



SANDIA PRESIDENTS, present and future, recently conferred in Albuquerque. Julius P. Molnar, left, will be president of the Corporation Oct. 1. James W. McRae on that date leaves the post of Sandia president to become vice president of the AT&T Company.



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ALBUQUERQUE, NEW MEXICO

SEPTEMBER 5, 1958

**Bond for Best**

## Security Education Character To Be Found Through Contest

### Raymond P. Lutz, Former Sandia VP, Dies in New Jersey

Funeral services were held Sept. 2 in Madisonville, Ky., for Raymond P. Lutz, former Sandia Corporation Vice President, Operations, and Western Electric employee for 30 years.

Mr. Lutz died Aug. 30 at his home in Princeton, N. J. He is survived by his widow, a daughter and two sons.

Mr. Lutz graduated from Purdue University in 1926 with a Master's degree. From 1926 to 1929 he

A \$25 savings bond goes to the Sandia Corporation employee who comes up with a winning symbol for Security Education.

A contest announced today by the Security Division 3243 will award a bond to the employee who enters the symbol or "character" best representing the idea of security education at Sandia Corporation.

Entry blanks will be distributed to all Corporation employees Monday. All Sandians with the exception of 3240 personnel are eligible to enter the contest and may enter as many times as they wish. Extra blanks are available from organization 3243, Rm. 136, Bldg. 802.

"We're looking for an instantly recognizable character, which can be animated for films, used on posters and other literature in Sandia's Security Education program," F. Claude Hempen (3243), director of the contest, says.

"Artistic ability will not be a basis for selecting the winner," he said. "The idea can be sketched or described."

However, contest officials pointed out that the symbol or character must clearly convey the idea of security to others.

The contest will close at midnight, Sept. 24.

### R. W. Henderson Speaks At New Mexico Tech Society Election Meeting

New Mexico Council of Technical and Scientific Societies will elect new officers at its annual dinner meeting and board of directors conference Sept. 8. R. W. Henderson, Vice President, Development (1000), will be guest speaker at the dinner, which will begin at 6:30 p.m. at La Placita Restaurant in Old Town.

Reservations for the dinner and meeting may be made by calling Chet O'Neal (5511) at ext. 52263 or John Cunningham (1542) at ext. 20259.

Lee McKittrick (1613), retiring Council president, will officiate at the meeting.



Raymond P. Lutz

taught at Purdue and Mellon Institute of Industrial Research.

Joining Western Electric Company in 1929 he was promoted to Department Chief in 1939 and Assistant Superintendent in 1943. In 1951 he was appointed Superintendent, Manufacturing Engineering at Burlington, N. C., and in 1953 was named Superintendent of Greensboro, N. C., Shops.

Upon transferring to Sandia, he was Superintendent of Manufacturing, Planning and Inspection until February 1954 when he was named Vice President.

Since last January, when Mr. Lutz left Sandia Corporation, he has been head of the new Western Electric laboratory in Princeton.



UNION OFFICIALS SIGN the first three applications for Sandia's new Supplemental Life Insurance policies (L to R): A. H. "John" Archuleta, president, Local 251, Office Employees International Union; Harold Burrell, president, Metal Trades Council; and Thomas Chiado, business manager, Local 27, International Guards Union of America. Standing at rear is Ray B. Powell (3100).

## New Life Insurance Program to Be in Addition to Group Plan

Sandia's Supplemental Life Insurance Program, which will be offered to employees Sept. 15, has been designed to bolster the insurance plan already provided free by Sandia Corporation to its employees.

All unions at Sandia Corporation have endorsed the Plan.

As the name indicates, the Supplemental Life Insurance Program will be in addition to the existing Group Life Insurance Program.

Minimum life insurance protection, according to a well known "rule of thumb" should be an amount equal to two year's salary. The new Sandia Supplemental Life

Corporation in the existing Group Plan for all employees who have been with the Corporation five years. (Employees with six months to five years' service are covered but in a lesser amount depending on length of service.)

Insurance equivalent to another year's salary will be partially paid for by the Corporation in the new Supplemental Plan. Here the first \$1,000 protection is free to the employee (Corporation-paid) and subsequent units of \$1,000 cost the employee 40 cents per month.

This supplemental Life Insurance Program is being offered to

employees with the stipulation that 75 per cent of all eligible employees must apply for the insurance before it can become effective. During the 15-day sign-up period (9-15 to 9-30) all employees eligible are provided free coverage under the plan with the Corporation paying the full premium.

After the sign-up period, provided 75 per cent of all eligible employees have joined, only those who have completed enrollment cards will be protected.

The program will be carried by the Prudential Insurance Company of America.

### Supplemental Life Insurance Program Highlights

Insurance payable on death from any cause.

Double indemnity if death results from accidental means.

Benefits for accidental loss of one or more limbs or eyesight.

Low cost protection. (40 cents per \$1,000 coverage after the first \$1,000 for which the Corporation pays).

Protection provided is equal to one year's basic pay rounded off to the next higher \$1,000.

Free life insurance protection after retirement, reducing premium 10 per cent per year for the first five years.

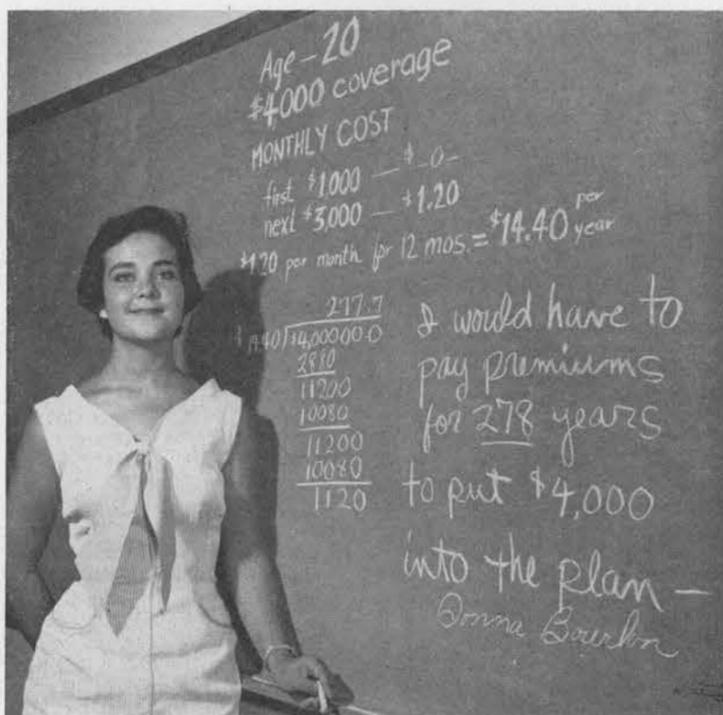
No medical examination if enrollment is accomplished between Sept. 15 and Sept. 30.

Full details will be given in a booklet to be distributed to all employees.

Insurance Program will make this possible for Sandia employees who have five years' term of employment.

Here's the way the two insurance plans make possible the recommended coverage:

Coverage equivalent to one year's salary is paid for by the



INSURANCE ADVOCATE—Sandia's Supplemental Life Insurance Plan looks good to Donna Bourlon (3122). Donna, who figured cost of her coverage, will be tabulating applications for the insurance in Employee Services Division for many of Sandia's personnel.



Sandia Corporation Has Worked  
35 Days  
Without a Disabling Injury

## HERE'S WHY...

Sandia employees know that caution is not cowardly and carelessness is not courage. Only the foolhardy neglect the rules of safety and tempt the hand of fate. Safety rules are known at Sandia and safety equipment is used — thus employees are safer on the job than in their own homes.



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"LOANED EXECUTIVES" W. H. "Bill" Chandler (3221), left, and Hal Gunn (3153) will work with the United Fund campaign committee full-time for six weeks starting in September.

## Two Sandia Employees to Work With United Fund's 'Loaned Executives'

Sandia Corporation is cooperating with the United Fund Campaign committee this year by loaning two employees for full-time work for approximately six weeks beginning about the middle of September.

Men from five other Albuquerque business establishments are also expected to be on the "loaned executive" committee which will do administrative work while the

UF campaign is being conducted.

Harold "Hal" Gunn (3153) will act as chairman of the loaned executive group and W. H. "Bill" Chandler will be on the committee.

Purpose of this committee is "to work with the heads of Albuquerque's larger business firms and industries to encourage employee participation in the United Fund through payroll deduction plans," according to Hal.

He served on the committee last year and received for the Corporation a citation of merit for outstanding service.



Gail Williams (7225)

### Take a Memo, Please

No statistical report can describe the tragedy of an accident. Numbers alone don't take into consideration the heartbreak, worry, and financial strain connected with every injury or death due to an accident. Awareness of dangerous conditions can help prevent such tragedies.

## Congratulations

### Born to:

Mr. and Mrs. Gene Bussey (1521) a daughter, Gail Gene, on July 26. Mildred was formerly in 1454.

Mr. and Mrs. Steve Trujillo (7242 assigned to 1450) a daughter, Diana Patricia, on Aug. 15.

Mr. and Mrs. Bill Neil (2482) a daughter, Alisa Lea, in August. Marge formerly worked in Purchasing.

Mr. and Mrs. Glenn O. Folkins (1471-1) a son, Brian Phillip, on Aug. 23.

Mr. and Mrs. C. A. (Pat) Coonce (5144) a son, Richard Graham, on Aug. 24.

Mr. and Mrs. John Hiller (7113) a daughter, Shannon Louise, on Aug. 26.

Mr. and Mrs. Donald Roth (8111-3) a daughter, Kathleen Jo, on Aug. 13.

Mr. and Mrs. W. S. Brady (7424) a son, Lawrence James, on Aug. 3. Mr. and Mrs. Billy May (2111-1) a son, Brian Paul, on July 25.

Mr. and Mrs. R. J. Beall (2151-1) a son, Bobby Lee, on Aug. 25.

Mr. and Mrs. M. V. Newsom (1264-1) a son, Michael Dirk, on Aug. 18.

## Weddings and Engagements

Wedding bells rang last Saturday for Dave Denton and the former Donna Rinn. The ceremony was held at First Presbyterian Church.

Donna (7225 assigned to 1620) has been a summer employee at Sandia for the past three years. She will return to her studies at the University of New Mexico.

Dave worked here last summer and is now a permanent employee in 1456.

Following a Colorado honeymoon the couple will be at home at 201 Sycamore NE.



Mrs. Harris Mrs. Denton

Another recent bride was Cindy Montano who was married Aug. 30 to Bobby Harris of Albuquerque in San Felipe Church in Old Town.

Cindy has been employed at Sandia in 3153 since last April.

Following a trip to Colorado the couple will reside at 1317 Lead SE.

Las Vegas, Nev., was the scene of the wedding of Joan Lent and Ralph Fritz. The evening ceremony was held Aug. 23 at the Good Shepherd's Lutheran Church.

Joan has been at Sandia since last August (7225 assigned to 1624) and Ralph was employed by the Corporation in 5252 in May 1956.

The couple is now at home in Albuquerque.



Mrs. Schellenbaum Mrs. Fritz

A morning wedding ceremony at Holy Ghost Church on Aug. 23 united Mary Ellen Sanchez and Ralph L. Schellenbaum in marriage.

The bride, a Corporation employee for three years, works in 5111 and Ralph has been in 5113 almost five years.

Following a honeymoon trip to Mexico City and Acapulco, the couple will be at home in Sandia Park.

Gloria Garcia has chosen Sept. 13 for her marriage to William F. Gamberale in a morning ceremony at Immaculate Conception Church.

The bride has worked at Sandia six years and is now in 7225 assigned to 1652. Her fiancé has been with the Corporation for seven years and is in 2441-3.

They plan to go to Las Vegas, Nev., on their wedding trip.

### Sandianotes

## Korean Child Finds She's Not Alone In World - Thanks to Mary Simpson

Bak Hyo Soon has an American benefactor, although at 18 months she's too young to appreciate the help being given her.



Mary Simpson and "Gentle" - Sandian aids Korean orphan -



CANADIAN FISHING met expectations when "Ted" Alexander (4111) and his son, Robert, 13, pulled these big Great Northern Pike from Lake La Ronge in the northern part of Saskatchewan.



### Sandianotes

## Ted and Son Catch 'Em Big on Scenic Tour of Canadian Lakes, Rivers

### New Homes

Down from the mountains for a bit of city living are Mollie (3152) and Gurdon Miller (5111). Their new home is at 2905 San Rafael SE.

Moving into their new pink house last week were Lt. and Mrs. Ben Bader. Ben is on military leave of absence from 1246. The address is 3609 Dakota NE.

New home owners are Kenneth Hall (2151-1) and his family who recently moved to 532 Tennessee SE.

Mr. and Mrs. Ronald Dauzat (2243) are just getting settled in a new home at 1609 Dorothy NE.

### Bon Voyage

Staff of the Technical Library (7221-1) held a coffee break bon voyage party for co-worker Frances Strachwitz.

Frances left Aug. 22 for Europe to tour France and Spain and visit friends and relatives in Germany, her former home.

### Wedding Anniversary

Observing their 10th wedding anniversary last month were Mr. and Mrs. Joe Suazo (2163).

### Back at Work

A "welcome back" greeting goes to Erlinda Duran, 2470 department secretary, upon her return after an extended illness.

### Portrait Painting

Eugene Alesch of the Technical Art Division (2463) will teach a course in portrait painting at the University of New Mexico Community College beginning Sept. 27. The classes are scheduled for each Saturday morning from 8 to 10 a.m. Registration for the Community College courses will be Sept. 18-20.

"For really big fish, go to Saskatchewan," according to F. C. "Ted" Alexander (4111) and he can prove it by pictures.

The northern half of this Canadian province consists almost entirely of lakes and rivers, all teeming with fish. Ted and his son, Robert, 13, went to Lake La Ronge at the northern end of the road through Regina and Prince Albert Park. The lake, some 2200 miles from Albuquerque via scenic detours, encompasses 500 square miles of water and fighting Great Northern pike and lake trout.

At the time of their visit the lake trout were keeping cool in the deep waters, but the pike were near the surface. In two days they caught 150 pounds of fish, ranging from babies of six pounds to a grownup of 14½ pounds.

Minnows of less than 15 inches in length must be thrown back.

### Shattering Experience

Ed Brass (4111) and his wife have a new respect for tornadoes—even minor variety.

A "dust devil" dipped recently into their backyard at Euclid NE. In seconds the whirlwind had picked up the plate glass top from a wrought iron table, carried it a few feet then dropped it with a smash. Two aluminum lawn chairs also disappeared. One was found a few minutes later on the front lawn. It was some time before the Brasses located the second chair—on top of the roof.

## Sympathy

To Leigh Hendricks (5125-1) for the death of her father in Caruthersville, Mo., on Aug. 18.

## Sanado Club to Present Fashion Show Sept. 10

The sewing group of the Sanado Women's Club will present a coffee fashion show, "Fashion Frolic," beginning at 9:45 a.m. on the patio of the Coronado Club Sept. 10.

The stress will be on high fashion with the accent on personal individuality. Commenting will be Mrs. David L. Brubeck, known locally in TV and modeling. She will be assisted by Mrs. C. L. Fleissman.

Mrs. James F. Sigler will model the accent of dressing. Members of the club who will model are Mrs. A. T. Cushman, Mrs. A. M. Hoge, Mrs. Paul Kirby and Mrs. William G. Funk.

The show is open to all members of the Sanado Club and their guests. Reservations are necessary and can be made by calling the sewing group president, Mrs. Leland Swanson, or co-chairman Mrs. Robert P. Matthews. There will be a small charge for members and guests.

# Lure of Gold Takes Prospectors On Successful Panning Venture

In the Mother Lode country of California, mountain streams and valleys once echoed to the shouts of lusty 49'ers. The brawny men who tore the gold from the earth, built fortunes and made legends of themselves, are departed. But they left some of the gold behind.

It stays there, hidden in rock crevices on the bed of a mountain creek or mixed with mud and

sand along a bank. To those like Joyce Doyal (8212-3) and Lu Nelson (8221-1), who have relearned the lost art of gold panning, the tiny specks of heavy yellow metal are spice to a week-end camping trip.

Joyce married into a family of part-time gold miners. A Cherokee Indian taught Lu how to pan for gold.

About 20 years ago Joyce's father-in-law, William Doyal, leased a government mining claim known as Camp Ladybug outside of French Gulch, a tiny ex-mining town near Shasta Lake, about 250 miles from Livermore.

For the past five years, Joyce and her husband and son, Jim, have spent their vacations on the mining claim, camping, fishing and panning for gold in the stream that runs across the land.

In three days this summer they took over \$32 in gold dust and nuggets from the stream.

Lu Nelson caught the gold fever another way. She, her husband, Leonard, and two teen-age children this summer went to a friend's cabin near Coulterville, about 100 miles east of Livermore.

En route they stopped off at Coulterville's Columbo Hotel, formerly a Wells Fargo Stage stop.

"Leonard is a rock hound and he started talking to the manager about mining in the Mother Lode country," Lu said. "The manager asked if we'd ever done any gold panning and we said we hadn't. That's when we heard of Chief Floyd Harry Heckler, a Cherokee Indian who supplements an Army pension with gold panning."

"This Indian is fabulous," Lu said. "We spent all the next day with him panning a small stream on a private ranch about six miles from Blanchard." The day's haul was nearly half an ounce, worth about \$15.

The biggest thrill of gold panning, both Lu and Joyce agree, comes when that first nugget is found.

"After hours of sifting and sifting to get tiny flakes of yellow, that first pebble-sized nugget looks as big as your fist," Lu said. Actually, she didn't even have to pan for her first nugget.

"I went back up the stream to get a drink of water and when I bent over a pool I found myself looking at a little nugget lying there on the bottom."

What happens to the gold? Well, the government will buy it at \$32 an ounce. But both Lu and Joyce are holding on to theirs. They plan to have jewelry made out of the gold they found in the sands of the old Mother Lode.

## Radio Club to Meet

The Sandia Base Radio Club will have a speaker Sept. 9 Brooks Braffett (1413) whose topic will be "Simplicity of Double Sideband Techniques." Time for the meeting is 8 p.m. and the place is the club room on Sandia Base.



RAW GOLD, over an ounce of it, gleaned from the beds of California Mother Lode streams, proves fascinating to Joyce Doyal (8212-3), left, and Lu Nelson (8221-1). They panned the metal.

# Summer Employee Develops Shock Wave Photo Technique

R. E. "Bob" Krylach, physics teacher at Sandia High School who was assigned to the Optical Development Section (5224) this summer, has solved a photographic puzzle which has plagued wind tunnel engineers for years.

The problem — to photograph shock waves in a wind tunnel without removing the perforated plexiglass walls surrounding the tunnel test chamber.

Perforated plexiglass walls are used in the Sandia tunnel and others to prevent shock waves from reflecting from the walls and disturbing existing flow patterns around the model being tested.

Since the walls flank the test model in the tunnel the perforations obscure an appreciable percentage of the test section. A way had to be devised to obtain shock wave (schlieren) photographs which would yield a maximum amount of information and show a minimum amount of obscuration.

The theory — set the depth of field of the camera in such a way that the plexiglass wall is sufficiently out of focus to prevent its interference with the photographic image of the device under test in the tunnel.

The method — experiment with various combinations of light sources, film types, lenses, shutter speeds, focal lengths and camera distances from the object until a successful method could be found.

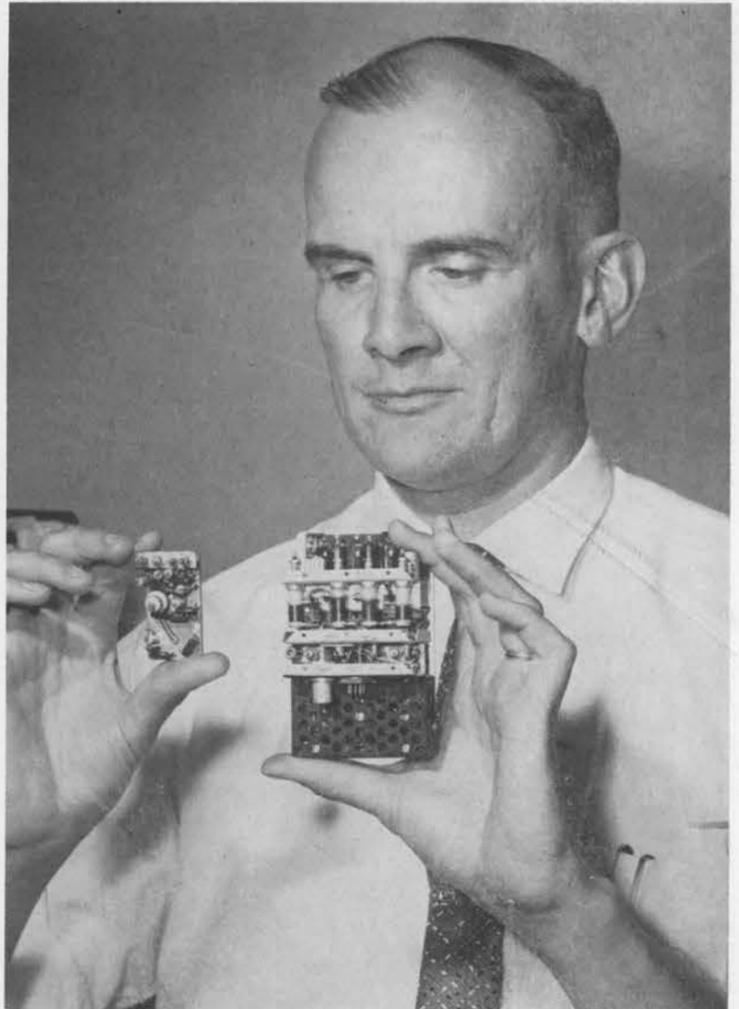
The result — the first series of tests made at the wind tunnel were successful.

"As a result of Bob's experiments we now have the first complete means of determining (photographically) the flow field around a model being tested," according to Harold Spahr, Jr., of the Experimental Aerodynamics Division (5142), who worked with Bob in developing the device.

An optical system based on their findings is now being developed by Ralph Deltre (5224).



SHOCK WAVE PHOTOS in Sandia Wind Tunnel were made possible with this camera, which is being assembled by its designer R. E. Krylach (5224), left. Looking on is Harold Spahr, Jr., (5142).



EVOLUTION of telemetering transmitters is demonstrated by John Eckhart (5220). He compares a new transistorized model (left) with larger, more conventional vacuum tube type transmitter.

# Man-Made Earth Satellites Focus Attention on Telemetry

"The 'beeping' signals emitted by radio from the first earth satellite that was launched last year focused public attention upon an art of remote measurement and control that has had a phenomenal growth in the past decade."

This is the introduction to a technical paper by John C. Eckhart, manager of the Instrumentation Development Department (5220), written for presentation at the Instrument Society of America Automation Instrumentation Symposium to be held Sept. 15-19 at Philadelphia. It is being pre-printed by the symposium.

Entitled "Telemetry—the Eyes and Hands of Applied Research and Modern Industry," the paper is one of two papers by Sandia authors to be presented at the symposium.

In his paper Mr. Eckhart traced the evolution of telemetering, which he defined as "the art or science of reproducing at a convenient location measurements made at a remote point." He pointed out that the first use of telemetering was in a system for electrical power distribution network, load dispatching and operation installed by the Commonwealth Edison Company of Chicago in 1912.

Supplies Essential Link "Today," he said, "telemetry supplies an essential link to an infinite number of automated processes and to the many remote measurement and control problems occasioned by research and development activities."

Rapid expansion of the field of telemetering was due to demands of industry for more efficient process control and to the urgency of our national defense effort which requires accelerated scientific and technical development problems, Mr. Eckhart explained.

"The research and development application of telemetering techniques has accounted for a large part of the progress made in this art in the period since World War II," he wrote.

"In the research and development problem telemetering is normally applied to measurements made at a point which is inaccessible during the time of measurement. This inaccessibility may occur through proximity to high temperatures, explosive forces, or

nuclear radiation or because of the high velocities and accelerations encountered by certain vehicles," Mr. Eckhart said.

## Performance Testing

"The performance testing of aircraft, missiles, bombs and other airborne objects account for a major portion of the telemetering currently being done for development programs," the author stated. He said that in this testing the emphasis is upon obtaining a large amount of analytical data on the response of the airframe, propulsion and armament elements of the vehicle to the environments of flight.

"The use of telemetering techniques in the instrumentation of research vehicles, ranging from meteorological sounding balloons to satellites, is an important factor in research programs," Mr. Eckhart related. "In these cases the telemetry system supplies information on variables encountered in the region where the vehicle operates."

Recent advances in telemetering systems are reviewed in the paper along with a prediction of their likely impact upon the problems of both applied research and the industrial user.

## R. E. McCallum to Read Paper Before Philadelphia Group

"AC/DC Direct Reading Voltage Calibrator" is the title of a paper by R. E. McCallum, supervisor of the DC and AF Standards Section (1652-3), which he will present at the 13th annual Instrumentation Automation Symposium in Philadelphia Sept. 15-19.

The paper describes the application of several basic electrical principles in the development of a voltage calibrator which is direct reading in measuring either DC or AC voltage.

The Instrument Society of America, sponsors of the symposium, will publish the paper.

## Credit Union Moves

The Sandia Laboratory Federal Credit Union plans to move today to its new quarters in Bldg. 609, three buildings west of its former location. The Credit Union's new telephone number is 38155.



FIRST SUMMER HIRE at Livermore Branch is George Dunbar (8122-2), Mechanical Engineering senior at Oregon State College, shown working on design features of the eight-inch air gun.

## Summer Employee Advances Solution To 'Fog' at Muzzle of Air Gun Barrel

Photographing projectiles fired from Livermore Branch's eight and four-inch air guns for testing purposes has long been a problem due to the condensation that appears around the muzzle.

The "fog" results when the compressed air that powers the gun leaves the barrel and expands rapidly, thus lowering air temperature around the muzzle.

George Dunbar (8122-2), the Branch's first summer hire, believes he has found a solution to the problem.

The senior Mechanical Engi-

## Help Being Given In Drop Testing At Dalhart Range

Sandia Corporation will provide technical assistance for the drop testing of inert experimental devices for nuclear weapons research purposes at a range located at the former Dalhart Air Force Base No. 1 near Dalhart, Texas.

The Atomic Energy Commission has leased the area through June, 1959, for the drop tests. The first drop was made last week and the series will conclude in about two weeks, the AEC announced. Navy jets, under sponsorship of the Naval Ordnance Laboratory, Silver Spring, Maryland, will drop the devices, the announcement said.

Drop tests involving other military aircraft are expected to follow the Navy tests. Selection of the site was made on the basis of its suitability for such tests and its accessibility and availability for test purposes, the AEC announced.

A limited portion of the ground instrumentation at the range will be provided by Sandia Corporation and Sandia personnel will assist in preparing test units for the operation, according to J. J. Miller, supervisor of Test Project Division I (5251).

Approximately three to four Sandians will be present at the range during a test series, Mr. Miller said. Field Test Project Engineer at the range will be Tom Takahashi (5230 on loan to 5251). Representatives of the Engineering Department Project Division (1222), headed by R. S. Wilson, who will participate are Bob Hogan and Charlie Burks.

## Supervisory Changes Announced in 2460

A reorganization within Document Department 2460 effective Sept. 1 has resulted in discontinuation of the swing shift of Document Control Section 2461-3 and new assignments for several supervisors.

J. H. Hockett has transferred from division 2464 to 2461 to replace H. J. Smyth, Jr., who has transferred to Livermore. A. E. Jones has changed from division 2466 to 2464 and J. F. Hayes has been promoted to supervisor of 2466.

T. S. Lonz has transferred from 2464-1 to 2461-1 and D. B. Aycock has changed from 2461-1 to Document Records Section 2461-2.

neering student from Oregon State College was assigned to the air gun problem shortly after starting work for Sandia in mid-June. Until now he has concentrated on methods of preheating the air around the muzzle. This has met with some success.

His new idea utilizes the projectile itself activating a hinged lock which would snap into the pusher device, stopping it in the barrel and preventing the air from escaping to cause the condensation.

Air guns are used in studies of the effect of high-G forces on materials. They fire projectiles loaded with materials to be tested at targets a few feet away at acceleration forces up to 5,000 G's on impact.

At Oregon State George is second scholastically in a class of 150. He first learned of Sandia Corporation through an advertisement in the Mechanical Engineering Journal. A Sandia letter about summer hires on the college bulletin board convinced him.

## E. C. Wahlstrom To Retire Sept. 13

Retiring Sept. 13 will be Edwin C. Wahlstrom, who has been on a leave of absence for the past year. Mr. Wahlstrom has been em-



E. C. Wahlstrom

ployed at Sandia since December 1951, first as a tool crib attendant in machine repair organization and more recently as a record clerk in metal stocks (2112).

He has made his home with a sister in Chicago at 1617 W. 83rd St. since the death of his wife a year ago.

## 'Mysterious Flying Object' Smashes Into Safety Glasses - Eye Not Injured

"You never know when an accident can happen," says Florentino Gabaldon (2473), and he's well qualified to make such a statement.

While sitting down during a break in the Motor Pool shop last month an object (still unknown) sailed through the air and shattered a lens of his safety glasses. Fortunately he was wearing his glasses during the break period. The force of the impact indicated that the object would have done serious damage to his eye if it had been unprotected.

"This incident serves to prove the need for wearing eye protection at all times in shops, regardless of whether employees are performing operations requiring safety glasses or simply passing through those areas, says A. Burton Metzger (3210), Safety Director.

Florentino has been employed at Sandia for more than 10 years.

# Dr. Ernest O. Lawrence—Nobel Prize Winner Director UCRL—Dies in Palo Alto, Calif.

Sandia Corporation officials at both Albuquerque and Livermore have expressed sympathy for the death of Dr. Ernest O. Lawrence, 1939 Nobel Prize winner for Physics and Director of the University of California Radiation Laboratory.

The famed physicist had been attending the International Conference on Scientific Detection of Nuclear Explosives at Geneva, Switzerland, when he became ill. He died Aug. 27 at a hospital in Palo Alto, Calif., after an operation.

R. E. Poole, Vice President at Livermore, represented Sandia Corporation in attending memorial services Aug. 30 at the First Congregational Church in Berkeley, Cal.

Since Dr. Lawrence's death a scholarship has been established in his memory, funds to be provided by the University of California Lawrence Memorial Fund.

Dr. Lawrence is survived by his widow and six children.

### Atom-Smashing Cyclotron

Noted for his research in the structure and transmutation of the atom and in the application of physics to biology and medicine, Dr. Lawrence's atom-smashing cyclotron has been called "as useful in research as the microscope."

Born Aug. 9, 1901, in Canton, S. D., he graduated from the University of South Dakota in 1922. His MA degree was granted by the University of Minnesota and, after a year at the University of Chicago, he entered Yale and received his PhD degree in 1925. Dr. Lawrence studied at Yale for two more years on a National Research Council post-doctoral fellowship.

Most of Dr. Lawrence's early papers dealt with ionization, the



Dr. E. O. Lawrence

process of energizing or electrifying atoms by either adding or removing electrons. His measurement of the ionization potential of the mercury atom was the most accurate determination of an ionization potential that had been made.

### Professor at Yale

After a year as Assistant Professor of Physics at Yale, 27-year-old Lawrence joined the University of California at Berkeley in 1928 as an Associate Professor. Two years later he conceived the idea of the cyclotron.

Dr. Lawrence demonstrated the device in 1930. It was made of a kitchen chair, a clothes tree to hold the electrical wires in place, a toy-sized four-inch magnet, and a pie-sized vacuum chamber of window glass, brass and sealing

wax. When Dr. Lawrence plugged it into an ordinary electric socket, atoms whirled about in the first cyclotron faster than those emitted by radium. Scientists were excited by the prospect of a research tool that made it possible to smash atoms and transmute elements without the use of methods both hazardous and forbiddingly expensive.

In 1936 Professor Lawrence became director of the Radiation Laboratory at the University of California, which he had founded in 1932 to house his cyclotrons.

### Wins Nobel Prize

In 1939 he was awarded the Nobel Prize for Physics.

During World War II he was called upon by the U. S. government along with six other top-ranking scientists to "evaluate the importance of the uranium-atomic energy program and to recommend the level of expenditure at which the problem should be investigated." Altogether, six Lawrence cyclotrons were used for research and pilot plant purposes in the atomic energy program. Along with other scientists, he was instrumental in development of the atomic bomb.

He also served the government as one of four scientific advisors to the postwar committee on atomic energy and as an advisor to the Knolls Atomic Power Laboratory.

Dr. Lawrence was awarded 13 honorary degrees by universities in this country, Scotland and Canada. His awards from scientific and professional groups were many and included the Medal for Merit, presented him for service on one phase of the Manhattan Project.

## T. G. Kinsley to Retire on Sept. 15

Retiring Sept. 15 will be T. G. Kinsley, who has been with the Bell system 36 years, five of them at Sandia Corporation.

Mr. Kinsley had worked in New York City until 1942 when he was transferred to Murray Hill, N. J. At Sandia he was in the Piezoelectric Device Development Division 1464. For the past year he has been on a leave of absence due to ill health.

Mr. and Mrs. Kinsley have sold their Albuquerque home and tentatively plan to locate near Canton, O., where their only son, his wife and two grandchildren live. However, Mr. Kinsley admits "This Albuquerque climate has spoiled us so, we may not be able to take that Ohio snow and ice."

They also hope to do some touring by trailer of interesting spots in the hills of Pennsylvania. Previously they have traveled in Mexico several times by this method.



## Supervisory Appointments

JACK F. HAMMERSTRAN to supervisor of Tool and Gage Design Section 2554-3, Manufacturing Engineering Division.



Jack has worked for Sandia since February 1951 with the exception of a six month period. For the past two years he has been in Los Angeles with the Field Representative Section 2554-2. In his new post Jack will return to Albuquerque.

For three years prior to coming to Sandia Jack was president of Majestic Tool and Engineering Company in Rockford, Ill. He has 16 years of experience with other production firms: superintendent and chief engineer for the Rockford Die and Tool Works; assistant superintendent for Twin Disc Clutch Company, and machine department foreman and superintendent for Anderson Brass Shop, all in Rockford.

Jack is a member of the American Society of Tool Engineers.

CHARLES F. SELBY, JR., to supervisor of Program Control Division A, 2521, Programming Department.



During his seven years at Sandia, "Charlie" has worked in accounting methods organization, cost and accounting, and for the past three and one-half years he has been supervisor of Sales Service Section 2521-2.

Prior to employment here Charlie graduated from the University of New Mexico with a Bachelor's degree in Business Administration. He also attended North Carolina State College.

Before moving west Charlie owned and operated a beauty school in Newport News, Va., for a year and a half.

He is a member of Alpha Kappa Psi, business honorary, and Beta Alpha, accounting honorary.

B. S. GARDINER to supervisor of Production Tester Fabrication



Section 2551-3, Manufacturing Design Division A.

"Ben" has been with the Corporation five and one-half years, part of the time in calibration and the past few years in fabrication.

Prior to employment here Ben served seven years in the Air Force, including three years as a radar instructor and four years assigned to AFSWP on Sandia Base as an instructor.

He graduated from high school in Dearborn, Mich., then attended the Henry Ford Trade School for four years where he studied tool and die making.

JAMES F. HAYES to supervisor of Group III Distribution Division 2466, Document Department.



"Jim" started with the Corporation in December 1950 and has been a section supervisor in the document control division since April 1951.

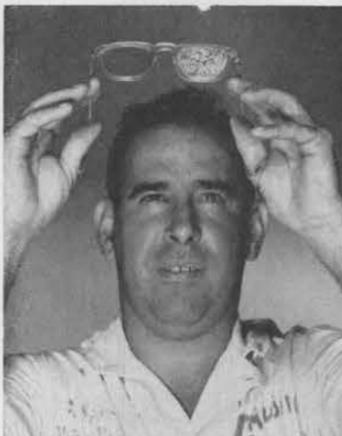
Prior to work here he was with the Veterans Administration regional office in Albuquerque for five years as chief of the employees accounts section.

During World War II Jim served in the Navy for five years, part of the time in the Pacific.

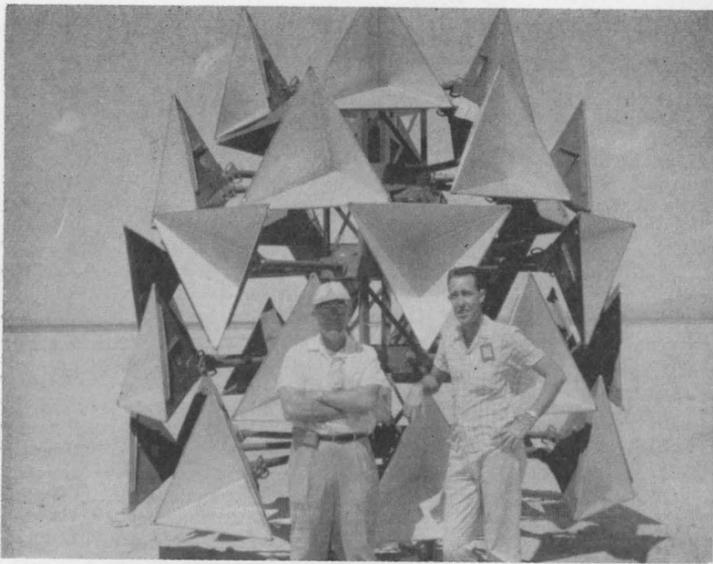
He is a native of Albuquerque.

### Good News Today

Persons who responded in recent months to a request for blood donations for little Larry Church will be happy to know he is now at home and coming along nicely. Larry's mother, Le Ora (former division secretary in 1262), requested the blood bank replacements when pneumonia set in while the youngster was hospitalized for leukemia.



OGLES GOGGLES — Florentino Gabaldon (2473) peers through shattered lens of his safety glasses which prevented serious injury to his left eye.



**NO MODERN SCULPTURE**, this radar target at Tonopah Range was one of several facilities at Tonopah and Salton Sea visited by C. C. "Chet" Campbell (left), manager of the Sandia Area Office, AEC-ALO. With him is Gordon Hawley, section supervisor of 5214.

## Dynamic Loading Tests Described By W. R. Barton

Dynamic loading tests of an aircraft-type beam are described in a technical paper co-authored by W. R. Barton (5141-2) and E. A. Ripperger, Associate Professor of Engineering Mechanics, University of Texas.

Dr. Ripperger will present the paper at the West Coast meeting of the Applied Mechanics Division, American Society of Mechanical Engineers which convenes in Los Angeles Sept. 8 and 9. The paper also has been accepted for publication in the ASME Journal of Applied Mechanics.

### Party Time

A surprise noontime luncheon was held for Arlene Dyckes (1262) on Aug. 28. Hostesses were all the secretaries in Department 1260. Arlene is going on leave of absence.

## Geometry by TV Offered Viewers On Channel No. 5

Sandians interested in brushing up on their high school geometry or taking a credit course in the subject are invited to tune in to KNME-TV's new series, "Geometry One" to be offered on Channel 5 Monday through Wednesday evenings from 6 to 6:35 p.m. beginning Sept. 8.

Dr. Eldred Harrington, director of secondary education for the public schools, will teach the course. In addition, he will hold Saturday morning sessions for help and questions from 8 to 10 in the Manual Arts Building, Room 221, Albuquerque High School.

Assisting Dr. Harrington will be Robert Conlee, principal of the Lew Wallace School, and Frank Chapman, principal of the Jefferson Junior High School.

The two-semester course is divided into two 18-week units with examinations at the end of each semester for those seeking credit in the course.

### Congratulations

Mr. and Mrs. Ralph Calvert (5121) stretched out the long Labor Day week-end to include their 21st wedding anniversary on Sept. 2.

### Welcome Back

Co-workers welcome back Terry Newell (1262), who has returned after an operation.

## Reclamation Dep't Places Variety Of Items For Sale on Sealed Bid Basis

Items ranging from camera equipment to miscellaneous machinery will be offered for sale by sealed bid at the Sandia Corporation Salvage Yard.

Among items to be sold are 35mm portable projectors, a photo identification unit including 35mm camera with lights and stand, an electric kiln, carbon arc lamps, dehydrators, air pressure gauges, wire rope cutter, wire straitening machine, air press, hydraulic press, brake band relining machine, cabinets, etc.

Sealed bids, accompanied by a check for 20 per cent deposit of the total bid payable to Sandia Corporation and addressed to the Finance Department, must be mailed prior to the final postmark date, Sept. 11, 1958, or presented in person at the Salvage Yard prior to 2 p.m. of the opening date, Sept. 18.

All items offered for sale may be inspected at the Salvage Yard. For additional information contact R. K. Leahy or G. W. Brown-ing (2162-2) at Ext. 22174.



**AN AVIATION "FIRST"** was accomplished this month by Sandia Corporation when freight shipments were air-expressed in four different directions by jet-powered Continental Viscounts. It marked the first jet-powered Air Express shipment by any company west of the Mississippi. On hand for the occasion were (L to R) C. O. Blasdel of the Railway Express Agency, Charles J. Uribarri of Sandia Corporation's Traffic Department (4335), Harold Boyce of Air Express and James Martin of Continental.

## Service Awards

### Ten Year Pins



Carlos M. Salazar  
2235  
Aug. 27, 1948

W. M. Folks  
7314  
Sept. 7, 1948

W. G. Vander Laan  
2541  
Sept. 7, 1948

Edmund G. Baca  
2235  
Sept. 9, 1948



William T. Perea  
1264  
Sept. 9, 1948

William A. Gardner  
1610  
Sept. 10, 1948



Ted B. Morse  
1661  
Sept. 10, 1948

Stanley L. McCammon  
2721  
Sept. 13, 1948



Gordon L. Miller  
5243  
Sept. 13, 1948

David M. Smith, Jr.  
2236  
Sept. 13, 1948



Sue M. Sodja  
5512  
Sept. 13, 1948

Dave Clenney  
5532  
Sept. 14, 1948



H. B. Goldenberg  
5522  
Sept. 15, 1948

Paul S. Hamilton  
2154  
Sept. 15, 1948



Kenneth F. Schooley  
2154  
Sept. 16, 1948

Glenn M. Haughness  
2721  
Sept. 17, 1948

### Two Year Certificates

Sept. 6-12

A. V. McFarland 2461, N. Lorene McEwen 3154, Edgar T. Schreiner 2543, Charles Haynes 2551, Donald Q. Matejka 5141, Robert E. Smith 7421, Herbert S. Schwarz 4151.

Lillian L. Jones 2542, Eloisa E. Griego 7225, P. M. Hinrichsen 8221, Mary N. Winter 4152, Lloyd L. Young 5214, T. V. Charbonneau 8114, Patrick D. Gildea 8111.

Leslie P. Johnston 2722, Barbara V. Ruminski 7225, Lugarda D. Abeyta 4361, W. Kendall Gentry 7411, Eugene R. Alesch 2463, R. E. Wonderlich 5533, Warren B. Miller 2464, and John C. Ivey 3242.

Sept. 13-19

Verna L. Thompson 2464, Ellaree C. Williams 7225, Freddie K. Millsap 5241, Ernest P. Re 2442, Robert E. Hendricks 5131, Rudolf L. Probst 2551, Edmund E. Buss 2731.

Stanley E. Gromko 2713, Arthur W. Clark, Jr. 7324, Murray Silverman 7325, Americo Cianchetti 7411, James M. Ortega 5126, Herbert M. Dumas 5232, Jack L. Bolen 8111.

William A. Doyle 3152, Eddy D. Cooke 2131, Frank P. Hovley 2481, Patsy M. Hethcoat 2234, Nicholas R. Montoya 7423, Arthur W. Goris 1217, Hershel R. Lung 5232, Frank Sayner 7232, James B. Ayers 4325, Henry D. Bickelman 1225, Lloyd C. Sandgren 2551, and Rose Hernandez 2418.

### Five Year Awards

Sept. 6-19

Catherine L. Anesi 4152, Ruth D. Kresge 4131, Martin J. Vigil 7411, Russell W. Foster 4123, Irene B. Qualle 2232, Frances L. Matheson 7411, and Floyd A. Stake 7412.

## Flash Welding of Railroad Rails to Be Demonstrated to AWS

A demonstration of a flash welding process for railroad rails is planned Sept. 11 for the Albuquerque chapter of the American Welding Society.

The "Schlatter Process" welding technique will be shown beginning at 7 p. m. in Belen, New Mexico. Persons interested in attending are asked to contact Vince Nelson (1621) at ext. 32246. Coffee and doughnuts will be served.

### SHOPPING CENTER

### CLASSIFIED ADVERTISING

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

### RULES

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

### FOR SALE

BLOND OAK dining room set, drop leaf table extends to 38" x 72", 2 captain chairs, 2 side chairs, \$200 new, sell for \$85. Moyer, AL 5-8807.  
PORTABLE TYPEWRITER, best offer. Morrissey, CH 7-9683.  
60" BOOKCASE, \$5; metal utility cabinet, \$7; charcoal broiler, \$4; electric deep fryer, \$4. Anderson, AL 6-5319.  
HUNTING BOWS, 53 lb. Bear Kodiak \$30, 45 lb. Bear Alaskan \$20, used three months. Burbidge, AL 6-7239.  
12 GAUGE SHOTGUN, double barrel Fox Savage, \$55 or trade. Pritchard, AL 6-5667.  
CLARINET, Selmer B-Flat, superb instrument, w/case \$165. Aqua-lung, accessories, weight belt, \$110. Consider trade for rifle, shotgun. Stith, CH 3-9145.  
WOOL RUG, 12 x 12 beige; bathroom scales; electric toaster, coffee maker, and iron; pair electric hurricane lamps, floor lamp. Nott, CH 3-9145.  
3 BRM MOSSMAN Sacramento, den, 1 1/4 baths, carpeting, drapes, landscaped, desirable neighborhood, must be seen. Wagner, 2818 San Pedro NE.  
CASTING REEL, Pflueger Trump, and Phantom fiber glass casting rod, both for \$5. Taylor, AL 6-3774.  
16 GAUGE SHOTGUN, single shot, with rubber shoulder pad and 1 box shells, oil finish, \$25. Scranton, AX 9-4902.  
ICE SKATES, two pair boy's black, one pair girl's, white, all size 3. Canadian Flyer figure skates. Cheap. Baca, AL 5-7823.

DINING ROOM set, large 9 piece, walnut, complete with china cabinet and buffet, \$120. Skender, AX 9-0635.

'53 MERCURY, 2 dr. hardtop, auto. trans., R&H, cont. kit, 2 new tires, new battery, new seat covers, \$795. Hutton, AM 8-8366.  
WASHING MACHINE, Maytag wringer type with pump, \$65; 6" Craftsman power hand saw, \$25. Pitti, 836 Georgia SE, AL 6-1629.

'55 MERCURY Monterey tudor, coral and white, all power equipped, one owner. Callatz, AM 8-0119.

'57 ENCYCLOPEDIA Americana, incl. blond bookcase, '58 annual, 10 vol. popular science, all for \$185. Brewster, 530 Texas SE, ext. 25269.

IRONER, \$25; large window fan, \$7. Quelle, AL 6-2524.

REFRIGERATOR, General Electric, \$65; Thayer circular playpen and pad, \$18; Nesco electric roaster, \$10. Shepard, AL 6-9242.

21" TV, table model, with stand, Muntz, \$75. Hughey, AL 6-6233.  
LONG TELEPHOTO, 24" f6.0, Edmund Scientific, cost \$40, sell for \$27.50; Westinghouse steam iron, \$5; metal typewriter table, \$4. Kyrloch, DI 4-3083.

VIOLIN, German made Stadivarius copy, excellent for school work, \$30. Moorhead, CH 2-2546.

TRANSISTOR RADIO, Motorola, six transistors, in original carton. List \$59.95, sell for \$35. Metzger, ext. 25298 evenings.

BED, boxsprings, mattress, \$20; wicker rocker, \$5; antique chair, \$4.50; light walnut dining table, 6 chairs buffet, \$90; misc. Sinnott, AX 9-1300.

POODLE PUPS, miniatures, 2 male, 3 female, black, chocolate, silver, \$100 each. See now, pick up late Sept. Bray, AL 6-9257.

DEER RIFLE, \$12; swing set, \$5. Bleakner, AL 5-8222.

'57 FORD Fairlane 500, 10,000 miles, lots of extras, \$1895. Underwood, AL 6-7709.

REMINGTON Model 550A Automatic .22 rifle with tubular feed, used very little, \$30. Cox, AX 9-0480 after 5 p.m.

2 BRM HOME, corner lot, range, refrigerator, fireplace, h/w floors, trees, landscaped, sprinklers, barbecue, patio, \$12,950, down payment to suit. Beckes, AL 5-8207.

EXERCYCLE, \$75. Osterby, AX 9-4606 after 5 p.m.

### NEXT DEADLINE

FOR SHOPPING CENTER ADS  
Friday Noon — Sept. 12

GIRL'S BIKE, 26" with basket and light. French, AL 6-1995.

ARGOFLEX REFLEX camera with carrying case. McVeety, AX 9-5718.

AIR CONDITIONER, 3/4 ton RCA with all window fittings, used two months, \$175. Tucker, AX 9-0294.

BOYS CLOTHING, size 14-16; 2 sub-urban coats, \$10 each; suit, \$10; corduroy jacket, \$4; slacks, \$4. Violin with case, \$100 or reasonable offer. Eifert, AX 9-3970.

'57 ENCYCLOPEDIA Americana, 47 vol. and bookcase, 100 Americana Institute coupons, \$387 value, will sell for \$250. Costello, CH 3-1838.

3 BRM BRICK, 1 1/2 baths, screened porch, air conditioned, ideal SE location, 5 mins. from Sandia Base, take over GI loan. Carton, AL 5-6306.

AMANA FREEZER, 19 cu. ft. upright, original price \$700, will sell for \$325. Wise, DI 4-6692 after 4 p.m.

BEGINNER'S ACCORDIAN, 12 bass Valentini, \$40; girl's 26" bicycle, \$15; girl's ice skates, size 4, \$10. Little, AM 8-8202.

'51 BUICK Roadmaster, 4 dr., 43,000 miles. Browning, see at 2616 Virginia NE.

SHORTWAVE RECEIVER, new Hallicrafters S38E model, valued over \$55, will sacrifice for \$40, leaving soon for school. Brouillette, AL 6-7486.

WROUGHT IRON dining table with formica top, brass trim, two leaves, six chairs with yellow and gold thick cushions, \$75; 2 metal sash windows, 36" wide with glass, \$10 each. Shepherd, AL 6-2059.

4 BRM SNOW, NE, landscaped, newly painted, air conditioned, carpeted. Assume 4 1/2% GI or refinance FHA, \$360 down. Hittle, 10016 Betts NE, AX 9-6863.

AUTO AIR conditioner, evaporative type, 12 volt, \$20; Heathkit condenser checker, \$15; Heathkit picture tube tester, \$15. Allen, AL 6-4335.

PORTABLE BAR, bamboo-wrought iron, rose formica top, brass rail, two swivel bar stools with back rests. Leyba, 2705 Aliso Dr. NE, AL 5-2068.

ELECTRIC FUEL PUMP, Bendix, \$8; 4 cylinder Willys Distributor, extra points, for Model A Ford or Jeep, \$5. Abrams, DI 4-8252.

TWO LOTS, good size, NW of town, \$1,800; \$450 down, \$35 a month on balance. Chavez, CH 3-2743.

SHOE SKATES, "Chicago," white, size 6 1/2, almost new, \$12. Sikora, AM 8-907.

SPANISH GUITAR, Martin, w/case, used one month. Burbidge, AL 6-7239 after 5.

PLAYPEN w/pad, \$8; car seat, \$1.50; bed board, \$4. Boyd, AL 5-6451, 2829 San Mateo NE.

'51 CHEVROLET Pickup 1/2 ton, 4 speed, deluxe cab, heater, canopy, \$395, no trades. Aaron, Ext. 31237, 508 Maple SE.

STRAP-ON CHAINS, five; 1 pr. 6:70x15" chains, will trade for 1 pr. 7:10x15" chains. Benedict, AL 5-0234 after 5, 609 Grove NE.

'56 TRIUMPH Tiger Cub, Lopez, AX 9-4370, 1605 Hendola Dr. NE.

30-06 REMINGTON w/3 power scope; 30-06 Enfield w/4 power scope; 38 S & W revolver; trade for old rifles or pistols. Zaluga, DI 4-1564.

'54 PONTIAC Star Chief four door sedan, R&H, Hydramatic, power brakes, \$475. Quillon, CH 2-5985, 1005 Forrester NW.

TABLES — Heywood-Wakefield step end and corner tables, champagne birch, \$40 for both; pair of Hollywood bed frames, \$10. Peckham, AL 5-4133.

SEWING MACHINE, Zig Zag, reasonable price. Mason, AX 9-2836.

GUN, 38 Police Special, S & W, 5" barrel, \$40. Roofer, DI 4-0687 after 5.

TABLES—Light finish, two-tier end, end and coffee, glass tops on two. Best offer. Hodyke, AL 6-5210.

JUNGLER CARBINE, .303 British, ideal deer rifle, \$23; Weabey revolver, .45 ACP, 4" barrel, \$15. Donaldson, Ext. 45240.

'57 MOTORCYCLE, 250 cc Maico Enduro. \$400. Will trade. Miller, Ext. 37282.

'58 FORD, Fairlane 500, 4-door, hardtop, Victoria, automatic transmission, R&H, white walls, other extras, \$2550. Fjelseth, Ext. 20298, 3225-H 34th St. Sandia Base.

### WANTED

WILL TRADE '52 Harley-Davidson, 13,000 miles on rebuilt motor, for '50-'51 Ford, Chevy or Dodge pickup. Dobias, AL 6-9235, 4615 Inspiration Dr. SE.

HOMES FOR KITTENS. Sheba, Angelica and China Doll, Calico Kates' kittens are well-mannered, house broken characters. Johnson, AL 5-8851.

CHILD ARE in my home between 3 and 5 years of age, Monday thru Friday. Thorp, AX 9-3866, Princess Jeanne Park.

BOY'S SKIS, two pairs, with bindings, four to five foot long. Sedgwick, AM 8-0820.

WEAVER K-4 Rifle Scope. Baxter, DI 4-7601.

LIGHT MOTORCYCLE, need not be in running condition. Schiess, AL 5-3252.

BABY SITTER and housekeeper, 5 day week, Bel Air District. Romero, DI 4-0237 or AL 5-5837 evenings.

CHILD ARE in my home, 4 or 5 year old, walled yard, play equipment. Brooks, Ext. 3-1254, 424 Manzano NE.

TO TRADE 26" girls' bicycle, balloon tires, all accessories, for 26" boys' bicycle, English racer. Roberts, AL 5-9527.

RELIABLE LADY to come in and care for two small children, close to Sandia Base. Seward, AL 5-1292 after 6 or weekends.

### FOR RENT

1 BRM APARTMENT, utilities paid, clean, close to Base, \$70 month. Chavez, AL 5-1585.

### LOST AND FOUND

LOST—Lady's ruby ring, 2 Mercury keys, books—lost in May, sunglasses w/safety pin hinges, Penquin lighter w/Winston advertisement, dark glasses w/horn rim in white case; 1/4 h.p. motor for Milwaukee drill, 10 year Sandia Corp. tie case. LOST AND FOUND, Ext. 26149.

FOUND—10 year Sandia Corp. pin; 2 keys on chain w/sea horse and shells in plastic; keys in brown snap case; tooled leather coin purse w/1 key and change. LOST AND FOUND, Ext. 26149.



"Bill" Glisson  
—green carpet treatment—

**Gardening Tips**

**Expert Advises On Surest Way To Win Battle With Lawn Cut Worms**

The strip of "green velvet" in front of building is the envy of many Albuquerque home owners every year as cutworms, crab grass and dandelions attack their own lawns.

Care of an established lawn requires many things: proper watering, fertilizing, weed and insect killers, and hard work. A liberal quantity of common sense also helps.

The Administration Building's lawn is presently being cared for by Willoughby Glisson (2415-1), who came to Albuquerque from Georgia where for 12 years he had been head gardener for a semi-tropical resort at Sea Island. "Bill" maintains that he still has a lot to learn about making things grow in this semi-arid climate.

He recommends two waterings a week, but they must be good soakings.

The Corporation lawn is mainly Kentucky blue grass and is mowed to a height of two inches. Home owners may wish to save cuttings from their lawns for a compost pile.

Bill considers chlordane dust an "old standby" when it comes to controlling cutworms, army worms, grubs and other pests. Follow your

**Seeking Volunteers to Assist in Red Cross Hospital Services**

Interested Sandia wives and employees are being sought for volunteer duty as Red Cross Gray Ladies, Nurse Aides, Staff Aides, Production Workers, and Canteen Hostesses.

Classes will be conducted Sept. 23 and 24 from 9 a.m. to noon at the American Legion Hugh A. Carlisle Post, 1201 Mountain Road NE. Mrs. Ruth Kelsey, wife of Harlan Kelsey (5512), will serve as chairman of Gray Lady training. Also participating in the course will be Mrs. Sophie Fair, wife of Louis C. Fair (7411), who is unit chairman of the Gray Ladies at Sandia Base Hospital.

Further information may be obtained from Bernalillo County Chapter headquarters at CH 3-6695.

**Nurse-Artists, Self Taught**

The nurses of 3162 have two self-taught artists.

Pat Scoggins recently purchased an electric chord organ and spent her two weeks vacation with a do-it-yourself manual. Pat had a minimum of music lessons as a small girl but found she had to start right from the beginning.

Irene Palmer had a tendency as a child to be "always drawing pictures" but a year ago she began painting landscapes in oil. She took a six weeks course at the University of New Mexico but has continued to paint through the summer a la Palmer.

dealer's advice in choice of brand, then follow the directions carefully. Once over lightly will accomplish much, but re-spotting of some areas may be necessary.

Standard weed killers will dispose of dandelions and other wide leaf weeds, but it will also kill clover so make sure you are aware of the solution's strength as well as limitations.

And what does Bill do in his leisure hours? That's right, he cares for his lawn and flowers at home.

**Top Welding Skills Are Demanded In Ticklish Task for Wind Tunnel**

Welding pipes to contain the tremendous air pressures used in the Sandia Wind Tunnel is a tricky task but it is all in a day's work for D. C. "Bob" Davis of the Pipefitting and Plant Operations Division (2414).

The huge pipes with an outside diameter of 18 inches were welded to withstand pressures of more than 400 pounds per square inch. They connect two air storage tanks with the tunnel, allowing air from the tanks to enter the tunnel at wind speeds up to two and one-half times the speed of sound. The pipes tested out perfectly when the second storage tank was put into operation recently.

Asked what would happen if the



DRASTIC RESULTS are avoided with welds such as the one completed here by D. C. "Bob" Davis (2414). Proper welding is a must to withstand the tremendous 400 PSI Pressures of Wind Tunnel.

**Welcome Newcomers**

Aug. 18-29

<b>Albuquerque</b>	
Paul J. Bontempi	7412
Nia M. Bower	2464
Bessie H. Bracy	2722
Mayme M. Brunacini	2231
Bonnie J. Butters	3160
Norma P. Chadwick	7225
Dolores C. Chavez	2464
Dorothy T. Faron	7221
Donna K. Jarman	7225
*Nadene K. Kindel	2731
Billy J. King	5512
Ralph D. Lovvorn	2464
Hector L. Maynez	2242
Lucy H. McMillan	2711
Clarence P. Mortensen	2722
June M. Nyholm	4321
David A. Paschal	2464
Pat Sanchez	3152
Marvin J. Seknan	7225
Shirley H. Smith	7225
Virginia R. Travis	7225
James E. Uhl	2133
Theresa V. Vigil	7225
Ann M. Ward	7411
John R. Wetherholt	2464
Keith C. Wilson	7223
<b>California</b>	
Esther G. Floth, Santa Rosa	8221-2
Carla S. Hilson, Hayward	8222-2
Coralyn K. McGregor, Oakland	8122-1
Margaret M. Morgan, Hopland	8221-1
Lorraine A. Terrill, Livermore	8212-3
<b>Connecticut</b>	
Milton W. Tucker, Mystic	3161
<b>Indiana</b>	
Jack D. Burkhardt, Elwood	1473
*J. Anthony Arnold, Lafayette	1521
<b>Michigan</b>	
Charles E. Shipley, Lincoln Park	2711
<b>Missouri</b>	
Charles R. Johnson, Joplin	2152
<b>New York</b>	
Eugene G. Aschettini, Bath	1451
<b>Ohio</b>	
*Phil H. Arnold, Columbus	4143
John C. Miller, Miamisburg	8111-2
Anthony Juskiwicz, Cleveland	3161
<b>Oklahoma</b>	
Dale B. Furlow, Norman	1624
Stamer C. Geminden, Stillwater	5213
<b>Oregon</b>	
Francis T. Traylor, Albany	8132-2
Eugene E. Simpson, Klamath Falls	8122-2
<b>Returned From Leave</b>	
Sara E. Anaya	4361
Neil B. Gholson	2462
Jeanette B. Passmore	7226
* Denotes Rehired	

**A. B. Metzger Speaks To Contractors' Ass'n**

A. Burton Metzger, Corporation Safety Director, was the principal speaker at the annual banquet of the Associated General Contractors of New Mexico, held at La Fonda Hotel in Santa Fe, Thursday, Aug. 28.

Mr. Metzger presented four-year Engineering Scholarships to five students on behalf of the Association.

seam were unsatisfactory, Ted Botner, supervisor of the Wind Tunnel Facilities Section (5142-2), said the pipe would rupture violently. "However," he added, "in the two and one-half years that Bob has done welding for us no failures have occurred."

A welder for 17 years, Bob hopes that some of his experience will rub off on his students when he starts teaching his second class in intermediate welding at the Sandia Corporation Evening School beginning Sept. 16. The class will be taught in Room 143 of Bldg. 887 from 4:45 to 6:45 p.m.

Other welders in the Division are Lloyd Burrig, Epimenio Ortiz and Joe Skelton.

**Health Hints**

**Chances of Surviving Rabies Slim; Prevention Most Important Factor**

By Dr. S. P. Bliss

In the entire field of medicine there are probably few other diseases where prevention is as important a factor as it is in the case of rabies. In every instance where an individual is exposed, contracting the disease can be prevented if proper procedure is followed. However, after a person has once contracted rabies, the chances of survival are very slim.



Dr. Bliss

The most common carrier of rabies is the dog, but it does occur in other animals such as cats, bats, foxes, and wolves.

The incubation period is variable—in the main from five to eight weeks, the shortest period being ten days but rarely before fifteen days and occasionally longer than five months.

**Abnormal Behavior**

Rabies commonly appears in the dog from 10-60 days after a bite from another rabid animal, rarely over ninety days. Suspicion of rabies in an animal should be aroused when it exhibits an abnormal pattern of behavior, for example, when a cat suddenly turns on a person and bites or when a wild animal acts spiritless or friendly. In the dog the earlier symptoms are usually manifested by change in behavior—may be sluggish but more often it is restless, chases, snaps, bites, and fights other dogs.

Any break in the skin, either from a bite or a scratch wound licked by a rabid animal can serve as an entrance for the rabies virus. Man is susceptible to rabies much more so when severely exposed. Severity of exposure depends directly on (1) the virulence (strength) of the virus introduced with the bite, (2) the location of the bite, and (3) the extent of the injury. The latter two contribute to traumatizing and exposing nerve fibers. Thus bites on the head, neck, or face areas with a more plentiful amount of nerve tissue, are more severe than bites inflicted on the hands, feet, arms, or trunk in that order. Deep or multiple bites and those which tear and mangle are considered more serious.

The medical management of a person bitten by an animal is divided as follows: (1) Initial treatment, i.e. of the wound, (2) evaluation of the biting animal for rabies and (3) consideration of immunization against rabies.

**Treated As Rabid**

- (1) All bites of a human by an

animal should be treated as if the animal were rabid. The possibilities for contracting rabies or decreasing the potential severity of exposure are lessened by removing or inactivating the rabies virus implanted by the bite into injured tissue. To this extent effective treatment when carried out soon after the bite consists of cleaning the wound thoroughly for about 15 minutes with soap or any detergent solution. Cauterizing the wound with strong acids continues to be the conventional therapy with some physicians.

However, it is the opinion of many that such therapy is indicated only when the wound is not readily accessible as in a deep puncture wound. Experiments have shown that swabbing the wound with a one per cent zephiran chloride solution has been more effective against rabies than either fuming nitric acid or washing with soap.

(2) Determining Rabies Status of the Animal: Every effort should be made to identify the animal. If this is possible, the animal should be examined by a Veterinarian to determine if it is rabid or not. The animal should be penned and observed for a period of no less than 14 days. Any animal that has bitten someone and dies within this 14 day period should be considered as having had rabies until laboratory examination of the brain proves otherwise. Until the presence of rabies is disproved, careful consideration of immunization of the bitten person should be considered. In Albuquerque, Commission Ordinance No. 1113 requires that a person bitten by a dog, cat or other animal must report the incident. In case of bitten children, it is the parents' responsibility to do the reporting.

(3) Treatment depends upon the circumstances. Every animal bite should be immediately thoroughly cleansed with soap and water or a detergent for at least 15 minutes. A physician should be consulted as soon as possible. It is important to the physician to have all the information regarding the animal, i. e., whether or not the dog is in apparent good health, the name of the owner of the animal, whether or not the animal has been inoculated against rabies, etc., in order for the doctor to determine the type of treatment that will protect the person the most.

The doctor may advise no "shots," a series of 7-14 "shots" of vaccine and or an antirabies serum shot depending upon the severity and location and extent of the bite or bites. Protection begins approximately at the end of the series of injections of vaccine with the maximum immunity occurring about 4-5 weeks later.

In cases of severe exposure the serum has to be given within a period of 72 hours of the bites to be effective. The vaccine causes the body to manufacture the protection while the serum produces immunity by providing the antibodies soon after the injection. This is the reason why the serum is indicated in severe exposure.

Every person who owns an animal has a public health and a community responsibility first to make sure that their animal has had injections against rabies and secondly to prevent them from straying and roaming about the countryside. The latter will keep down the exposure of the animal to other animals which may be infected.

**Employee Killed In Auto Accident**

Injuries received in an auto accident in Spokane, Wash., proved fatal to Carolyn S. Panagakis, a Corporation employee (7323) for the past two months.

Miss Panagakis was injured Aug. 9 when she was thrown from her car. She died eight days later.

Survivors include her parents, with whom she made her home.



MICRO MIDGET region five championship race in Albuquerque Sept. 6 will find Sandians (L to R) R. E. Bohannon (1613), K. L. Cahill (5143), Dean Hitchens (1247), Dick Case (1472) competing.

## New Lab Building To Be Completed In Summer, 1959

Robert E. McKee Company has been awarded a \$1,279,679 contract for the construction of a three-story office and laboratory building at Sandia Corporation, the AEC announced.

When completed in late summer of 1959 the structure will accommodate the 1620 and 1650 organizations. The building is the first three-story structure to be built at Sandia Corporation since Bldg. 802 was completed. It will measure 75 feet by 300 feet and contain 72,460 square feet of floor space.

The AEC also announced that bids will be open about Sept. 19 for the drilling of a 700-foot water well in Area III. The work will include casing, gravel packing, developing and testing the well. Estimated cost for the work is \$25,000 to \$35,000.

When completed the well will provide an adequate water supply for Area III facilities, including the forthcoming Sandia Engineering Reactor Facility.

### AIEE Discusses Goals

Problems, objectives and goals will be discussed at the Sept. 15 meeting of the Albuquerque Area chapter, American Institute of Industrial Engineers.

The meeting will be held at Reddy's Rendezvous beginning at 7:30 p.m. A movie will be shown and refreshments served. Persons interested in attending are asked to contact Homer McIlroy (2511) at ext. 32161.

tioned Region Five Championship Race to be held in Albuquerque tomorrow.

Dean Hitchens (1247) and K. L. "Okie" Cahill (5143) are ranked with two Texas drivers and a Californian as top contenders.

Other Sandians competing in the race include R. E. "Bo" Bohannon (1613), Dick Case (1472), Lowell Sharp (7233) and Mel Heisler (1611).

Micro midgets are 60 inch wheel-base cars resembling the much larger full midgets and Indianapolis type cars. They are powered by motorcycle engines and cost between \$400 and \$1000. Many have been built by their drivers.

## Classified Slides Melted Down to Satisfy Destruction Requirements

When your own colored slides "floperoo" it's simple to merely drop the picture in the nearest waste basket. When the photographed subject is classified, disposal of the slide is an entirely different thing.

The glass-mounted slides of Sandia subjects become obsolete, some are broken, others melt when left in a projector too long. About once every two months there are enough slides (500 to 800) to make a load for disposal, which presents the problem.

Until the last six months all slides had to be unbound by hand for disposal. Then the plain glass cover sheets were packaged, marked and placed in the waste can. The emulsion sheet with the image was soaked in sodium carbonate solution, which caused it to swell

so the picture could be scraped off the backing.

The old method required about 40 man-hours to destroy the same number of slides now disposed of in an hour. In addition there was a great safety hazard in handling the sharp edged squares of glass.

Under the present method the slides are sealed in boxes with a cover sheet marked "secret." A member of the Photography Section 2462-1 accompanies the boxes to the Receiving and Reclamation Department foundry and remains there to witness destruction of the slides in 1800-2000 degree temperatures. Plant maintenance gets rid of the resulting mass of goo.

It's faster, safer, more thorough.



NEW SYSTEM for keeping track of books due Sandia's Technical Library involves use of electronic card punch methods. Checking a IBM tab run is Bill Richardson and Wendy Sandlin (both 7221).

## Automation Is Used to Keep Tab on Tech Library Patrons

Employees using Sandia Corporation's Technical Library are finding library personnel now have more time to serve them.

This is due to a new IBM card system which automatically keeps a record of books—who borrowed them and when they are due.

William H. Richardson (7221), who set up the new system, said that the library circulates about 3300 items monthly, and about 500 books fall due each week. At any given time there are approximately 16,500 cards in the file.

Before the new IBM method was put into effect, an "edge-punched" card system was used. When an employee took out a book, the due date was punched on the right side of the card and his initials on the left.

### Old System

To sort out overdue books, a 10-inch needle was pushed through the specified date causing all the cards due on that day to slip through. The notices were prepared from the cards and sent out to the delinquent borrowers.

"It took almost a day to 'needle' through 16,500 cards and then another day to type up the overdue notices," "Bill" pointed out.

He added that previously when an employee terminated the library had to check through the entire card file on the initial side to find out if he had check-

ed out any books. After initials were sorted the cards still had to be checked to determine the person's full name and then notices were prepared.

Now an employee's "E" number is run through the IBM cards and books held by him are determined "in a flash."

### Keypunched Card

When an employee borrows a book now, his "E" number and a transaction number are added to the other required information on the card. The library sends cards daily to Bldg. 880 to be keypunched and filed.

A duplicate card is kept in the library so that if a person is looking for a certain book which is out, its borrower can be traced easily.

To send out overdue notices, the Tabulating Section pulls the cards with the date the library gives them, transfers the information to IBM overdue notices and puts them in the mail.

"The overdue notice also includes books on extended loan," Bill emphasized. "We check every six months to see if the borrower still needs the book for desk or extended use."

Although the system was devised to save time in processing overdue and termination notices, Bill cites many by-products of the program.

### Statistics Possible

"We now have a quarterly summary of the number of loans, the different types of loans—extended, regular or branch," he says. They also check on loans outside the Corporation and give a breakdown of periodicals, books and documents borrowed.

By learning how many books a particular organization has out and the subjects of loaned books, the library can determine if another branch needs to be set up or if they have adequate coverage on a particular subject.

Although the changeover is not completed yet, already much time is being saved for better service to library patrons, according to Bill.

## Business Law Course Presented by UNM in Community College

A 16-week Business Law course, open to all secretaries and other interested persons, will be offered at the University of New Mexico starting Sept. 22 in cooperation with the Albuquerque Chapter of the National Secretaries Association.

Classes will be held at UNM's Mitchell Hall every Monday beginning at 7 p.m.

Instructor for the course will be Louis B. Ogden, a practicing attorney in Albuquerque.

For further information Peg Taylor (1473) may be contacted at ext. 49256.

Since the course is offered on a non-credit basis, no tuition refund can be made under the Sandia Corporation Educational Aids Program.

## Two Employees Ranking Drivers in Races To Be Held Here Tomorrow

Two Sandians are among the five favorites for the National Micro Midget Association sanc-



LATIN DANCE ACT with Rosario de Friana will appear with the Showcase Review at the Coronado Club September 27.

## Showcase Review Coming to Club On September 27

Dick Webster's Showcase Review, starring Mimi, Las Vegas (Nev.) dance impressionist, will appear at the Coronado Club Saturday evening, Sept. 27 from 9 to 1.

The evening's entertainment will include a three hour dance with the music of Dick Webster's orchestra and a 45 minute show which includes a novelty act by Mimi, Mexican Dance by Latin American star Rosario de Friana, and singing by Betty Bowen, formerly with the Lawrence Welk show.

Tickets will go on sale to members Sept. 16 at the Coronado Club at \$1.65 each. Members may purchase tickets for guests at \$2.75 each beginning Sept. 23.

## Plastic Tooling Is Subject of Speaker At ASTE Meeting

John Delmonte, president of the Furane Plastics Company, Los Angeles, will address the Albuquerque chapter of the American Society of Tool Engineers Sept. 17 on the topic, "Plastic Tooling."

Time for the dinner meeting is 7 p.m. and the place is the Robin Hood Inn. Reservations may be made by contacting Jim Reese (2553) at ext. 26141.

## Local ASQC Chapter To Hear R. R. Prairie

R. R. Prairie (1592) will address the Albuquerque Section, American Society for Quality Control Sept. 12 on the topic, "The Use of Normal and Log-normal Probability Paper."

The talk will be given at the ASQC educational session at 7:30 p.m. at Reddy's Rendezvous, 222 Fifth SW. A general meeting following at 8 p.m. will include a talk by C. T. Shewell, research specialist with the Humble Oil Co., Dallas. His subject will be, "Your National Organization and You."



DESTROYED CLASSIFIED FILM SLIDES are (2241-2) as photographer Robert Hall (2462-1) emptied from reclamation furnace by Joe Pitti makes sure the hot temperatures did the job.

## United Crusade Opens in Livermore With Sights Set on \$25,000 Goal

Livermore Branch's United Crusade fund drive kicked off yesterday with results to be announced Monday by Bill Little (8122), drive chairman.

For the first time Sandia employees at Livermore will be able to spread their contributions over a 12-month period through payroll deductions. C. W. Campbell (8200) heads the drive for the entire Livermore area.

Another "first" is the fact that contributions this year will become part of the United Bay Area Crusade drive. Previously the city of Livermore conducted an independent campaign. The city goal this year is \$25,000.

Chairman Little said he expects this year's campaign to proportionately top the record set last year when employees contributed an average of \$9.26 each. The Branch staff then totaled 234 persons compared to the present 416 total.

Laboratory contributions last year totaled \$1,926 exclusive of the Corporate gift. Employee participation reached 95.41 per cent.

Sandia campaign solicitors are: R. H. Watkins (8111-1), J. L. Bolen (8111-2), G. C. Steinhauer (8111-3), V. J. Curran (8113-1), A. D. Knowles (8113-2).

K. A. Cooper (8114-1), C. O. Erickson (8114-1), R. J. Wilcox (8114-2), Mary A. Rose (8114-2), R. A. Bailey (8114-3).

R. K. Petersen (8124-3), J. A. Herbolzheimer (8124-1), H. D. Sorensen (8122-3), E. E. Alford (8122-3), R. O. Sundahl (8122-2), G. F. Darmohray (8122-2), M. C. Richard (8122-1), L. F. Fisher (8122-1).

T. F. Jones (8133-2), C. M. Potthoff (8133-1), J. M. Mellinger (8132-1), R. E. Taylor (8132-2), R. H. Finlayson (8131-2), J. L. Eagan (8131-1), M. M. Lettrich (8211-2).

Helen J. Bordewick (8212-2), M. A. Pound (8212-1), G. L. Bjord (8212-1), A. R. Hopper (8213-2), Elizabeth Dietrich (8212-3), Estra Hill (8212-3), Jerre Clark (8212-3), Alma Jones (8212-3), Joan Sorensen (8212-3), Geneva Erickson (8212-3).

W. J. Henderson (8221-2), C. C. Calhoun (8224-1), Barbara C. Hill (8223-2), J. G. Spirup (8221-2), F. J. Cupps (8221-1), G. W. Perkins (8223-1), E. R. Johnson (8222-2), and T. J. Saselli (8224-1).

Squad leaders are: Lee Hollingsworth (8120), C. J. Bachman (8112-2), R. H. Richards (8124-1), B. F. Fisher, Jr. (8131-2), G. L. Rhodes (8212-4), and J. P. Brock (8224).

Other officials for the drive are R. A. Cronce (8213-1), treasurer; K. C. Purchase (8213-2) and J. P. Hubner (8213-2), auditors, and W. A. Jenkins (8221-1), publicity chairman.

## Nuclear Physics Lectures Set by IRE Nuclear Group

A series of lectures, entitled "Introductory Nuclear Physics for Engineers," will be presented by the Albuquerque-Los Alamos Section of the Institute of Radio Engineers' Professional Group on Nuclear Science beginning Sept. 16.

A. D. Kantz of the Physical Sciences Department (5150) will launch the series by defining various nuclear terms and explaining basic nuclear concepts. This lecture will be presented Sept. 16 at 8 p. m. in Rm. 217 of the UNM Electrical Engineering Building. The location will remain the same for subsequent lectures.

Dr. Kantz is a member of the Physical Sciences Research Department (5150) where he is in charge of the Van de Graaff Accelerator. He presently is investigating the interaction of neutrons with simple and complex ionic crystals. Prior to joining Sandia Dr. Kantz was a research associate at the W. W. Hansen Laboratories at Stanford University in 1949 and then was an Instructor of Physics at Stanford.

His lecture will include the following:

1. Make up of nuclei, notation and relation to periodic table.
2. Three forms of natural radioactivity.
3. Nuclear size.
4. Nuclear reactions, cross sections.

5. Mass-energy equivalents and conversion equivalents.

6. Nuclear particles.

7. Conservation laws of Physics (mass-energy, charge, angular momentum, parity).

8. Use of nuclear charts, tables and data.

On Nov. 18 at 8 p. m. W. J. Byatt (5111) will discuss the history of quantum mechanics, waves versus particles, the Uncertainty Principle and the Correspondence Principle.

The third lecture, to be presented by C. D. Broyles (5113) at 8 p. m. Jan. 20, will be concerned with radioactive decay, particle decay and interaction.

M. L. Merritt (5110) will present the fourth lecture in the series Mar. 17. His topic will be "Induced Radioactivity, Nuclear Bombardment and Equation Nomenclature."

Concluding the series will be "Detection of Nuclear Particles," by R. S. Claassen (5150). The lecture will be presented on May 19.

All IRE members and interested persons are invited to attend these meetings, according to R. P. Noble (1462), chairman of the professional group. Other officers in the group are W. A. Scranton (1411), vice chairman, and R. E. Holladay (1413), secretary.

## W. C. Scrivner Speaks To Stockton, Calif., Businessmen's Group

W. C. Scrivner (8130) spoke to a group of Stockton, Calif., businessmen recently about Sandia Corporation's Livermore Branch.

The Engineering Department Manager related the history of Sandia Corporation, its research and development functions, and the steps leading to establishment of the Livermore operation early in 1956.

He said, "At present at Livermore we have more than 400 people and by the end of this fiscal year the Branch strength is expected to reach almost 600. The staff is eventually to reach 1,000 people or more. Some of these people are being transferred from Albuquerque, but the majority will be recruited from the Bay area."

The average Sandia-Livermore employee, he noted, is 35 years old, married and has one child.

Mr. Scrivner told the group that before the end of this year, most of the Branch personnel will be working in a brand new \$6,000,000 plant in Livermore.

## Caravan Club Meets

The Radio Caravan Club of New Mexico will tour a local television station following an on-the-air roll call at 7:30 p.m. Sept. 10. The group plans a family picnic Sept. 14 at Banderier National Monument.

# Automatic Testing Now Possible For Nuclear Weapons Program

Automation and computer engineers in the Automated Data Systems Division (1521) are creating a "Blue Boy" which will never hang in a museum but is expected to save millions of dollars in the cost of developing test equipment for nuclear weapons.

"Blue Boy" is a nickname for one version of "APAR" (Automatic Programmer and Recorder), an electronic device which takes commands from pre-punched paper tape, controls tests on weapon components, and then reports the results on punched paper tape.

"APARs are being developed to provide automatic testing not requiring human operators and recording notebooks now needed to test the reliability of nuclear weapons and components during each stage of development, production, storage and use," according to Tom Marker, manager of the Automated Data Development Department (1520).

"Before APAR," he said, "development of weapon systems had to coincide with the development of proper test equipment — a fact which often delayed the completion of the systems. When a weapon was finally placed in stockpile, the need for much of the test equipment was made obsolete and

was either scrapped or salvaged for parts.

"All of these problems and more are expected to be solved with the introduction of APAR, a basic approach which may be adapted for all testing programs when coupled with the proper transducers — devices which transform physical conditions such as voltage, current, a force, etc., into a common language for assimilation by the APAR," Tom explained.

Basically an APAR "tells" a device under test what to do, controls tests whose results may be compared with the original specifications, and transcribes this information for automatic evaluation, according to Gordon R. Bachand, supervisor of the Automated Data Systems Division (1521), which designed the APAR.

Telling the device under test what to do is accomplished by pre-punched paper tape which feeds commands into the APAR, Gordon explained. The instructions are then stored in the APAR's memory units — modules made up of interchangeable printed circuit cards — to be recalled when needed during the testing of a component.

During a test, the APAR controls a bank of function switches which, in turn, control the item under test. If an automobile were being tested, APAR

would operate switches to turn on the car's motor, apply the brakes, turn the steering wheel, etc. "APAR can select any combination of switches at any time to change the treatment or operation of the device being tested," Gordon pointed out.

Also programmed into the APAR and stored in the memory modules is information on what the device being tested is expected to do. This section of APAR is known as the "Upper and Lower Limit Function." If the results of the test do not comply with the prescribed specifications this is indicated on the output tape, showing up as a comma when the tape is fed into a transcriber. There is also a provision for an alarm, if desired, and the test can be stopped at the time a discrepancy occurs.

### Identifies Device

To identify the device being tested, its lot and serial number and the type of test being made, a code of letter-number combinations is punched on the input tape and re-punched by APAR on the output tape to coincide with the results of each test.

Besides reducing the need for specialized testing equipment for the development, production and storage of nuclear weapons, APAR may perform many tests which human-operated machines cannot accomplish for lack of time. An example of this, Gordon pointed out, is the testing of so-called one-shot devices — gadgets which perform a single function and cannot be reused. At high speeds, APAR can accomplish many tests on the device before it stops functioning.

In tests where a device is tested over and over again for long periods, APAR again demonstrates its superiority.

As a result of shortening testing time and reducing the need for special testers, APAR will enable the test engineer to devote more time to creative effort and relieve him of much routine detail work, Gordon said. "Perhaps more important," he added, "is the elimination of human error that results from machine acquisition of information with devices like APAR."

### Versatile Performance

Automatic programming and recording is not new to industry, according to Gordon, but Sandia's APAR is a unique member of the family because of its versatility. By simply changing the printed circuit modules of APAR's nerve system, new testing applications are made possible, providing APAR with universal applications.

Data tapes from APAR are sent to the Data Center operated by Department 4140 for final reduction in the new IBM 705 electronic data processing machine.

"In a way," Gordon reflected, "the Sandia APAR is a child of the times. Without the advent of transistors it could never have been born. The 'Blue Boy' model uses 1300 transistors, replacing what would have amounted to a room full of vacuum tubes. Besides requiring less space, APAR's construction enables speedy replacement of faulty parts and uses much less power than would be needed in a vacuum tube circuit."

The Automated Data Systems Division has been developing and perfecting APAR devices for the past two years and now has three prototype models, one of which is currently in use in a weapons development program at Sandia.

Improvements are constantly being incorporated in the APAR design, according to J. L. "Jim" Rogers, section supervisor in the division. "Our next step is to perfect a device which will permit APAR to tell us where something is wrong in its own system in case of failure. Then we'll work on methods to enable us to design APARs automatically.

APAR is only one of many devices being developed by the Automated Data Systems Division to aid engineers in the design of reliable weapon systems. Other automated systems will be described in subsequent issues of the Sandia Lab News.



VERSATILE OPERATION of the "Blue Boy" Automatic Programmer and Recorder is made possible by these trays of interchangeable transistorized cards. Circuit arrangement of one of the cards is discussed by Robert Adams (L) and Clinton Purdue (both 1521).



BRAINS OF "BLUE BOY" are dissected by J. L. Rogers (left) and Gordon R. Bachand of the Automated Data Systems Division (1521). The printed circuit cards control the functions of APAR.