sandians participated in the tournament first in building playoffs and then in two qualifying rounds at the Coronado Club. Next bridge tourney starts in April.

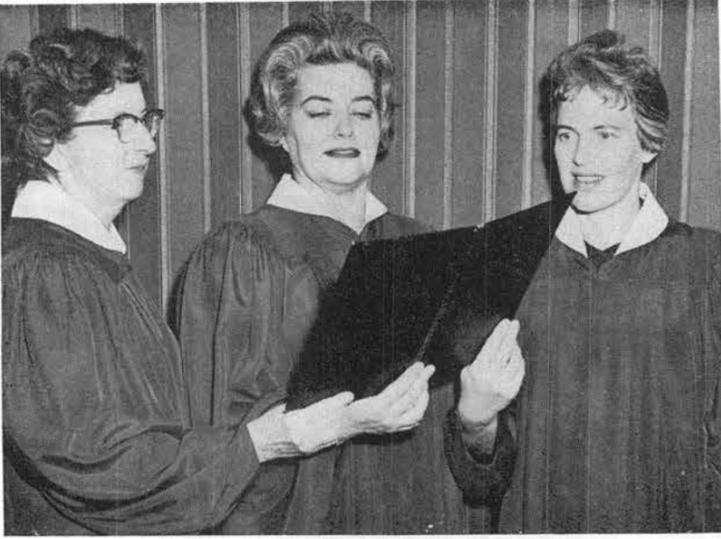


UNDERGOING A SERIES of tests, utilizing Sandia's rocket sled track, are the nozzle and simulated core plate of LASL's Kiwi reactor. Parts to be tested are suspended inside the 44-ton reinforced concrete container to the left. Conical container holds 2000 gal.

water and will be propelled down track on rocket sled. At pre-determined point, metal superstructure rips off door of cone-chaped container, and water is propelled by its own momentum into concrete container. Art Witte (7323-1) is Sandia project engineer,



OPENING TOSS of the Sandia Laboratory basketball season was made Nov. 26 at the Sandia Base gym. Teams 11-51-3100 and 13-AEC-54-7200 opened league play. Six teams are competing. Games are played Tuesday and Thursday at 5:45, 7:00, and 8:15 p.m. Spectators welcome.



PARTICIPATING in a presentation of parts of Handel's Messiah on Dec. 15 will be (l to r), Mrs. William M. Simpson, director of the Sandia Base Chapel Choir, soloist Mrs. O. L. Wright, and Mrs. Charles Poole, assistant organist. Mrs. Simpson and Mrs. Wright are wives of Sandia employees.

Base Choir Presents Handel's Messiah on Sunday, Dec. 15

The Sandia Base Chapel Choir will present portions of Handel's Messiah at 9:45 and 11 a.m. services on Sunday, Dec. 15. The choir is directed by Mrs. William M. Simpson, whose husband works in 2642.

Other Corporation employees who sing in the choir are O. L. Wright (4610) and his wife, who is a soloist; Ken Sutton (3151); Marie Ream (3100); Mrs. Earl Craven, whose husband works in 4543; Mrs. Gene March, a soloist, daughter of Clara Taylor (2450); and Mrs. Don Wortman, whose husband is with AEC/ALOO.

The chapel is located across from the Base Hospital and is open to persons of all denominations.

Club Membership Suspends Activities During Mourning

The Coronado Club has announced that, in observance of the period of mourning for the late President Kennedy, all Club-sponsored activities will be suspended until New Year's Eve.

John Colp Named To Executive Committee Of ANS Division

John Colp, supervisor of Section 7412-1, has been appointed to the executive committee of the Remote Systems Technology Division of the American Nuclear Society.

The national post is for a term of three years.

Margaret Reese Playing In Albuquerque Little Theatre Production

A Sandia nurse, Margaret Reese (3321-1), plays a garrulous neighbor in "Papa Is All," a comedy about a Mennonite family, being presented at the Albuquerque Little Theatre.

Margaret has been active in drama groups in Albuquerque for the past 10 years. She has played character roles in the Sandia Base Little Theatre presentation of "Rain" and "Pajama Game," the Albuquerque Playhouse's "Outward Bound," and the Albuquerque Little Theatre's "Rashomon."

"Papa Is All" will continue through Sunday, Dec. 8. Reservations are available by calling the box office.

Frank Berning Died After Long Illness

Frank Berning, a retired employee, died Nov. 15 after a long illness. He was 75.

Mr. Berning, a carpenter, retired in May 1955 after seven years with Sandia Corporation.

Survivors include his widow, Sophia (a former Corporation employee), three sons, a stepdaughter, two stepsons, two brothers, and two sisters.

Charlie Chavez Wins Top Honor in Sandia Lab Tennis Tourney

Charlie Chavez (2642) emerged champion of the Sandia Laboratory Tennis Tournament recently. Doubles champs are Bobby G. Neeld (1323) and Robert P. Clark (1323). Some 20 Sandians participated in the tournament.

1500 Christmas Party Planned for Thursday, Dec. 15

The 1500 organization Christmas party will be held Thursday, Dec. 19, at the Coronado Club. A buffet will be served from 6 to 8 p.m., followed by dancing to the music of Chuck Foster's orchestra.

Tickets are available from John Michaels (1513), Howard Bluestein (1522), Max Newsom (1532), Jim Manweiler (1543), and Fred Hansen (1552).

Golf Association Elects Officers for Next Year's Play

Completing the 1963 season, members of the Sandia Laboratory Employees Golf Association recently elected officers for the new year. Wendell A. Nelson (4138) is president, Glenn L. Morter (7419) is vice president, and members of the Board of Directors are Andy Blain (4614), Kenneth H. Lloyd (4421), and William P. Brooks (5153). The group will meet in December to start planning for the 1964 season.

Congratulations

Mr. and Mrs. Glenn S. Mills (2441-2) a daughter, Melenda Kay, on Nov. 14.

Mr. and Mrs. R. R. Zottnick (2563) a son, Kyle Todd, on Nov. 26.



SANDIA MAGICIANS gather to watch Dai Vernon, magician, author, and lecturer, work a bit of sleight of hand. Left to right are Dick Jennings (4120), Virgie Erbert (1532), Gus Simmons (9100), Mr. Vernon, Dusty Cravens (9100), Art Perry (4432), and Will Scranton (1411).

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SHOPPING CENTER

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

RULES

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

FOR SALE

- '63 OLDSMOBILE, Celebrity Sedan, PB, PS, AC, R&H, Hydromatic, other accessories, 10,000 miles, \$3300. Bradford, 268-0980.
- MALLORY VIBRATOR power supply input—6 volts, output—100 ma., \$3.75. Halliday, AL 6-6685.
- FLUTE, Reynolds, silver-plated, \$50; banjo, \$25. Brown, 1328 Princeton NE, 243-7948 days, AL 5-0566 evenings.
- SKI BOOTS, man's handmade, Italian, size 10, Dolomite, \$10; Need a painter for interior work before Christmas. Miller, AL 6-6020.
- 8mm MOVIE equipment, turret camera, projector, screen, editor, tripod. Aluminum screen door with hardware. Calvery, 255-9545.
- '57 FORD convertible, R&H, standard shift, \$595. Dalesandro, AX 9-6413 after 5:30.
- ELECTRONIC counter chronograph, 5-decade, 100kc time base, provision for external pulse counting. Variable speed code machine for code practice for amateur radio license. Vaughn, 298-5919.
- SOFT TOP and door panels for TR-3; 2 5.90x15 inner tubes, \$1 each. Stevens, 298-2894.
- MOTOROLA portable stereo, \$25. Miller, 255-6838.
- INDIAN silk-screen prints by famous artists, \$1 each. Gray, 1421 Marcella NE, 299-7035.
- FLUTE, used, Pan American. Gabaldon, AL 6-6075.
- 1953 SMITH-CORONA portable typewriter, shop-cleaned, checked, w/case; Bell-Howell 8mm movie camera w/light meter, never used. Seligman, 298-1993.
- SNOW TIRES 7.60x15, two recaps (virtually unused) on 1959 Buick wheels, \$16 for lot. Shonka, 299-4002 after 5 p.m.
- MINIATURE POODLE puppies, six weeks old, AKC registered. Heaston, 242-4655.

POOL TABLE, commercial size, Hoffman, completely refinished oak, includes balls, cues, has perfect slates. Meister, DI 5-1752.

14'x15' wool carpet and pad, \$50; large wooden desk, \$25; swivel chair, \$10; grand piano, \$350. McFall, AX 8-1552.

17" TV blond, Silverstone table model, new tubes, \$75 or best offer, must sell. Smythe, 242-2344.

WEBCOR automatic stereo record changer, four speed, diamond stylus, walnut finished wooden base included, \$25. Giddings, 298-6221.

HO tracks and remote control switches, \$17. Wacek, AM 8-8579.

NORGE automatic washer and matching dryer, electric 220v, like new, both for \$230. Villella, 256-9674.

2 BDR, den, \$350 down, \$75 month, \$10, 500 total FHA. Walled, landscaped. Williams, 332 Gen. Patch, AX 9-1741.

DINING ROOM suite, 8-piece; 9x12 braided rug; three breakfast stools; two end tables; coffee table; five-shade brass/walnut chandelier. Brooks, 298-5133.

PLYWOOD CAMPER for Chev. truck, \$20; 1951 Chev. 4-speed transmission, \$45; 8.25x15, 8-hole wheel, tire and tube, \$25. File, 344-8853.

CUBCO SAFETY ski bindings, complete with instructions, \$6. Taylor, 256-3774.

SPALDING Tee-Flite golf clubs, women's right-handed half set: 3, 5, 7, 9 irons, putter, 1 and 3 woods, bag and cart, all for \$30. Kubiak, 256-1513.

'60 CORVAIR, model 700, 2-dr., 6-passenger sedan, white, stick shift, 5 new w/w Premium Tires, low mileage, \$895. Browning, AX 9-6384.

NEXT DEADLINE FOR SHOPPING CENTER ADS Friday Noon, Dec. 13

- MINIATURE AKC registered poodle puppies, make wonderful Christmas gifts. May be seen after 5 p.m. at 5900 Ponderosa NE. MacKay, 298-6541.
- CAMERA, Argus C3 with ever-ready case and flash attachment, \$20. Vivian, 299-1785.
- ESKIMO SPITZ puppies, 10 weeks old, wonderful pets, registered. Fulmer, AL 6-9037 after 5 p.m.
- '63 Wren motor scooter. Darrel, 268-0534 after 5 p.m. weekdays, or anytime weekends.
- '52 MERCURY hardtop, right side damaged in accident, reasonable offer. Shenk, 255-0357.
- SCOOTERS, 2 large size, \$6 for both; adjustable dress form and stand, \$7. Duvoil, 299-8744.
- GIRL'S 26" middleweight bicycle, \$35. Balok, 299-4394.
- 8" T.A. table saw, 3/4 hp motor, \$55; jig saw w/1/4 hp motor, \$20. Pliner, 6210 Bellamah NE, 256-1907.
- STAUFFER REDUCING couch, \$100; Kenmore automatic washer, needs mixer valve, \$20; Coldspot refrigerator, needs handle, \$50; 14 ft. boat. Cox, 256-1977.
- POWER TOOLS: Wards Power Craft 8" table saw with two 5" table extensions, Delta heavy duty 6" jointer, 1/2 hp motor, \$100. Kelley, 299-0104.
- COLT FRONTIER revolvers, several early ones, \$35 and \$55. Will trade. Smitha, 8607 Menaul, 299-1096.
- LARGE DOLL furniture—rocking crib, play pen, stroller, and high chair—all for \$12. Wladika, 255-9166.
- PORTABLE Admiral Hi-Fi/record player, \$25; male dalmatian dog, one year old, good with children, best offer. Gellenfeldt, AL 6-7357.
- UPRIGHT piano, recently restrung, \$150. Pierce, 255-7923.
- ORNAMENTAL iron gate, hinge and latch for 52" opening, may be seen at 401 Adams NE. Littell, AL 5-2716.
- 3-BDR Mossman, five months old, brick, 1 1/2 bath, paneled den w/fireplace, carpet and drapes by Modesta, AC, laundry, 2-car garage, shrubs. Hanson, 298-7177.
- 21" RCA table model TV; Bell amplifier #2122; car top carrier; 8 gal. aquarium w/access; two 027 trains, complete. Reid, 255-5657.
- DINING SET, blond, table, 6 chairs, hutch, extra leaves, table cover. Crouse, AX 9-1259.

- VACUUM CLEANER, Eureka, canister type, all attachments, \$25. Van Deusen, AX 9-4328.
- '63 COUNTRY SQUIRE 390, all power, factory air, other extras, \$3450. Chandler, 256-6415.
- POKER TABLE, \$25; motor scooter, \$35; 15 hp Evinrude outboard motor, some parts missing, \$25; Formica kitchen table and 4 chairs, rough, \$10. Stott, AX 9-1516.
- SPACE HEATER, 30,000 BTU, never used, \$35; Oster cool spray humidifier, never used, \$25; Shock, 877-3728.
- '56 CHEVROLET, 4-dr., 6-cyl. Kelley, 1517 Rita Dr. NE, 255-6531.
- USED LUMBER, 15 ea. 2x8x14 No. 3 pine, \$1 each, other odd pieces. \$20 for all. Hawk, 1821 Florida NE, 256-6264.
- LIONEL, American Flyer "O" gauge freight trains, track w/switches on 4'x8' plywood, buildings and accessories, \$35. Entwistle, 268-3024.
- WURLITZER spinet piano, mahogany, one year old, \$545 cash. Kinsey, 298-7034.
- LINED DRAPES, 1 pr., suitable for den or playroom, orange, brown and gold, 42"x60", each panel, \$20; full-length hoop skirt, \$5. White, CH 2-3519.
- SMITH CORONA adding machine, like new; man's storm coat, size 40-42; men's watches. Anez, 299-6301 after 6 p.m.
- TOBOGGAN, six foot, Lund; car bed. Brooks, 299-1884.
- LIONEL TRAIN set on plywood, 3 engines, 12 cars, remote switching, will fit under double bed. Inglat, 877-1146.
- 3-BDR and den Mankin home, landscaped, walled, w/w carpet, built-in range and matching refrigerator, drapes, \$13,450 new FHA, \$400 down. Farner, 1506 Erbbe NE, 299-6007.
- KENMORE 36" white gas stove with clock, about eight years old. Kelley, 268-2235.
- GE REFRIGERATOR, 8 ft., 2-dr., separate controls, \$50; Tappan 20" gas range with pilots, oven 16"x19"x14", \$35. Molter, 268-9377.
- TIRE CHAINS, cross bar type, will fit most 14" and 15" wheels, \$8. Hole, AL 5-5925.
- ALTURA PARK vicinity, 2-bdr, den w/built-ins, carpeting, screened patio, \$14,500 total, loan of \$13,050 guaranteed. Purdue, 1526 Aliso Dr. NE.
- LIONEL TRAINS, assorted "O" and "O-27" gauge track, engines, switches, bridges, accessories, approximately 1/3 price. Plagge, 255-1801.
- '58 VW sedan, nearly new tires. Carlson, 268-8138.
- 20" TRICYCLE; baby doll in stroller; 2 sets Chatty baby doll clothes; child's car seat. Randall, 299-3935.

- MODIFIED KLIPSCH w/12" speaker, \$30; B&H slide projector 300w, 19 slide trays, \$30. Hamlet, AX 9-5124.
- KITCHEN RANGE, Roper 40", broiler, electric clock, \$35. Benischek, AL 6-7869.
- '54 CHEVROLET 2-dr. sedan, leatherette upholstery, R&H, snow tires, \$250. Lilly, 1129 Glorietta NE, 298-2560.
- TOT'S STEEL spring horse, \$5. Campbell, 299-2331.
- AUTOMATIC WASHER, \$50; accordion, \$80; child's safety bed rail, \$2. Sisson, AX 9-4217.
- '50 PLYMOUTH convertible, R&H, new upholstery. Claassen, 255-4347.

FOR RENT

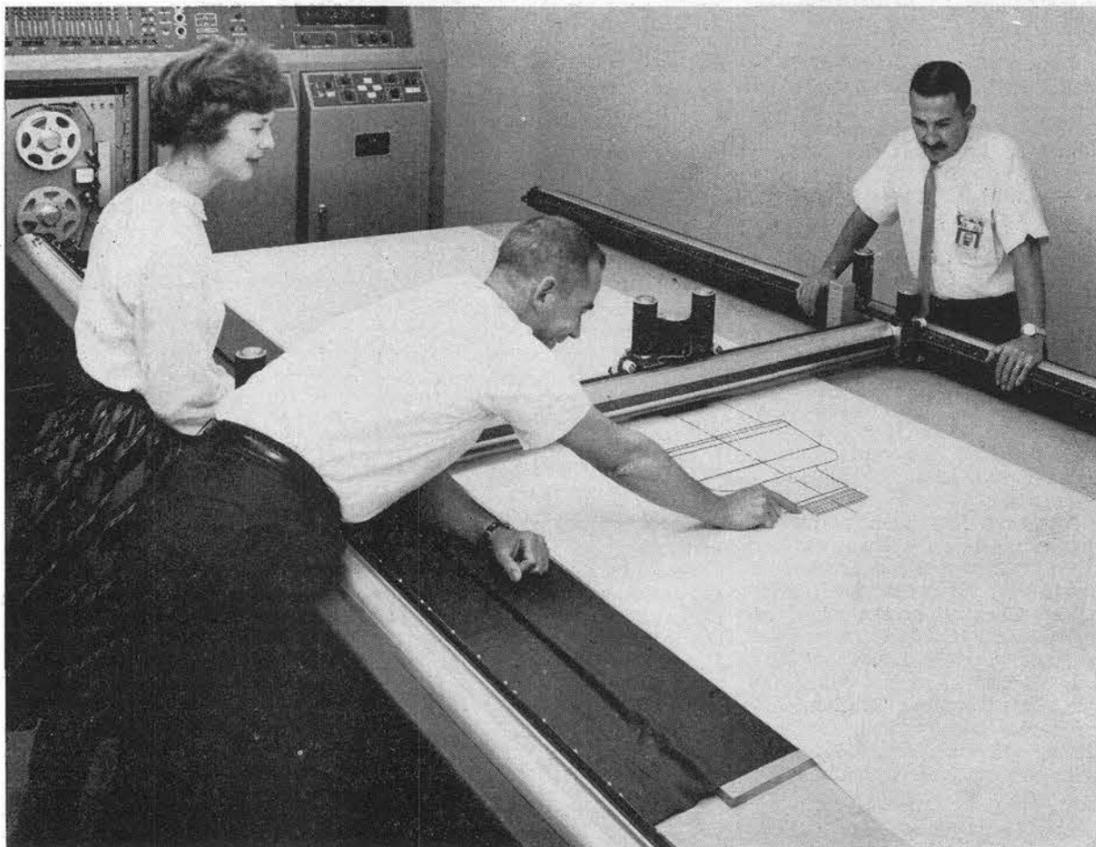
- 3-BDR, 220 in kitchen, attached garage, nicely landscaped, NE Heights. Immediate occupancy, you pick paint colors. \$115 month. Campbell, 299-2827.
- 3-BDR HOUSE, near Eubank/Candelaria, newly decorated including carpeting, drapes. All major appliances furnished. Brady, 299-6037.
- 2-BDR HOUSE, near Los Lunas. Corrals and outbuildings. Nice for horses. \$40 per month. Causey, 299-0089.
- LARGE 3-BDR duplex, stove, refrigerator, air conditioned, available Jan. 1, 1964. 616 Madison NE. Wanke, 268-5056.

WANTED

- TO KEEP two small children in my home. Morris, 298-3001.
- RIDERS to Miami, Fla., or points between, leaving on Dec. 20, returning Jan. 7, Matthews, 242-6285.
- MOUNTAIN LAND, I have \$1000 for down payment. Tiefs, AX 9-2763.
- PRE-SCHOOL children to care for in my home. Spurgeon, 11006 Snow Heights Blvd. NE, 299-8489.
- RIDE from 1228 Central SW to Corporation. Huston, 243-2563.
- PASSENGER or driver to Minneapolis, leaving Albuquerque about Dec. 20, return about Jan. 4. Villella, 256-9674.
- USED 20" bicycle and upright piano. Sivinski, 299-6014.
- CAR POOL or exchange rides between Indiana-Candelaria vicinity and Bldg. 800. Cosden, 256-0547.

LOST AND FOUND

- LOST—'61 Kansas State ring w/initials DEG; leopard print headscarf; black patent high heeled shoes; grey clip-on sunglasses; Bank of New Mexico Five Points Branch checkbook; headscarf with horses; 3/4"x1 1/4" silver cylinder; tan raincoat belt with leather buckle; 2 1/2" 3-blade penknife. Lost and Found, ext. 264-2757.
- FOUND—Linen handkerchief with purple flower; black 3" 2-blade penknife; turquoise earring. Lost and Found, ext. 264-2757.



WATCHING new engineering plotting machine with a part drawing are (l to r), Jean Hinkins, mathematician in Applied Mathematics and Computer Sec-

tion 8142-1; Bill McGuire, supervisor of Drafting Division 8114; and Lew James, machine operator and programmer in Special Projects Section II, 8152-2.

Numerically-Controlled Plotter Serves As Fast Mechanical Drafting Aid

"The Moving Finger writes; and, having writ, moves on . . ." all automatically, with Livermore Laboratory's newly-installed numerically-controlled plotting machine.

This amended line from the Rubaiyat of Omar Khayyam points up the continuous drafting features of the machine, sometimes called the world's fastest tape-controlled pen. The Orthomat Engineering Drafting Machine, as it is officially known, can draw a straight line at the rate of 200 in. a minute, and can draw curved lines as fast. Drawings as large as 120 in. by 48 in. can be made on the machine.

Intended as an aid to draftsmen, the machine has other capabilities which are now being studied for use in engineering design at Livermore Laboratory.

Among the capabilities now under investigation, these areas show the greatest promise:

- * Verifying numerical descriptions used in part definition and in the fabrication of parts on numerically-controlled tools.

- * Relieving draftsmen of tedious and time-consuming tasks, such as preparing graphs.

- * Preparing printed circuit masters.

- * Illustrating critical path charts, or network analysis diagrams.

- * Providing engineers with a greater design scope by programming a whole series of design variations, instead of the one or two preliminary design drawings now offered.

Perforated Tape

The operation of the plotter is controlled by ribbons of perforated tape containing information directing the X and Y axis motions of the machine. The tape is similar in some ways to a roll on a player piano, since the holes in the tape dictate the "melody" to be played. However, instead of air pressure regulating the operation of the keys, as in the case of a player piano, the holes in the tape are read by an electric eye and converted into signals by the machine's numerical control system. These signals are then fed into the mechanism controlling the motion of the pen.

Information on the tape is first derived from written specifications, mathematical formulas, or directly from original sketches or drawings. Then, with the help

of a computer, it is translated into machine language by programmers throughout the Laboratory.

Programming is now being done by the Drafting Division; Special Engineering Projects, Section II, 8152-2; Applied Mathematics and Computer Section, 8142-1; Special Machining and Support Shop Section 8223-2; and by various project groups in the 8100 organization.

Makes Changes

Operating the machine is Lew James, a former draftsman who was recently assigned to 8152-2. According to Lew, one of the big advantages of the machine from a drafting standpoint is that it will be able to make changes to drawings automatically, instead of redoing the drawing by hand. "If a change is made to an original design, it can be programmed on tape and a new drawing, incorporating the change, can be drawn by the machine. If a change involving one dimension has a corresponding effect on other dimensions, the machine can make these changes automatically," Lew said.

Another feature built into the machine will permit automatic reduction or blow-up of drawings ($\frac{1}{4}$, $\frac{1}{2}$, full, and twice-size), as well as mirror-image or reverse drawings. The size or position wanted can be dialed into the machine, and the desired drawing will be produced from the tape automatically.

Continuous path drawings through an almost infinite number of points can be made on the machine to an accuracy of five-thousandths of an in., with a repeatability accuracy of two-thousandths of an in. These tolerances are far greater than are normally obtained by manual drafting methods or by photographic reproduction, according to Lew.

Verifies Descriptions

Perhaps the most important use of the machine will be to verify numerical descriptions used to control the operation of the Laboratory's automatic milling machine and lathe. By using the machine to draw out tape programs of the cutting paths to be followed by these production tools, errors in design or programming can be caught and corrected before a part is made.

An even more sophisticated use of the machine, now under study, will be to use it as an actual production tool to turn out printed circuit "negatives." In this case,

the pen on the machine would be replaced with either a tool to cut printed circuit designs in a coated plastic sheet, or by a traveling light beam to expose photo-sensitive material. Material treated in this manner would be used as negatives through which light could be passed to expose designs directly on the surface of printed circuit boards.

All of the uses of the new machine are expected to have a broad effect on engineering concepts and practices throughout the Laboratory, according to C. R. Barnard, manager of Product Development Department 8150. "By emphasizing computer-aided design through the use of machines such as this, we hope to design components with greater reliability and in less time than ever before," he said.

'Best Since T-Square'

One of the first organizations to benefit from the use of the plotting machine is the Drafting Division.

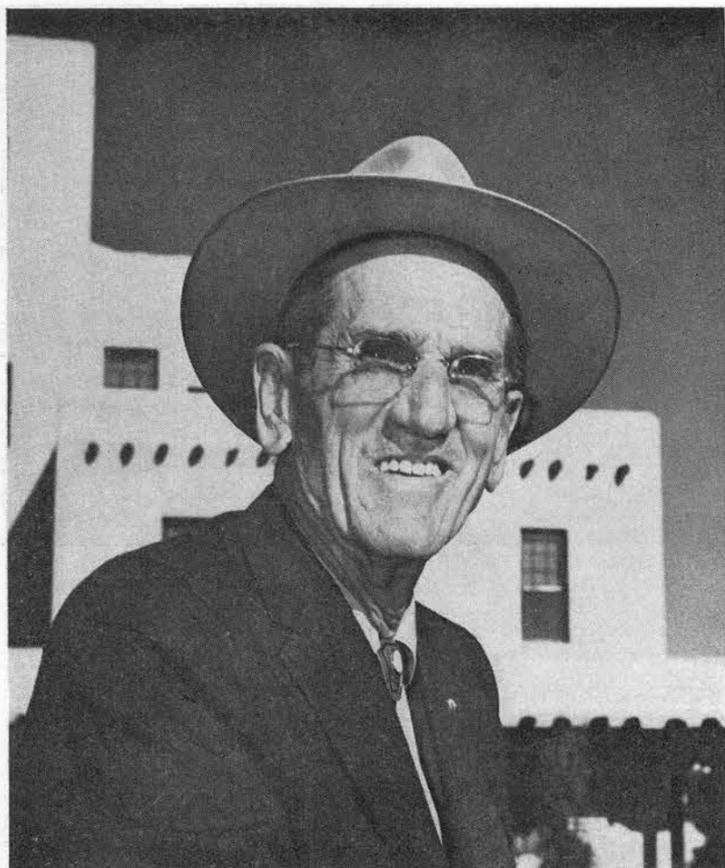
"As a drafting tool, the machine is one of the best things to come along since the T-square was invented," said Bill McGuire, supervisor of the Drafting Division. "As an adjunct to our operations, it will relieve us of much of the time-consuming and tedious aspects of our job—like drawing spirals, graphs, and charts—and it will also broaden the skills required of our draftsmen. Eventually, we hope to have all 80 of our draftsmen doing programming for the machine."

Lew James put it this way: "Mathematicians here and elsewhere have developed languages to use in programming. It is 'such the same as saying that they invented Latin and taught it to the machine. Now draftsmen are learning the language to communicate with the machine."

Employee Injured in Company Auto Accident

A Sandia Laboratory taxi driver was injured Nov. 21 when the vehicle he was driving was struck from behind by a semi-trailer rig. A passenger in the car was bruised slightly. The driver was taken by ambulance to an Albuquerque hospital and treated for two broken ribs. He is now convalescing at home.

At the time of the injury, Sandia Laboratory employees had worked 65 days or 2,275,000 hours without a disabling injury.



Francis C. Scott, retired
"Before I had to work, now I choose to work."

Scotty's Retirement Is His Most Satisfying Time of Life

Editor's Note: Last year, at the beginning of golf season, Services and Benefits Division 3122 invited all retired employees to participate in the Sandia Laboratory League. One retiree, Francis C. Scott, made the following reply:

"Thank you very much for your invitation. I should like to join your group as I used to be an avid golf enthusiast. But since I have retired I just plain don't have the time."

Naturally, the Lab News was curious. This story resulted.

Francis C. Scott retired from Sandia Laboratory in May 1956. Now, seven years later, his life is as active and full as it ever was.

"Perhaps more so," Scotty says, "and perhaps more satisfying."

Scotty doesn't work for money anymore; he works to help other people. His "job" is to help patients in the Veterans Administration hospital in Albuquerque. He writes letters for those who can't, he shops for the patients for items not available in the hospital PX, he visits with those who have no other visitors, and he takes care of business affairs for those who are unable to do so.

Scotty is involved in his job and he works at it at least four days each week. He puts as much care into it as he did in supervising the Millwright and Machine Services Division in Sandia Laboratory's Development Shops.

"One of the most careful bits of business I ever did," Scotty says, "was to buy fishing tackle for a terminal case at the hospital. The man requested specific items and finally I found them for him."

Scotty used to have another job. He helped produce Braille books for the blind. To reduce the wear on the raised patterns of the Braille sheets, Scotty would apply shellac. He produced 14,000 before he developed an allergy to shellac.

Long before he retired, Scotty was active in a number of organizations. He still is. He attends meetings of his Masonic organization and is a Shrine Clown during parades. He is also a Field Agent for the Masonic Service Association. He is a member of the Lions Club, Knife and Fork Club, University Club, American Legion, and Veterans of World War I. He used to be active in the New Mexico Wildlife and Conservation Association, and hunting and fishing are continuing interests.

Scotty says retirement requires planning, thinking, and working. "I started thinking about it when I came to Sandia from Los Alamos in 1946," he says. "Your job can become your life unless you're careful. You need outside interests, you need hobbies, and you need friends. These you need before you retire, but you must have them in retirement to live."

"You need a place where you belong. Usually, this is not a new place, but the place you've always been. You'll make new friends, of course, but you still need the friends you had before retirement. You'll see new places—I'm going to Mexico next year—but you need home more than ever."

Scotty's hobbies include fishing, hunting, and exploring ghost towns in the Southwest. He takes color slides of his travels and collects stories from ghost town old timers. This material has made him a popular speaker at various organization meetings.

Scotty lives at 3907 Hannett N.E. His wife is a retired schoolteacher. Their daughter lives in Albuquerque and they have three grandchildren whom they visit often.

"Retirement is great," Scotty says. "The difference is that before, I had to work; now, I choose to work. Naturally, I choose the things that give me the most satisfaction."

Sandia's Safety Record

**Sandia
Laboratory
HAS WORKED
420,000 MAN HOURS
OR 12 DAYS
WITHOUT A
DISABLING INJURY**

**Livermore
Laboratory
HAS WORKED
1,130,000 MAN HOURS
OR 221 DAYS
WITHOUT A
DISABLING INJURY**