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January 10, 1958



SPINNING ALUMINUM is accomplished by Burrell Snelling (2151) who bends aluminum disk over wooden form as it revolves on a lathe. Pressure on the spinning tool Burrell is holding shapes metal.

Ancient Metal Spinning Craft Used in Sandia Weapons Work

Wine vessels discovered in the tombs of Pharaohs in ancient Egypt were fashioned by an unusual metal shaping process. This same process, known as "spinning," is in use today at Sandia Corporation in the making of nose cones and casings for experimental weapons.

Sandia's only "spinner," Burrell R. Snelling (2151-1) is one of less than 1000 craftsmen employing this art in industry today. Here at Sandia Burrell operates three spinning machines, "small, medium and large," where he turns out precision casings ranging in size from tiny wind tunnel models to full scale weapon shapes.

Burrell describes this process as "shaping ductile metal, such as aluminum, by bending it over wooden frames as it turns on a lathe." First a wooden form is made to the shape desired, and then a metal "skin" is bent over it, using tools resembling the lances carried by knights of old.

In the days of ancient Egypt the spinning lathes were turned by slave power. Heavy duty motors do the job today. Aside from that the process hasn't changed in 3000 years.

Came to U. S. in 1848

Metal spinning was introduced in the United States in 1848 when a German craftsman named Jordan immigrated here. He closely

Radio Club to Hear H. H. Patterson Jan. 14

The Sandia Base Radio Club will be addressed by H. H. "Pat" Patterson Jan. 14 on the subject of his recent trip through Wind Canyon and down the Rio Grande on a rubber raft.

Colored slides will illustrate Pat's talk, which will be at 8 p.m. at the club's meeting room on Sandia Base, it was announced by John S. Cundy (7232), club secretary.



FINISHED PRODUCT is this aluminum "bowl" formed from a disk of the ductile metal.

controlled the trade by limiting the number of craftsmen he trained under rigid apprenticeship policies.

For a long time spinning was known only in New England, where it was used in the production of silver hollow ware, chandelier parts, and in the making of brass bedsteads. As industry moved west in later years so did spinning.

Today the process is used in the manufacture of pots and pans, lighting reflectors, aircraft parts, and other similar items. For many quantity-produced items, the use of dies, presses and casting has replaced spinning, Burrell said. But for small quantity production, spinning is still the most economical as it does not require expensive machinery and re-tooling.

Since Sandia does no large scale manufacturing, spinning has been found quite satisfactory in turning out precision parts in limited amounts.

In the 21 years Burrell has been spinning he has become so adept

in the process that he can spin items to a tolerance of two thousandths of an inch. This is accomplished without benefit of micro-meters or gauges but just by the feel of the tool on the spinning metal.

Burrell started spinning metals at Sandia five and one-half years ago when he came to Albuquerque from the Pfaudler Company in Elyria, Ohio. There he spun stainless steel food and chemical processing equipment.

Before that he was employed by Westinghouse as a spinner. While there he estimates he spun 20 per cent of all the lighting reflectors used in major league ball parks.

During his employment at Pfaudler he also operated his own job spinning shop at home.

\$1.6 Million Appropriated For Test Facility In Area III

More than \$1,600,000 has been appropriated for construction this year in Area III of a climatic chamber and high temperature test facility. When completed, the facility will be used to subject weapons to conditions which might be encountered in actual use.

Plans for construction include the erection of a steel frame building to house a temperature-humidity altitude chamber and high temperature oven, and an earth-barricaded building 1000 feet away for remote operation of the test facility.

Plant Engineering Organization (2440) prepared the preliminary plans and estimates for construction from which the architectural plans will be developed. The facility is expected to be completed in early 1959 and will be used by the Test Laboratory Department (1610).

Funds appropriated for con-

Sandia's Work On Warhead For 'Betty' Revealed By AEC

Sandia Corporation's part in the development of the warhead for the "Betty," an atomic depth charge, has been officially announced by the AEC. The weapon is now in the hands of the Atlantic defense forces.

The reference to Sandia was contained in a news release approved by the AEC and the Department of Defense for the American Machine and Foundry Company, Buffalo, N. Y., prime contractor for the manufacture of the weapon.

The statement marks the second time that Sandia's name has been officially linked with a specific nuclear weapon.

"Under contract with the Atomic Energy Commission," the release said, "Sandia Corporation and the Los Alamos Scientific Laboratory developed the warhead for 'Betty' and participated with the Naval Ordnance Laboratory in the development of the device."

The announcement of the existence of the weapon was made earlier by Neil McElroy, Secretary of Defense, who called the "Betty" an important answer to Russia's submarine threat.

Design, development and evaluation of the non-nuclear components of the warhead were carried out at Sandia.

Earlier, Sandia was officially credited with a part of the development of the Air Force MB-1, air-to-air nuclear warhead rocket.

Sandia helped design the firing system and other ordnance phases of the rocket's warhead. The rocket, first detonated in Nevada last summer, has been called by an Air Force publication, "the most important development for air defense since radar."

First ASME Nuclear Meeting Shows Two Films

The first meeting of the Nuclear Engineering Professional Division of the New Mexico Section, American Society of Mechanical Engineers, is planned for 7:30 p.m. Jan. 22 in Rm. 2, Mechanical Engineering Building, at the University of New Mexico.

"Unlocking the Atom," a popularized film on basic atomic science, and a color movie, "A Is for Atom," will be shown at the meeting.

H. N. Snook New V. P. Operations For Sandia Corp.

Harry N. Snook, former Superintendent of the Crossbar, Wired Unit and Crystal Shops of the Western Electric Company's Kearny Works, has been appointed as Vice President — Operations of Sandia Corporation.

The appointment was effective January 1.

Mr. Snook succeeds R. P. Lutz, who has been named Director of



Harry N. Snook

Research and Development in the Engineering Division of the Western Electric Company.

Mr. Snook was born in Lambertville, N. J. and attended public schools in that state. In 1933 he received his Bachelor's degree in Physics from Lafayette College. Following his graduation he taught in the public school systems in New Jersey and Pennsylvania until 1941 when he joined the Western Electric Co.

His first assignment at WE was as Assistant Engineer, Test Set Design in the Engineer of Manufacturing organization at Kearny, New Jersey. During World War II he was assigned to the Alma Project for which he received a citation from the Navy.

Following the war Mr. Snook was appointed a project engineer on carrier, video and microwave equipment and in 1950 he was promoted to Department Chief, Engineering.

In 1951 Mr. Snook entered the Labor Relations and Management Training School, upon completion of which he was promoted to Assistant Superintendent, Labor Relations at Headquarters, Western Electric. In 1953 he returned to Kearny as Assistant Superintendent, Engineering, and in 1955 he became Superintendent, Crossbar, Wired Unit and Quartz Crystal Shops.

Humorous Army Movie Due for Noon Showing

"Willie and Joe Back at the Front" will be featured during the Corporation's noon free movie showing for the coming two weeks.

Presented in two parts, the satire on Army life stars Tom Ewell, Harvey Lembeck and Marie Blanchard.

The movie starts at 12:10 p.m., in Room 3, Bldg. 849 on Tuesdays and Thursdays and Room B-6 of Bldg. 802 on Wednesdays and Fridays.

struction total \$793,000. Equipment funds allotted amount to \$817,000.

The facility will be used to subject weapon systems to tropical and arctic conditions, as well as thermal shock. Thermal shock occurs when a weapon suddenly goes from one temperature extreme to another, as when it accelerates from subsonic to supersonic speeds, or vice versa.

The high temperature oven can attain temperatures as high as 1300 degrees Fahrenheit and the temperature - humidity altitude chamber can simulate conditions ranging from minus 2000 feet to 100,000 feet altitude, relative humidity from 20 to 95 per cent and temperatures from minus 100 to 250 degrees Fahrenheit.

Plans and specifications for this equipment were drawn up by the Facilities Division (1613).

SANDIA LAB NEWS

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Another Accident Record

Since starting work at Sandia Corporation a number of years ago one employee has driven 60,000 miles. He's proud to report that he hasn't had an accident in that length of time, but he is much less than proud to report that his automobile has been damaged six times during the period. All six incidents were in Sandia Base parking lots.

This driver further points out that never once has the owner of the car which struck his parked vehicle reported the accident to him.

In the past the Sandia Lab News has called attention to the damage done to cars which are parked. Scrapes, dents, mars and nicks have resulted from careless driving.

There are a few shining examples where damage has been reported promptly to the owner and full responsibility assumed by the driver of the other car. This is the type of courtesy and honesty expected of Sandians.

If you scrape a car in parking, and it could happen to any of us, get the decal number and check with the office of the Provost Marshal to find the owner. It's easy and it's what you'd expect the other fellow to do if he damaged your car.

And in case you're sympathizing with the driver who was hit six times there is one good bit of news to report.

Accident No. 6 was observed and the decal number of the offending car was reported to the owner of the damaged car. At last report he was waiting for the other driver to inform him of the accident.



"CRAZY, MAN, CRAZY" is how Robert Schrum, Prophet Company employee, might be describing the records listed on the new juke box at San Felipe Lodge. Marlene Gail McLean (2482) approves recent acquisition by the Salton Sea Base Community Council.

Wedding

Presently honeymooning in California are Major Edward J. Sluts of Sandia Base and his wife, the former Eleanor Drozd.

The couple was married Dec. 28 in Albuquerque.

Eleanor has been at Sandia since last January and is in 7225 assigned to 5122 and 5126.

After Jan. 20 the couple will be at home at 645 San Pedro SE.

Proud Grandmother

The Medical Department is proud of its first grandmother, Bernice Beeson (3160), who was presented with a grandson recently. The baby's father, her son Richard, formerly worked in the 2400 organization.

Christmas Total

Final tally of Christmas assistance by all departments in organization 5200 disclosed \$369 was collected and used to distribute food baskets to 16 families (a total of 93 individuals).

New Homes

At home for 1958 in a new house are Jim Carroll (1444) and his wife. The address is 2801 Christine NE.

During the holidays the Andy Liebers (1262-2) moved into their new home at 2133 Altez NE.

Welcome Back

Members of 2711 welcomed back Barbara West after her lengthy illness.

Congratulations

Born to:

Mr. and Mrs. Linus Phillips (7231) a son, Sean, on Dec. 24.

Mr. and Mrs. R. P. Striker (7412) a daughter, Sharon Therese, on Dec. 23.

Mr. and Mrs. Jim Hayes (2461) a daughter, Stephanie Lynn, on Dec. 25.

Mr. and Mrs. Preme Ulibarri (2223) a son, Charles, on Dec. 3.

Mr. and Mrs. V. H. Henderson (1247) a son, Mark Howard, on Dec. 27.

Mr. and Mrs. Norman Keesling (2461-5) a daughter, Kay Ann, on Dec. 9.

Mr. and Mrs. Larry Biggs (1263-1) a son, Douglas, on Dec. 4.

Mr. and Mrs. Bill Price (1263) a daughter, Kendal Ann, on Dec. 4.

Mr. and Mrs. Lyle Whelchel (7213) a daughter on Dec. 27.

Mr. and Mrs. Lawrence Kent (2133-1) a daughter, Carol Beth, on Dec. 25.

Mr. and Mrs. DeForest Rushing (2132-3) a daughter on Jan. 1.

Mr. and Mrs. Leo Arellano (4135-3) a son, Lawrence Richard, on Dec. 17.

Mr. and Mrs. R. J. Blount (4151) a son, Lawrence Carter, on Nov. 30.

Mr. and Mrs. Henry Harada (7411) a son, Joseph Ricardo, on Dec. 20.

Mr. and Mrs. Elfego Sanchez (2163) a son, Henry, on Dec. 30.

Mr. and Mrs. J. Gordon King (2532) a son, Joseph Gordon, on Dec. 20.

Mr. and Mrs. Marvin Plugge (2533-1) a son, David Lewis, on Dec. 17.

Mr. and Mrs. Edward Austin (2533-2) a daughter, Jean Maria, on Dec. 16.

Mr. and Mrs. Floyd McFarling (2533-2) a son, Gerald Allen, on Jan. 1.

Mr. and Mrs. J. B. Adams (8222-1) a daughter, Julie Loren, on Dec. 12.

Mr. and Mrs. R. A. Blockinger (8113-2) a son, Timothy Brett, on Dec. 22.

New Son

Mr. and Mrs. Rene St. Sauveur (7411) have a permanent visitor in their home from Quebec, Canada — an eight-month-old boy, named Robert Louis. They also have a son, Billy, two and a half years old.

Sliding Bruises

W. B. Leslie (5524-1) returned from his vacation adorned with bruises and adhesive tape. It seems that his niece, Kathleen, suggested the highest point of the steepest hill as the starting point for their wild toboggan ride.

Smoky Must Go

Joe Suknot (7411) has six children and they are very unhappy. Joe won a mouse-colored pony at a Christmas raffle and although "Smoky" is only four feet high there's just not room in the yard for him and Smoky has to be sold.

Sick Report

Division 2111 wishes Verlin Hunt a speedy recovery from his illness.

Convalescing at home after a recent shoulder operation is Zelma Beisinger (5126). She will probably be off the job for the rest of this month.

Employees of 2150 extend wishes for a quick recovery to Marion Lantz (2153-1).

Anna Osle (4314) and Adaline Scharping (4325) are nursing painful bruises received in an automobile accident shortly before Christmas. The injuries were not considered serious.

Wishes for a quick recovery are extended to Robert Findlay (2160), who has been ill since before the holidays.

Members of 2231 hope for the quick recovery of Arthur Smith and Jose Guzman, who were hospitalized recently.

Wishes for a speedy return are extended to James Holliday by his co-workers in 2711.



SANDIA SONS receive honors during Boy Scout Court of Honor for Sombre del Monte Troop 388. (L to R) Scoutmaster Everett Fisher; George Laskar, son of Bill Laskar (2462-1); Bill Moon, son of Frank Moon (2360), and Don Mancuso, son of George Mancuso (2121). Insignia and merit badges were received by many.

Sandianotes . . .

20 Years of Experience Qualifies Lou Fisher as Camera Club Head

Long Marriages

December 31 marked a happy occasion for Dan Padilla (7311-2) and his wife. Not only was it New Year's Eve but also their 20th wedding anniversary.

The couple was married in Denver and has lived in Albuquerque more than 10 years. They have three sons and a daughter.

Observing their 28th wedding anniversary on Dec. 21 were Elmer Roisum (2711) and his wife.

The Harold Rileys (2711) celebrated their 26th wedding anniversary on Dec. 20. Mrs. Riley received one red rose for each year of marriage.

Far, Far Away

From Newfoundland comes word from Larry Brown, who is stationed there with the Navy. He is on military leave of absence



Larry Brown

from 2153. Larry writes he is at Argentin, which is "quite a desolate spot."

His present address is: Larry Brown MR3, Ship Repair, U.S.N.S. — Navy #103, c/o Fleet Post Office, New York, N. Y.

Pinned on Bars

Cy Brady (7231) has returned from San Antonio, Tex., where his son, Richard, was commissioned a Second Lieutenant at graduation exercises of the Air Force Officers' Candidate School.

J. A. Hood Speaks to Oklahoma 'U' Students

J. A. Hood (1451) recently spoke to the Oklahoma University student chapters of the American Institute of Electrical Engineers and Institute of Radio Engineers. His subject was "Semiconductor Behavior."

Mr. Hood graduated from OU last June with a BS in Electrical Engineering and has been employed in Electronic Tubes and Semiconductor Devices Division since that time.

The Livermore Camera Club has a new president—L. F. Fisher, a mechanical engineer in 8111-2. The 40 active members of the club from the Pleasanton-Livermore area meet bi-monthly.

Lou's background in photography goes back about 20 years. His special interests include experimenting in portrait techniques and perfecting both black and white and color photography. He develops and enlarges his work in his own home.

Never Met Him

'Tis a wonder some letters ever reach their destination. Sandia's technical library recently received an envelope addressed to "Mr. Sandia Base, Sandia Corporation Business Library, Albuquerque, N. Mex." The letter began "Dear Mr. Base" and came from a well-known industry review publication.

Holiday Caution Pays Off

Mac Groll (4151-3) found during a holiday season vacation through Alabama, Mississippi and Louisiana with his family that a \$2 investment paid off.

The two bucks went to purchase a fishing license and saved Mac a possible \$100 fine as his license was checked by the game warden who was "just passing through . . ."

Sympathy

To L. D. Olson (1247) for the death of his sister in Tucson, Ariz., recently.

To Wally Knott (4135) for the recent death of his sister-in-law.

To Don Lundergan (1261-2) for the death of his mother after Christmas.

To Larry E. Bowen (2154-2) for the death of his father-in-law on Dec. 22.

To Jennie Spann (2721) for the death of her father in Albuquerque on Dec. 12.

To H. S. Schwarz (4151-1) for the death of his mother in Batavia, Ill., on Dec. 28.

To Tony DiBenedetto (7411) for the death of his mother recently.

To Fred T. Hansen (2532) for the death of his young daughter, Linda, near Albuquerque on Jan. 5.

To Ethel Canady (2231-3) for the death of her mother in Chanute, Kan., on Dec. 20.

To Jean Berquist (2112) for the recent death of her son.

Sandia Weather Forecasters Play Big Part in 'Drop' Tests

Daily weather forecasts issued by Sandia's Meteorology Section 5143-2 help make an important decision: Will an Air Force jet poised on the runway at Kirtland Air Force Base roar into the sky for a test drop at Salton Sea Test Base in California?

The value of each test run in money, technical preparation, manpower and progress in the development of nuclear weapons places rigid requirements for each drop.

One of these requirements is acceptable weather conditions. To insure a successful drop engineers and scientists gathering data must have more than 10 miles of visibility around the target area, an overall scarcity of clouds and surface winds of less than 23 m.p.h. All of these conditions must be met so that ballistic behavior of the test weapon may be successfully studied.

"Geographical features of the Salton Sea Test Range make the weather forecasting job tricky," says Herb Plagge, section supervisor. "Weather changes occur rapidly in the Imperial Valley."

Base Location

Salton Sea Test Base is located inside a triangle formed by a mountain range to the west, on to the east and the Gulf of California to the south. The entire area, Imperial Valley of California, is below sea level. The Test Range is about 240 ft. below sea level. Dry desert climate prevails.

Near the top of the triangle meet the two mountain ranges where is Beaumont Pass, a deep notch in the protecting walls of the mountains. Warm, moist air from the coastal plain of California spills through the pass, sometimes carrying the thick Los Angeles smog.

Another notch in the mountain range about 100 miles south of Beaumont Pass contains Henshaw Lake and the Borrego Valley and is another spillway for coastal air.

From the south ocean winds from the valley from the Gulf of California. The Salton Sea creates a sea breeze with associated rising and descending air currents.

"These local factors plus many others: temperatures of upper stratus of air, giant air masses traveling south from western Canada or rain squalls on the coast, influence the weather of the valley," Herb says.

Teletype Network

Weather forecasters at Sandia are continuously aware of these forces through reports coming in on three Teletype machines. Hourly reports from hundreds of observation stations are recorded. Weather maps of the entire northern hemisphere, as many as 60 a day, come to the section via Facsimile machine from the Joint Weather Central, operated by the Weather Bureau, Air Force and Navy.

Weather observers at Salton Sea, who are in Electromechanical Section 5214-3, relay existing conditions to the section on a regular schedule throughout the day. Balloons released into the air carrying instruments to record wind information, temperatures, relative humidity and atmospheric pressures through altitudes of 75,000 ft. or sometimes higher.



WEATHER FORECASTER Clifford Olson compiles information necessary for predicting weather. Meteorology Section 5243-2 daily issues weather forecasts tailored to specific needs of Sandia.

Observations are made as close to the proposed target area as possible. Measurements made at one point on the 15 mile wide, 40 mile long sea are not necessarily representative of another point.

Present weather information is vital to the forecaster as is the past weather record of the valley which has been carefully recorded since 1944, the date a Naval seaplane training center was established at the sea.

Communications Important

"Communications is the key to weather prediction," Herb says. "A forecaster has to know existing conditions, what forces are in action, the winds and temperatures of upper air layers—all this plus a record of past weather patterns for comparison and an intimate knowledge of the terrain."

"To this information the forecaster applies physical laws such as the one governing the condensation and temperature changes of various types of clouds and the judgment stemming from his experience." From this the experts in the section make their predictions of what conditions will be at a certain hour.

In the two years the Meteorology Section has been verifying

forecasts for Salton Sea operations it has achieved a record of being 85 per cent "right." Each prediction is considered completely right or all wrong.

The section issues forecasts for Salton Sea twice each day. One is ready by 7:20 in the morning and the second is sent by 3:30 in the afternoon.

Tonopah Predictions Too

Other weather forecasts tailored to specific needs of the Corporation are made each day. Tonopah Test Range, when operations are scheduled there, receives the same complete forecast. A general plant forecast for the Albuquerque area is also made daily to help in scheduling maintenance and construction projects and environmental test activities in Area III.

In addition the forecasters keep a watch for warnings of severe weather conditions that would affect other general plant operations.

"Weather forecasting is a routine part of our job," Herb says. "Our primary mission is analyzing test data and related problems. Other jobs include research projects affecting test data and research on forecasting problems and weather recording instrumentation."

T. J. Raftery, Clifford A. Olson and Thomas Y. Palmer are the three other meteorologists of the section.

Sandia's New Apprenticeship Program Found To Meet Federal Standards

Sandia Corporation's apprenticeship program has been reviewed by the Chief of Review Branch, Bureau of Apprenticeship and Training, U. S. Department of Labor and found to meet standards of the Federal Committee on Apprenticeship.

The program, which provides for training of apprentice machinists, was negotiated by representatives of the Corporation and the Atomic Projects and Production Workers, Metal Trades Council. It had been worked out in accordance with the provisions of an Agreement signed by the Corporation and Council at the conclusion of negotiations last August.

Provided for in the program is a Joint Apprenticeship Committee containing three members designated by the Corporation and three by the Council.

Members of the committee are: A. J. Fisher (2234), A. J. Fuller (3124), R. W. Griffin (2152), W. F. Leverenz, Jr. (2153), W. F. Peay, (2152), A. C. Taylor (2153).

K. R. Dickerson (3124) has been named Administrator of Apprentices to maintain records of the program.

The Apprenticeship Program provides for eight 6-month

periods of training. It includes bench work, shaping, grinding, turning and boring, milling, drilling, special machines, shop theory and related classroom instruction.

It is expected that the first group of apprentices will start on this program at an early date.

IBM Representative Speaks to Local AIEE

George M. Wood, International Business Machines Data Processing Section Representative for Sandia Base, will address the Albuquerque Area Chapter of the American Institute of Industrial Engineers Jan. 20.

Mr. Wood's topic will be "Fundamentals of Punched Card Accounting." The talk will be supplemented by slides and literature, and will be followed by a discussion period, according to Al Kaping (2514), president.

Mr. Wood is in Albuquerque to supervise the installation and operation of the IBM 705 Electronic Data Processing Machine to be installed at Sandia Corporation this coming summer.

Service Awards TEN YEAR PINS



James A. Culver
2482
Dec. 15, 1947



George M. Austin
2232-5
Jan. 12, 1948



Robert L. Siglock
8114
Jan. 19, 1948



Patty Atkins
4135
Jan. 21, 1948



Elmo G. Hirni
5214
Jan. 21, 1948



Leonard A. Smoll
5533-1
Jan. 20, 1948



Maclovio S. Suazo
2353-3
Jan. 21, 1948



Ernest L. Bolton
2111
Jan. 20, 1948



Edith Schildnecht
2480
Jan. 5, 1948



David B. Miller
2133
Jan. 14, 1948



Robert L. Thomas
2541
Jan. 14, 1948



John A. Christopher
2353-2
Jan. 16, 1948

FIVE YEAR PINS

Jan. 10-16
Frank A. Goss, Jr. 1463, Walter H. Barbier 2541, Lewis M. Larsen 1624, Darris M. Hankins 5112, Bernard N. Charles 5121, William B. Pepper, Jr. 5141, and Mary E. Flanagan 2711.

Jan. 17-23
Lewis A. Fjelseh 1215, Carlton A. Scott 1624, Franklin E. Moore 5214, Richard C. Holman 2152, Dorothy J. Mercer 4131, Lawrence E. Myers 1243, and James H. Harrell, Jr. 1612.

TWO YEAR CERTIFICATES

Jan. 10-16
A. L. Ouellette, Jr. 7411, George A. Ray, Jr. 1471, William D. Reske 1611, Francis Patterson 5513, James Keiner III 5521, Leon Filvun 7412, Louis C. Fair 7411, William F. Stolpun 7412, Ray W. Lowell 7412, Robert H. Moseley 7314, John Ayala 2472, and Hattie R. Crooks 5512.

Jan. 17-23
Ben K. Seely 1621, Cecil E. Land 5223, Jay D. Anderson 7412, Jim Arnold 1611, Ruth E. Fogarty 2353, Michael Sillacoito 7411, Alice N. Boothe 2231, and Florence O. Goller 2232.

ASM Speaker to Talk on Air Force Role in Nation's Materials Research

Materials Research and Development in the U. S. Air Force will be discussed at the Jan. 16 meeting of the Albuquerque Chapter, American Society for Metals, it is announced by Byron Wickett (1624), publicity chairman.

The speaker will be Lloyd D. Richardson Sr., Chief, Research

at 6:30 p.m. at La Placita Dining Rooms in Old Town, followed by the meeting at 8 p.m.

A fifteen-minute motion picture entitled "The Metals Information Center of Tomorrow," will be shown during the meeting, by Ron D. Produced by the center for Documentation and Communication Research of Western Reserve University, the film depicts the results of an ASM project to determine if machine methods are practical for searching and finding coded metallurgical literature.



L. D. Richardson

and Technical Development Branch, Operations Office of the Materials Laboratory, Wright Air Development Center, Ohio.

Because of the nature of the topic, the meeting has been designated "Armed Forces Night" and is open to all Sandia Base and Kirtland personnel interested in or engaged in research or development work, Byron said.

Mr. Richardson's talk will include a brief description of the organizations within the Air Force conducting materials research and development. He will discuss the design of aircraft, missiles and space vehicles. The discussion will cover organic and inorganic materials, with emphasis on metallic and ceramic materials.

The evening's activities will include a dinner to be served

Credit Union Has Annual Meeting On January 23

Annual meeting of members of the Sandia Laboratory Federal Credit Union will be held Jan. 23 at which time the 1957 dividend on shares will be determined.

The meeting, to which every share-holder is invited, will be at 7:30 p. m. in the Coronado Club. Free refreshments will be served.

Members will also elect directors, choose members for the credit and supervisory committees and discuss any other business.

During 1957 Credit Union profit totaled \$167,839. There were about 5700 members. According to Manager Dale Bellamy the loan balance at the end of 1957 was \$2,925,107, while the share balance was \$3,609,372. In December, 1957, loans by the Credit Union again passed the half million mark. Final loan figure for the month was \$593,877.

Technical Paper To Be Published

A technical paper written by George P. Steck (5125) has been accepted for publication in *Annals of Mathematical Statistics*.

The paper, titled "A Uniqueness Property Not Enjoyed by the Normal Distribution," is based on work done by Dr. Steck in the Statistical Division of the Systems Analysis Department.

Dr. Steck has been with Sandia for two and one-half years, coming here from the University of California at Berkeley, where he received his Doctorate in Statistics.

Welcome Newcomers

Dec. 23-Jan. 3

Albuquerque	
Bernadette T. Acker	3153
Pablo L. Baca	2474
Harriet Brown	2464
Sylvester DeLuca	2474
James L. Dossey	5232
Dorothy J. Fleming	2464
Carlos Laguer	5243
Howard D. Malloy	2544
Eugene W. Peirce, Jr.	3152
Gerald L. Williams	2461
Hugh C. House, San Francisco	8213-2
Colorado	
Charles I. Lowe, Loveland	4135
Massachusetts	
James R. Relyea, Cambridge	1421
Oklahoma	
Dorothy F. Fletcher, Norman	2542
Pennsylvania	
Soloman S. Wugalter, Levittown	7122
Texas	
James Q. Smith, Amarillo	2153

Claudio J. Gonzales Dies January 1

Funeral services were held last Saturday for Claudio J. Gonzales, 31, a Sandia employee for seven and one-half years.

Mr. Gonzales died Jan. 1. Burial was at San Pedro, N. Mex.

Since 1952 he had worked as a refrigeration and air conditioning mechanic in 2411-2.

He is survived by his widow, four daughters, two sons, his parents, four sisters and two brothers.



C. J. Gonzales

Supervisory Appointments

FRANK W. NEILSON to supervisor of Explosive-Electric Transducer Division 5133, Physical Research Department.



Frank has been working in applied research during his three years at the Corporation.

He came to Sandia directly from the University of Utah where he obtained his PhD in Electrical Engineering. His Bachelor's degree was from the same school.

Frank served four years in the Army, including duty in the Pacific, during World War II.

He is a member of Pi Kappa Phi and Sigma Xi, honorary societies.

DONALD A. MAYFIELD to supervisor of Salton Sea Security Section 2482-3.

Don has been with Sandia Corporation for seven years as a security inspector.

He served nearly two years in the Navy during World War II and upon discharge attended Central Junior College at El Centro, Calif., where he received his degree in Associated Arts in 1950.



MARVIN L. GLAZE to supervisor of the newly created Accounting and Financial Division 8213 at Livermore Branch of Sandia Corporation.



"Marv" began work at Sandia in January 1952 as an accounting clerk. After his transfer to Livermore Branch he was made a section supervisor in accounting and business methods in October 1956.

Prior to coming to the Corporation he studied at the University of Idaho and later received his BBA in Accounting at the University of New Mexico.

He served two years in the Navy and was previously employed as a bank teller in Caldwell, Ida., and by Kennecott Copper Corp. in Hurley, N. M.

GORDON McCLURE to supervisor of Physical Electronics Division 5152, Physical Sciences Department.



During his two and one-half years at Sandia he has been a staff member in 5100, working for the past year on gas discharge devices.

Previously Gordon worked five years for the Bartol Research Foundation at Swarthmore, Pa., in cosmic ray research.

He holds a PhD in Physics from the University of Chicago, a Bachelor's degree from the University of Illinois and also attended Massachusetts Institute of Technology for a year. He is a member of the American Physical Society.

MARCUS M. PEEPLES to supervisor of Moving and Rearranging Section 2415-3, Plant Maintenance Department.

"Mark" has been working for Sandia Corporation since 1950 except for a brief break in service in 1952. He has been a carpenter in Division 2413 the entire period.



A resident of Albuquerque since 1921, Mark graduated from high school in Wellington, Tex., then was foreman and project manager for the Soil Conservation Service for eight years. During this time his duties varied from field construction work to flood control, arroyo control and revetment construction.

He later entered home construction and spent a number of years as foreman to layout men on commercial and housing projects in Albuquerque.

AIEE to Tour Air Force Radar Site on West Mesa

The Northern New Mexico Section of the American Institute of Electrical Engineers will tour the West Mesa Air Force Radar Station at 10 a.m. tomorrow. The two-hour tour is for members only, it was announced by Jack Barber (1611), secretary.

Promotions

Robert D. Charlton (1461) to Staff Asst. Tech. Dora Zamora (2461) to Document Clerk Robert L. King (2461) to Document Clerk Lois A. Swayze (4131) to Payroll Clerk Evelyn C. Moreland (5241) to Math Analyst Carol H. Kaemper (3153) to Typist Clerk Carol G. Strom (8212) to Typist Clerk Lenore D. Farnam (8212) to Typist Clerk Jeroldine L. Clark (8212) to Typist Clerk Carrie L. Schall (8221) to Document Clerk Mary E. Sanchez (5111) to Staff Member Tech. Zelma E. Beisinger (5126) to Staff Member Tech. Ann W. Shiver (5126) to Staff Member Tech. Esequiel K. Montoya (5242) to Staff Member Tech. Mabelle I. Weaver (5242) to Staff Member Tech. Mary S. Williams (3124) to Staff Member Admin. Donald L. Blandy (2462) to Bindery Operator Jay Arnold Andrews (2711) to Layout Operator F. G. Gabaldon (2473) to Machinist Gerald E. Hannan (2131) to Layout Technician Phyllis A. Drake (2221) to Record Clerk Rita J. Rayburn (2542) to Sec. Steno. Helen M. Pipher (7225) to Record Clerk Norman L. Keesling (2461) to Mail Clerk Marian Montano (2521) to Service Clerk Shirley L. Wells (8212) to Secy. P. M. Hinrichsen (8221) to Library Clerk Maggie A. Wheeler (8221) to Sr. Clerk John H. Cordial (8222) to Off. Eqp't. Investigator Boney Vigil (4142) to Tab. Eqp't. Operator Emilio R. Baca (2461) to Messenger Edward A. Gorey (2314) to Staff Member Admin. Pauline L. Brown (4135) to Key Punch Op'tr.

J. A. Larned Named AEC Coordinator For Livermore Facilities

John A. Larned, formerly manager of the AEC's Amarillo, Tex., Branch Office, has been transferred to the University of California Radiation Laboratory at Livermore as program coordinator. He will assume his new post Jan. 20.

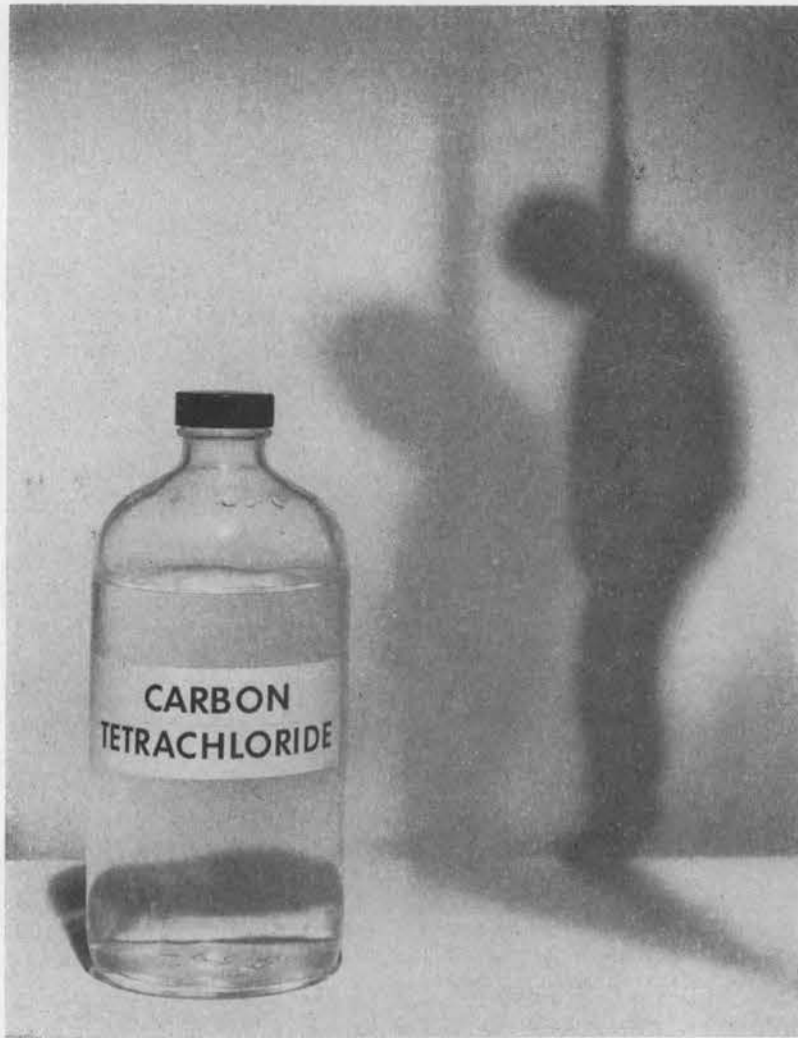
In this new position, Mr. Larned will be liaison officer between the Office of Manufacturing, ALO, and the four activities of the Livermore area. These include the Livermore Branch of Sandia Corporation, The University of California Radiation Laboratory, the AEC's San Francisco Operations Office and a division office of the Field Command, Armed Forces Special Weapons Command.

Mr. Larned has been with the AEC since February, 1951. He has served at Los Alamos, Albuquerque and Amarillo.

Tech Writers Hear Of Printing Processes

Modern printing methods will be discussed at the Jan. 20 meeting of the Albuquerque Chapter, Society of Technical Writers and Editors.

Addressing the group will be William B. Buckley, sales representative for the Casp Thompson Printing Company, Albuquerque. The meeting will start at 7:30 p.m. at Reddy's Rendezvous, Public Service Company at Fifth and Silver.



—Poisonous Potion—

Using Carbon Tetrachloride Takes You Close to Suicide

(Reprinted by Permission from Northwestern Bell Magazine)

A Minneapolis couple rushed their little girl to a doctor. She was semi-conscious; she had turned slightly yellow and was running a fever. The child had been more than naturally drowsy for a couple of days and cried easily. Her parents laid it to a siege of flu she'd had a week earlier, and were not alarmed until she began to lose consciousness.

Tests indicated poisoning by carbon tetrachloride. Three days earlier, the parents had cleaned their living room rug with the fluid while their 2½-year-old daughter played nearby. Doctors decided that the little girl had been affected because she was still weak from her bout with the flu.

Lucky to be alive, the child had been exposed by her parents to one of the deadliest but least recognized poisons in common use.

Many families, unaware of just how dangerous it is, keep some carbon tetrachloride product, ranging from cleaning fluid to moth spray, around. And it's four times as dangerous as carbon monoxide.

The very characteristics which make carbon tetrachloride so valuable in the home and in industry are those which make it so deadly to man. It evaporates speedily and mixes quickly with the air around it. It has a strong affinity for fats and grease, therefore it is quickly absorbed by fatty tissues of the body.

These fatty tissues are mainly in the brain, the liver and in deposits under the skin. A short time after other symptoms appear, the kidneys stop functioning. This is often overlooked and is the cause of death in about 90 per cent of

fatal cases of poisoning by carbon tetrachloride.

A man worked two hours cleaning soot from the hood of his kitchen range one winter evening. Then he ate supper and drank two bottles of beer. By mid-evening he had an agonizing headache followed by stomach pains and nausea. By the next noon he ached all over with fever. At the hospital, doctors' questioning revealed that cleaner he had used was carbon tetrachloride. He had worked for two hours with his head under the hood, breathing the vapors. The alcohol in the beer had intensified the carbon tet's effect on his system. He was lucky to be alive.

Public unawareness of the hazards of carbon tetrachloride may, to a great extent, be blamed on producers of the products containing it. Their labels rarely carry adequate warning of the danger.

Anyone keeping carbon tetrachloride products in his home should follow these four basic rules:

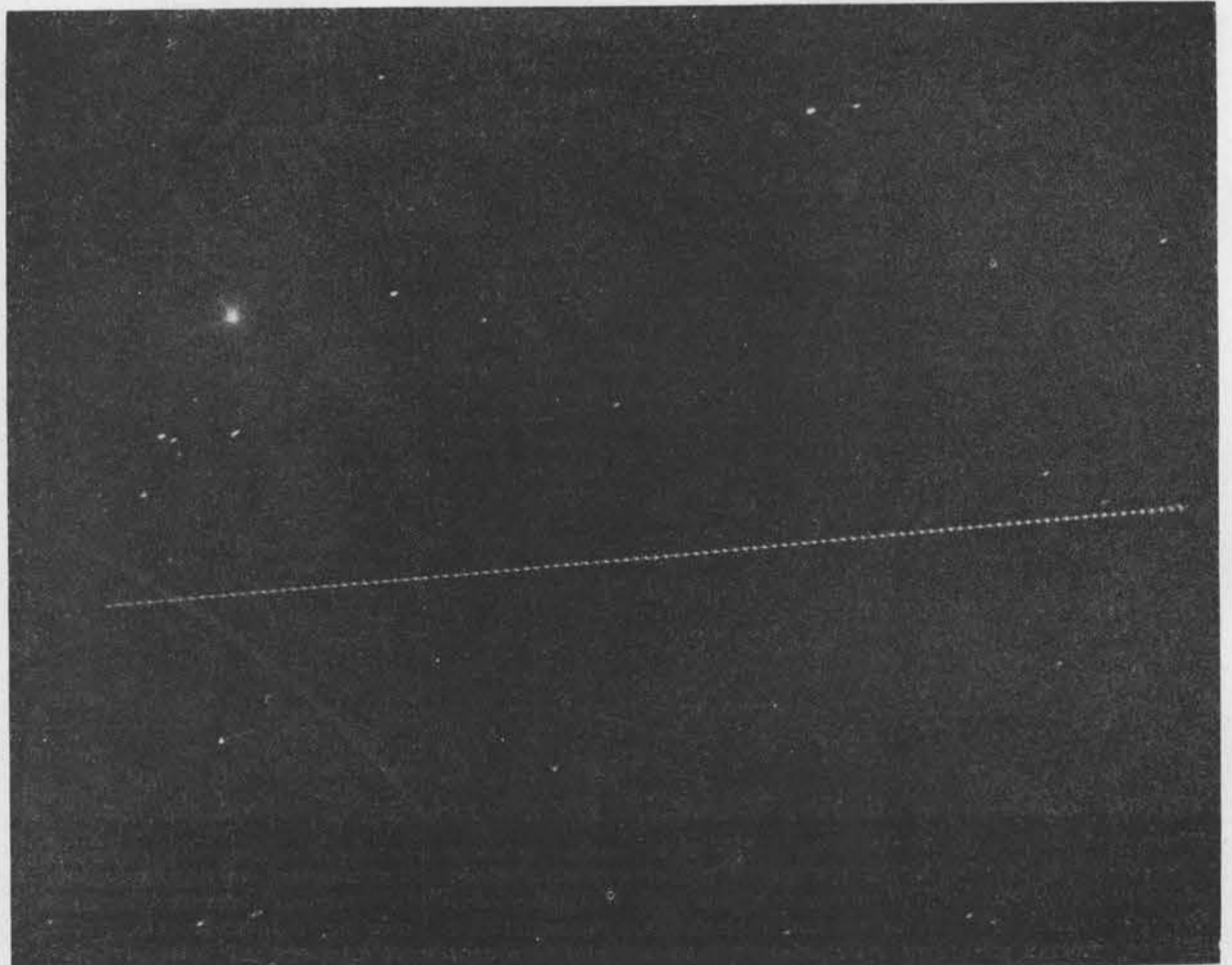
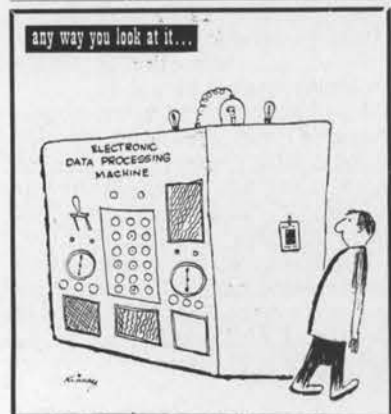
1. Every bottle or can should be kept in a locked cupboard, out of the reach of children.
2. The fluid should be used outdoors. If this is impossible, windows and doors should be open.
3. No one should be exposed for more than five minutes without taking a few minutes off in the fresh air or at an open window.
4. Rags or mops dipped in carbon tetrachloride should never be used again. Even a pail that has held a carbon tet solution should be dried in the open air for a few hours. Rubber gloves should be worn.

Medical attention should be given immediately to anyone poisoned by carbon tetrachloride. If you get it on fingers or other parts of the body, wash it off immediately with warm water and soap and apply an ointment.

To be really safe, don't use carbon tetrachloride at all. Instead, use one of the substitutes like trichloroethylene which does the same job with less danger.

Carbon tetrachloride may not be used on Sandia Corporation premises without the permission of the Industrial Hygiene Division, 3161.

There have been occasions when carbon tetrachloride has been privately purchased and brought onto the premises for such purposes as typewriter cleaning. This is extremely dangerous and contrary to Corporation regulations.



SPUTNIK ROCKET I, which whizzed over Albuquerque many times is shown in this photo taken by Sandia Corporation observers. The five-second exposure was taken at f 5.6 using a spectroscopic plate type ID 2. The special camera with a 14-inch focal length was mounted on the Corporation's

24-inch astronomical telescope. The dotted line in the rocket's path indicates that the rocket was oscillating at a rate of 22 times a second or rotating 11 times per second. The patient but successful photographers were Dan Parsons and Dan Fenstermacher (5221) and Ben Benjamin (5216).



SAFETY AND STYLE are both represented by these shoes and boots with steel toes, sold by Homer Baldwin at the Corporation's Safety Store in Bldg. 857, which features many safety items.

One Ounce of Prevention Vs. 2500 Lb. Static Load Feature of Safety Shoes

Sandia Corporation's unique shoe store in Bldg. 857 is doing a booming business as more and more employees discover the small cost of safety.

The front part of the Safety Store is outfitted like any other small shoe store, but the shoes that Homer Baldwin (3211-1) sells are special in price and function. The nine stylish models—ranging from black dress shoes and brown oxfords to boots—all have a thin steel cap over the toe area for protection. Accident records have demonstrated that more than 60 per cent of all foot injuries result in injuries to the toes.

Great Strength

The steel cap, supported by a flange resting on the sole, is designed to support a static load of 2,500 pounds and to resist the impact of a 50 pound weight dropped one foot. When subjected to either test, the inside of the toe cap must be at least one-half inch from the upper sole.

Modern styles and craftsmanship have done away with time-worn objections to safety shoes: shoes are too heavy, they're uncomfortable, the steel caps make your toes cold in winter.

The weight complaint dates back to the infancy of safety shoes. They were first available only in bulky, high topped, "Li'l Abner" styles, which made them appear twice as heavy as they actually were. It is difficult nowadays to distinguish between safety shoes and conventional street-wear shoes and the only difference in weight is one ounce.

Another Fallacy

Rather than cause discomfort the steel cap actually contributes

to comfort by maintaining the shape of the toe at all times.

The complaint of cold toes is also a carryover from early days when the underside of the steel cap was uncovered. Today's safety shoe has a leather liner on the underside of the cap which prevents discomfort and also saves wear on socks.

Many office workers have joined employees in production or material handling occupations in realizing the need for and the practicability of these special shoes for on-the-job safety combined with after-hours styling.

The Safety Store is open daily during regular work hours except from 2:30 to 3:30 p.m. The shoes are available in a full range of lasts and sizes and may be purchased for cash or through payroll deduction.

AWS President Speaks To Local Chapter Jan. 14

The Albuquerque Chapter of the American Welding Society will have as its speaker Jan. 14 C. P. Sander, national president of AWS, who will address the group on the national society's activities.

With him will be F. L. Plummer, national secretary of AWS, who will give a talk entitled "Welding Achieves New Firsts." The talk will cover new advancements in welding of bridges, buildings, piping, aircraft and ships. Colored slides will be shown.

The meeting will follow a dinner at 7 p.m. at the Chinese Village Restaurant, it was announced by Vince Nelson (1624), publicity chairman.

U. S. Flag May Be Displayed Day, Night Research Discloses

Paul F. Bahr (1444), intrigued by a statement concerning 24-hour-a-day flag flying at Taos which was in a recent issue of Sandia Lab News, dug out some research material he collected a year ago which clarifies the subject.

Some time back Paul heard the statement that Taos was one of five locations in the United States where the colors could be displayed day and night. He referred the fact to the Research Division of the Encyclopedia Americana organization for verification. The Division produced the following findings:

Although a Congressional resolution states that "It is the universal custom to display the flag only from sunrise to sunset" this is actually custom and not law, and there are many places where the United States Flag is flown 24 hours a day. (Public Law 829, 77th Congress, Approved Dec. 22, 1942)

"For some forty or so years the Flag has flown day and night over the grave of Francis Scott Key at Frederick, Md. . . . only a short time ago a passenger on a boat coming into Baltimore wrote to a Baltimore newspaper his disappointment at passing Fortress McHenry and not seeing the Flag flying over the historical landmark.

"The result: the Flag now floats over Fortress McHenry day and night and is spot-lighted! The Flag flies day and night over the War Memorial at Worcester, Mass. (Adams, Gridley. So Proudly We Hail! New York: United States Flag Foundation, 1953, Page 54).

"During the World War requests were received from all over the country urging that the United States Flag be flown continuously over the public buildings in Washington, D. C., and ever since that time it has been the custom to keep the Flags on the East and West fronts of the United States Capitol Building flying 24 hours a day every day in the year.

"The Flag flown over the Senate and House Wings of the Capitol are governed by the sessions of these two branches of the Congress. If a recess occurs the Flag remains flying until the termination of the recess." (Report of the Architect of the Capitol, quoted in So Proudly We Hail!)

A few years ago the American Legion magazine carried an article by Gridley Adams of the United States Flag Foundation in which it was pointed out that a citizen may display his flag 24 hours a day if he so desires. As a result, many municipal, state, and

other public buildings now fly their flags day and night.

One such place, for example, is the Northwestern State Bank in St. Paul, Minn. The flag for which they fought flies continuously over the graves of deceased veterans who lie buried in the "Sunset Hill" cemetery, Jamestown, N. Y., and in the Riverdale Cemetery, Niagara Falls, N. Y.

The Department of Defense has no objections to civilians flying the flag at night so long as this is not done for advertising purposes. The Army, however, lowers the flag at sunset as part of its military ritual.

Nondestructive Tests Topic of ASME Talks

"Nondestructive Testing, An Important Factor to Save Lives and Money," is the topic of a talk to be given at the Jan. 15 meeting of the New Mexico Section of the American Society of Mechanical Engineers.

The talk will be presented by Dr. Gerold H. Tenney, Group Leader, Los Alamos Scientific Laboratory, at 7:30 p.m. in Rm. 101, Mitchell Hall, at the University of New Mexico.

Dr. Tenney, who has an extensive background in nondestructive testing, will discuss radiography, ultrasonic, magnetic particle inspection and electromagnetic methods of testing.

Five Years Ago . . .

Organizations 2125 and 3152-1 completed their first Christmas charity acts instigated in lieu of the exchange of greeting cards . . . UNM faculty members set up a meeting with Sandians to discuss courses to be offered spring semester . . . Arthur R. Engquist received second place national honors awarded by the American Institute of Electrical Engineers for a technical paper of which he was a joint author. The paper concerned a newly developed radion tube . . . New Mexico Section of IRE was host to members of 11 Western states during a two-day meeting at Mitchell Hall. Key-note speaker was Dr. J. W. McRae, then vice-president of Bell Telephone Laboratories and national president of IRE.

SNT Members Meet At Los Alamos Jan. 14

The Los Alamos-Albuquerque Chapter of the Society for Non-destructive Testing will meet at the Los Alamos Health Research Laboratory at 8 p.m. Jan. 14.

Speaker of the evening will be W. D. Kiehle of the Eastman Kodak Company, Rochester, N. Y., who will address the group on the subject, "Principles of Radiography."

A dinner will precede the meeting at 6:30 p.m. at the Los Alamos Country Club.



AWARD OF MERIT for 100 per cent membership in the American Legion among eligible veterans in 2353 is presented to William O. Smith, division supervisor, by Robert W. Durand (2353) officer of the New Mexico Department of the American Legion.

SHOPPING CENTER • SHOPPING CENTER • SHOPPING CENTER • SHOPPING CENTER • 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
 LOOP RUG, small, 6'x9', cocoa color, almost new, cost \$34.50, sell for \$12.50. Martin, 5016 Roma NE after 5:30 p.m.
 '56 SCOOTER, Cushman, 5 h.p., rebuilt motor, \$145. Weber, AL 5-6811, 3117 Maderia NE.
 17" TV, table model, good second set, \$65. Roane, AX 9-1761, 2909 Garcia NE.
 3 BR. HOME, Inez Brick, 1 1/4 bath, carpeted, 2 1/2-car garage, patio, walled, sprinklers, air conditioning, other extras, \$17,900. Wink, AX 9-3450.
 '56 FORD, 1/2-ton pick up, R&H, \$1000; '52 Dodge, 1/2-ton pick up, \$350. Matlock, AL 6-4976.
 26" BICYCLE, boys, balloon tires, \$15 or trade. Radigan, Ext. 31287.

10" TV, G.E., blond, w/rabbit ears, \$15; Maytag Wringer-type washer, \$35. Roller, 9620 Aspen NE.
 WINTERS PIANO, mahogany spinet, full keyboard. Kelley, AL 6-4982.
 GE SWEEPER, \$7.50; Bissell carpet sweeper, \$3.50; Johnson ice skates, woman's size 4, \$7.50. Hansen, Ext. 23182, 3356 48th Loop, Sandia Base.
 REAL ESTATE CONTRACT, \$5300 drawing 6 per cent interest, 1st mortgage, good collateral, will sell for \$4500. Dixon, AL 5-5312.
 FULL-SIZE CRIB, w/spring and mattress, \$12; Trimble bathinette, \$10. Sasser, DI 4-1260.
 DEEP FRYER, General Mills, nearly new, \$10. Bolyer, AX 9-1346.
 BABY CRIB, complete, \$20. Stetz, AX 9-0185.
 MODEL "A" Motor, complete; red leather hassock, large fish breeding tank, tropical fish, tank, table; wire wheels w/tires, tubes. Villella, AL 6-2766.
 '56 CHEVROLET 8, Sport Coupe, Power Glide, R&H, 2-door, Sport Coupe, Bel-Air, grey & white, 6800 miles. Gustafson, Ext. 36291.
 3 BR. HOME, near La Resolana, 1 1/2 baths, drapes, blinds, two patios, sprinklers, air conditioning, dishwasher, disposal, soft water, \$17,600. Taylor, AL 5-8840.
 LIVINGROOM SUITE, 2 piece, make offer. Kochmann, AX 9-5133.
 AUTOMATIC PISTOL, .45 cal., w/leather holster, \$40; Shop Manual for '55 Olds, \$2; trailer hitch for '55 Olds, \$5. Alberts, Ext. 37298.

NEXT DEADLINE FOR SHOPPING CENTER ADS Friday Noon, Jan. 17
 SOFA AND CHAIR, make offer; 3 bicycles, \$20 each; maple dining suite, \$135; vacuum cleaner, \$10; new 12v battery, \$15. Barnes, AM 8-1583.
 COCKTAIL DRESS, never been worn, size 12; will sell or trade for clothing in good condition. Jordan, CH 2-8928.
 '51 HENRY J, rebuilt engine, low mileage, \$175. Green, AL 6-0114.
 GIRL'S COAT, size 4, hat, leggings, \$8; Air Force overcoat, blouse, ike jacket, size 41, 2 pants, ties, \$55. Foster, AX 9-6240.
 SOFA, end tables, table and floor lamps, leather-top coffee table, traditional style, mahogany finish. Pardee, AL 5-1998.
 EASY WASHER, spin-dry, \$45 or best offer. Larson, AX 9-2384.
 SIAMASE KITTENS, 2, 7 weeks old, nicely marked Sealpoints, may be seen at 1112 1/2 Tijeras NE between 7 and 9 p.m. Walker.
 '51 AUSTIN, A-40 Blue, 4-door sedan, new battery, sky blue paint, economical, easy parking, \$320. Scotten, AX 9-6236, 8003 Aspen NE.
 17" TV, Packard-Bell, floor model, blonde finish, just overhauled. \$50. Dawson, AX 9-4537.

UPRIGHT SWEEPER, \$35; approximately 150 player piano rolls w/cabinet, \$10. Hanna, AX 9-0383, after 6 p.m.
 REFRIGERATOR, Westinghouse, \$85. Johnson, AX 9-1057.
 '48 BUICK Special, 4-door, sedan, \$125. Guynes, AM 8-2127.
 16mm CAMERA and projector, \$30; bedroom set complete, \$70; lawnmower, \$3; Want '52 Studebaker Commander for parts. Palaszek, AL 6-5857.
 GIRL'S BICYCLE, adult size, \$16 or best offer; electric radiator steam heater, price open. Gieschen, AL 5-3034, 3537 Ross SE.
 GIRL'S BICYCLES, two, one 24", one 26". Rowe, AX 9-1227.
 3 BR. HOUSE, 1 1/4 bath, wb fireplace, walls, paved patio, GI loan, Richardson, AX 9-2796.
 CIRCULAR SAW, 8" Blade, Craftsman w/extension table, motor, and 3 extra blades, \$35. Sirwinski, AL 9-0733.
 4 BR. HOUSE w/w carpeting, 1 1/4 bath, block wall, electric stove, automatic washer. Brock, AX 9-3954.
 TARGET REVOLVER, .22 caliber w/holster, \$35; trade for old pistol or revolver. Smitha, AX 9-1096, 8607 Menaual NE.
 R-26/ARC-5 receiver 3-6 Mc. w/dynamotor, new, \$5; T-23/ARC-5 Transmitter 2 Meter band, new, \$20. Niper, DI 4-2021.
 REFRIGERATOR, GE, 8 cu. ft., \$70. Shepard, AL 6-9242.
 2 HOUSES, small, not modern, but have gas, lights, water; SW, \$3975; \$35 down, \$35 month. Take car, pick-up in trade. Chavez, AL 5-5461.
 FIRE HOSE, irrigation, 3", 50 foot sections, best offer. Padilla, CH 2-6867.


GAS RANGE, full size, completely automatic. Wells, AX 9-2508.
 STEEL WINDOW, 3423, 4 1/2 feet wide by 4 ft. high, 3 panes on each, w/glass, hardware, screens, \$20. Glenn, AL 5-6569.
 '57 MERCURY convertible, 13,000 miles. Pearce, AL 5-7813.
 EASY WASHER, Spin-dryer, \$40 or best offer; full size box springs and Simmons mattress, \$20. Wilson, AL 6-7694.
WANTED
 CHILD CARE in my home, Lomas & LaVeta NE, prefer small baby. Dyer, AL 6-7858.
 MAN TO SHARE HOUSE at 2028 Palomas NE. Ed Hockett, AM 8-8492.
 BABY SITTER in my home or yours, Princess Jeanne Development. Koznar, AL 5-3314.
FOR RENT
 MOUNTAIN CABIN, modern, bath, metered gas heat, \$55 per month, includes lights. Souder, Ext. 34161.
 3 BR. HOUSE, near Bases, across from Acapulco Swimming Pool. Rimbert, CH 3-8120, 2131 Stanford Pl. SE., after 5:30 p.m.
LOST AND FOUND
 LOST—Car keys in brown case w/name Paul Adent, Lord Elgin watch, scouting handbook, ring w/pocket knife, blue glass earring, hand-carved silver bracelet. LOST AND FOUND, Ext. 26149.
 FOUND—Keys marked made in England, Elito blue-green lighter, Windsor ball-point pen, keys with adhesive markings in brown case, man's wedding ring, sacred heart medal, door key, Hilton lighter, 80 cents in change, grey glasses, 2 \$1 bills. LOST AND FOUND, Ext. 26149.

Part IV: Sandia Corporation's Place in Nuclear Weapons Program

'Proof of the Pudding' Is In Testing of Nuclear Weapons

Editor's Note: In past articles of this series roles of research and development in the ordnance phases of nuclear weapons work have been discussed. One of the final steps in weapons development is experimental nuclear weapon testing under actual field conditions. This aspect of Sandia's job is covered here.

in stockpile. The role Sandia plays in the manufacture and stockpiling of weapons and training of the military in the use of these weapons will be discussed in the next article of the series in the Sandia Lab News.



REGULUS missile in final dive over Salton Sea is shown in this photo taken from 35mm movie film shot by Org. 5214 last year. The unusual photo, which shows the shock wave in front of the nose cone, was released by the Navy and the Chance-Vought Aircraft, Inc. and appeared in newspapers and magazines nation-wide.

ASTM Schedules Four-State Conference at UNM Jan. 27

National president of the American Society for Testing Materials will be in Albuquerque Jan. 27 to attend a four-state conference on "Accelerated Testing and Life Qualities of Materials."

Plans will also be discussed at the meeting for the establishment of a four-state district of the ASTM, to include New Mexico, Arizona, Utah and Colorado.

Accompanying the ASTM president, R. T. Kropf, will be R. J. Painter, Executive Secretary of ASTM.

Suggestion for the establishment of a local ASTM district was made by J. R. Townsend, former Director of Materials and Standards Engineering at Sandia Corporation. Mr. Townsend remarked in a letter to the executive secretary that in New Mexico "there is a potential of 2700 technical people that have an interest in materials and material test methods . . . of which 1100 are employees of Sandia Corporation."

At UNM Student Union

An impressive program for the all-day meeting has been arranged to be presented at the Student Union Building of the University of New Mexico.

M. E. Farris, dean of the Engineering School, UNM, will deliver the welcoming address at 9 a.m. He will be followed by J. P. Thomas, representative of Convair, Division of General Dynamics, who will discuss "Accelerated Aging Tests and Life Aging Properties of Aircraft Metal Adhesives."

Albuquerque Section IRE to Hear Talk By M. A. Acheson

"Needed Development of Reliability Assurance Measures" is the topic of a talk to be presented Jan. 16 at the winter dinner meeting of the Albuquerque Section, American Society for Quality Control.

The speaker, Marcus A. Acheson, is a consulting engineer on the corporate staff of Sylvania Electric Products, Inc., Kew Gardens, New York.

A graduate of Rice Institute and a Fellow of the IRE, Mr. Acheson is a recognized authority in electron tube development and reliability. As manager of advanced development for Sylvania, he has directed such commercial and military programs as the proximity fuze tubes in gun-fired projectiles. He has also worked on ceramic stacked tubes and numerous environmental test projects.

In his talk, Mr. Acheson will outline the needs for additional quality measures and techniques, including the development of tables of acceptable defect level for use by producers and users.

Reservations for the dinner and meeting, which begins at 7 p.m. at Leonard's Restaurant, can be made by calling Everett Ard (5511), arrangements chairman, no later than 9 a.m. Wednesday, Jan. 15. Mr. Ard's extension at Sandia is 5-2263 and his home number is AX 9-0863.

C. H. Sample of the International Nickel Company, will speak at 9:00 on the subject, "Testing and Exposure Life Test on Metallic Coatings." At 10:50 a.m. C. J. Wessel of the National Academy of Science, National Research Council, will address the group on the topic, "Testing for Mold and Fungus Resistance of Materials in Storage."

W. K. Wagner of the Albuquerque Gravel Company will speak at 11:30 on the subject, "Concrete and Its Life Qualities."

Following lunch at the UNM's Men's Dormitory Cafeteria, Ralph Wirshing of General Motors Research Laboratories will discuss "Testing and Exposure Life Tests on Paints."

Dr. Richard Bauman of B. F. Goodrich Research Center, will speak on the subject of "Effects of Radiation on Polymers" at 1:40 p.m. The ASTM president, Mr. Kropf, who is vice president and director of research for Belding Heminway Company, will discuss "Materials for the Year 2000" at 2:45 p.m.

New District

"Organization of an ASTM District" is the topic of a talk to be given by Mr. Painter at 3:25 p.m. The meeting will close with an informal dinner at La Placita Dining Rooms in Old Town at 6:30 p.m.

A highlight of the meeting will be the presentation by Mr. Kropf of the ASTM Student Membership Awards to eight outstanding engineering students at the University.

Among Sandia Corporation employees who assisted in arrangements for the meeting are: Charles F. Bild, C. A. Scott, M. J. DeLollis, B. Carroll, K. E. Mead, D. E. Wanner, and H. E. Montgomery, all of 1620.

The proof of the pudding is in the eating. In weapons work it is the testing of experimental models under actual field conditions. This is the job of Sandia Corporation's field test engineers.

There are two basic types of field tests: non-explosive tests and "full-scale" tests. In the first type a bomb, complete except for an explosive system, is dropped from an airplane to obtain data on its ballistic behavior and the operation of its internal electronic and mechanical components.

External observations are carried out through the use of special cameras which record on film the behavior of the bomb from the time it leaves the aircraft until it strikes the target.

These cameras, geometrically placed around the target area and sometimes on the bomb itself, record performance data on aerodynamic stability, separation from the aircraft, acceleration and impact.

Internal monitoring of the inert weapon's fuzing and firing mechanisms and other electronic and mechanical components is accomplished through the use of specialized telemetering instruments developed by Sandia's field test engineers.

These miniaturized instruments contained within the bomb transmit information to ground receiving stations where it is recorded on oscillograph and magnetic tape recorders.

Data Obtained

This information pertains to the roll, pitch, and yaw of the weapon casing in flight and is measured by gyroscope assemblies mounted within the bomb casing. Accelerations at various places and in various directions are measured by accelerometers inside the bomb.

Data is also obtained on vibration effects at critical points within the structure and components of the weapon. Temperature is measured on the outer shell and interior of the bomb. Pressure, both internally and at various places on the skin of the weapon, structural strain, and voltages and functional indications from various internal components are recorded also.

Information recorded during tests of experimental weapons, both electronically and photographically, must be compiled

and analyzed before it is useful. Unless machines are used, reduction of the tremendous mass of field data from film and tape would require considerable man hours.

With the development by Sandia of the "Digitel," a machine which automatically selects and punches test data onto IBM cards in digital form, the information can now be expeditiously sorted, tabulated and analyzed. This is just one of a number of notable improvements in instrumentation developed by Sandia engineers since the early days of the nuclear weapons program.

In those days empty tin cans, crushed by an atomic blast, were used as a rough measure of pressure changes close to atomic explosions.

Test Sites

Although field testing operations are carried out by Sandia at many locations, some of them outside the United States, most non-explosive testing of nuclear weapons is conducted at two ballistic test ranges operated for the Atomic Energy Commission by Sandia Corporation.

These ranges are located at Salton Sea, California, and Tonopah, Nevada. Other instrumentation sites used by Sandia are located at the Naval Air Missile Test Center, Point Mugu, California; Edwards Air Force Base, California; White Sands Proving Ground, New Mexico; Holloman Air Development Center, New Mexico, and the Air Force Missile Test Center at Cape Canaveral, Florida.

Sandia also participates in full-scale testing of nuclear weapons at the AEC's Eniwetok Proving Grounds in the Marshall Islands and at the Nevada Test Site.

Full-scale testing of nuclear weapons is a joint operation of the AEC, its principal contractors in the weapons program, Los Alamos, Livermore, Sandia, and other AEC contractors, the military, the Federal Civil Defense Administration, other government agencies and private institutions.

Full Scale Tests

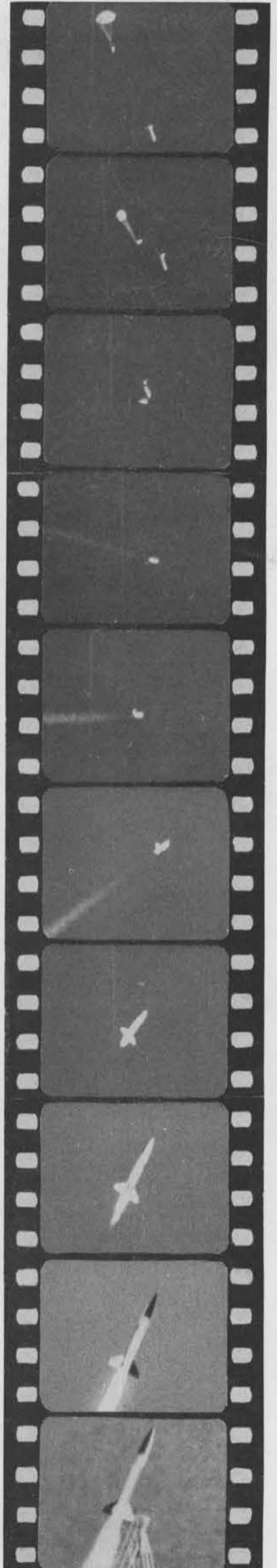
In full-scale tests fissionable or fusionable material is detonated to "prove" the weapon design and to get firsthand information about such phenomena as shock wave, heat, radiation and other weapon effects.

Such tests are sometimes conducted with nuclear "devices" which consist mainly of nuclear material and a detonation system, rather than a complete bomb. By such tests the principle of an explosive system can be tested before all the details of ordnance developments are worked out.

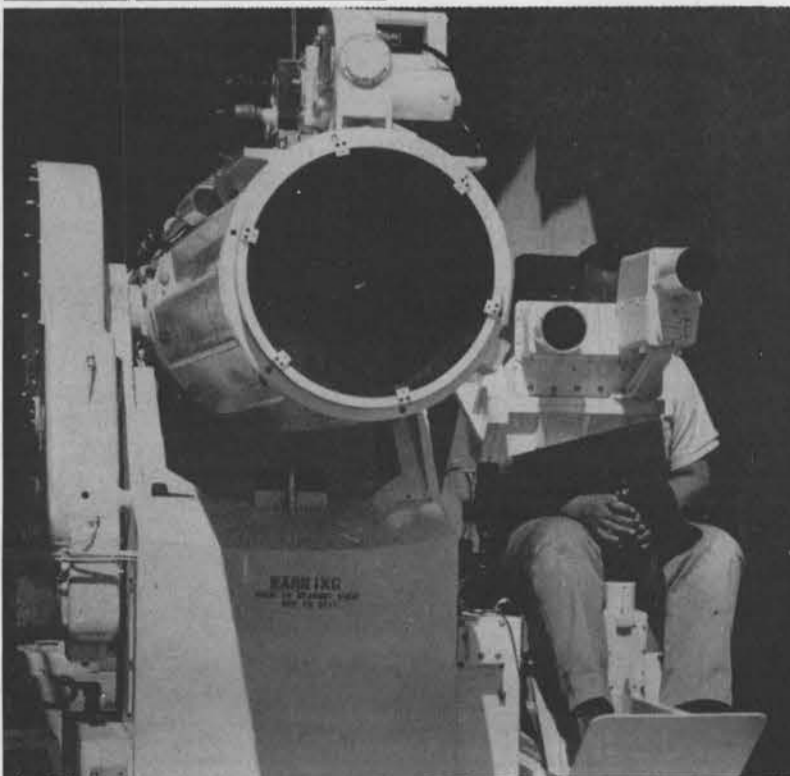
Sandia plays an important part in all full-scale tests, assisting in the assembly of test weapons and devices, providing much of the instrumentation for test experiments, assisting in conducting the tests and recording and analyzing much of the data.

Field test engineers at Sandia also carry on a continuous search for better methods of measuring weapons data, developing and designing optical and electronic weapon tracking systems, timing and control mechanisms, telemetering systems and transducers, all of which are needed to support new weapon test programs.

When the testing of a new weapon is successfully completed, Sandia helps arrange for its production and its maintenance



ROCKET FLIGHT film sequence taken by Field Test photographers through 16-inch tracking telescope, shows nose cone separating from Sandia Corporation designed high altitude research rocket. Instruments in cone are dropped by parachute and recovered intact.



TRACKING TELESCOPE mounted in astro-dome is used at Sandia's ballistic range at Tonopah, Nevada, to gain photographic data for performance studies on weapon drops and rocket flights.