

New Directors Are Elected to Sandia Board

At a special meeting of the Sandia Corporation Board of Directors, April 10, two vice presidents of the Western Electric Company were elected to membership on the Board. Harvey G. Mehlhouse, Vice President-Personnel and Public Relations, replaced Walter L. Brown, Vice President and General Counsel, who had served on the Board since the formation of the Company in 1949. L. Ray Cook replaces Paul R. Brousse, a Board member since 1958.

Mr. Mehlhouse was at Sandia from 1952 to 1955 as superintendent of Manufacturing Engineering, 2500. He plans to visit Sandia Laboratory the first week in May.

Other Sandia Corporation directors are A. F. Clow, Vice President, Defense Activities Division, Western Electric Company; J. B. Fisk, President, Bell Telephone Laboratories; J. P. Molnar, Executive Vice President, Bell Telephone Laboratories; H. K. Onstott, Vice President and General Manager, Bell Telephone Laboratories; H. I. Romnes, President, Western Electric Company; S. P. Schwartz, President, Sandia Corporation; and R. W. Henderson, Vice President, Weapon Programs, Sandia Corporation.

AEC Seeking to Renew Contract for Operating Sandia

The Atomic Energy Commission has authorized negotiation of an additional five year extension of the contract with Sandia Corporation. The current contract for the operation of the Sandia facility expires the end of this year.

Glenn T. Seaborg, Chairman of the AEC, in a letter to H. I. Romnes, President of Western Electric Company, expressed the Commission's appreciation for the fine performance by the Sandia Corporation during the preceding years. He stated that Sandia's cooperative attitude in the performance of a technically complex and extensive program has made a significant contribution to the weapons program.

T. J. Williams Elected Head Of Elks Lodge

T. J. Williams (1431) was installed this month as exalted ruler of Elks Lodge 461. His term of office is one year.

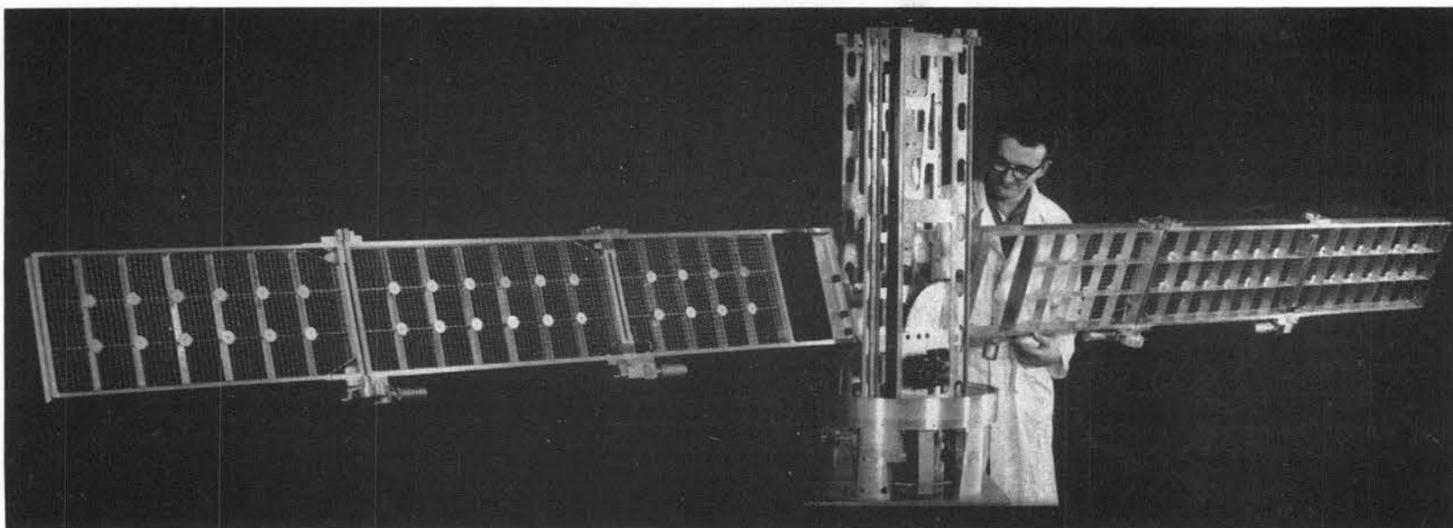
Mr. Williams has been a member for seven years and has held other offices during the past five years.

"Right now, we are looking forward to completion of our new building at Indian School and University Blvds.," he said. Inclusion of a swimming pool in the plans will further the Elks' emphasis on family participation. The Elks are also active in fund raising to fight cerebral palsy.

Industrial Engineers Elect A. D. Smailer Chapter President

A. D. Smailer (2563-2) is the newly-installed president of the Albuquerque Area Chapter of the American Institute of Industrial Engineers. Other officers installed during a dinner meeting last week include J. D. Ramsey (2561-2), vice president; J. C. Borg (2563-2), secretary; and Anthony Panagakos (CG Electronics Division of Gulton Industries), treasurer.

New members of the Board of Directors include F. A. Bentz (4325) and R. R. Davies (4432-2). Continuing members of the Board are J. M. Hueter (2563-1), immediate past president, and A. E. Kaping (4332-1).



SAND SAMPLER UNIT is expected to arrive at Sandia Laboratory about May 1 for a series of environmental tests before first rocket flight in June. The eight-ft. folding arms of the unit will contain filters to obtain

samples of nuclear particles out of the atmosphere at altitudes between 100,000 and 230,000 ft. Sampler was designed by W. L. Wood (7133) and fabricated by Mechanical Specialties Company of Los Angeles, Calif.

Sandia-Designed Nuclear Debris Sampler Will Do Its Work in Upper Atmosphere



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This one's called 'EMR'

Technology Advances Call for Study of Newest Environments

Environmental Testing Organization 7300 tests the effects of such environments as temperature, humidity, vibration, static stress, shock, and altitude on a variety of items. With advances in technology, an entirely new family of environments is coming to the fore. One of these is electromagnetic radiation, known in the parlance of electronics as EMR.

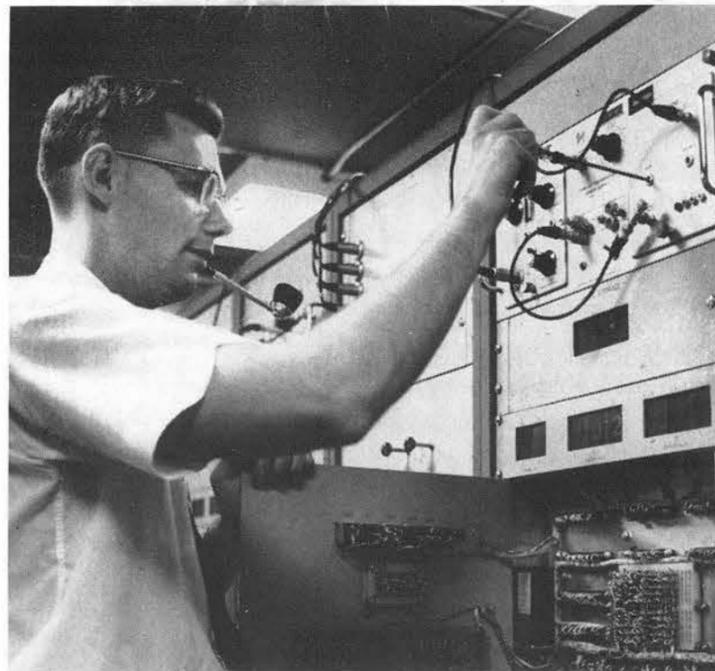
"Electromagnetic radiation is energy produced by a variety of radio communication and radar equipment," Wayne Cook (7331-3) explained. "We're studying EMR at Sandia with the aid of wide-band transmitters, antennas, and an underground receiving and readout system. We're able to extend our results from low-power radiation to accurately predict EMR results produced by high-power transmitters and radar in similar situations."

Two years ago, Sandia's Electromagnetic Radiation Facility was built with cooperation from Antenna and RF Problems Development Division 1424. It was designed to provide a research-test facility for investigation of EMR for development groups at Sandia.

"Our study concerns the measurement of RF (Radio Frequency) current induced in electrical circuits," Wayne continued. "The EMR facility provides us with a means of investigating how the level of induced RF currents is related to the radiated field strength of a transmitter or radar." The variation of radiated field strength is best illustrated by an automobile radio receiving a radio program. As the automobile moves farther away from the broadcasting transmitter, the program volume decreases because the radiated field strength is decreasing.

With the EMR facility, test personnel are getting quantitative data which defines the relationship between induced RF current and radiated field strength.

"We must define the EMR environmental parameters before meaningful environmental tests



ADJUSTING instrumentation in instrumentation room of Sandia's electromagnetic radiation facility is Wayne Cook of Electromagnetic Radiation Section 7331-3. Test quadrangle is located above this room.

can be made," Wayne pointed out. "Such definition is a complex job. In the past, only relative definitions were possible. Most of our present equipment for measuring EMR fields wasn't designed specifically for environmental testing, but today, by combining test results with theory, we're able to come up with fields of known characteristics to facilitate our tests."

Analyses of results from low-field-strength tests are extended, via theory, to apply to high field strengths. Environmental engineers are at work on development of equipment and techniques specifically designed for EMR work.

The EMR test quadrangle, located near Bldg. 880, enables test personnel to gather information on effects of EMR on a variety of items. Nearby is an instrumentation building where

EMR energy is produced; beneath the quadrangle is a shielded instrumentation room.

"We've placed our instrumentation underground to isolate it from the EMR field," Wayne explained. "because placement of our electrical equipment in the field would affect our readings."

Data from the instrumentation is gathered both on tape and on computer cards which can be quickly reduced. "To obtain meaningful test data, calibration of our measuring instruments is an important and exacting task, and often it takes as much time as it does to run the test," he continued. "After instrumentating the test item and calibrating our measuring instruments, we run the test and reduce the data we obtain. These tests are giving Sandia a better insight into the nature of the EMR environment."

Arrival is expected about May 1 at Sandia Laboratory of the first SAND sampler unit. Project SAND (Sampling Aerospace Nuclear Debris) is a responsibility assigned to Sandia Corporation by the Atomic Energy Commission's Division of Biology and Medicine, Fallout Studies Branch.

Purpose of the program is to obtain samples of radioactive and inert particles out of the atmosphere at altitudes from 100,000 to 230,000 ft. The program aims at nuclear debris inventory, possibly on an atmosphere-wide scale, and development of forecasting techniques for predicting the dispersal of any debris injected into this region of the atmosphere.

Designed by W. L. Wood of Aero Design Division 7133, the sampler unit will be fired to an altitude of 230,000 ft. by two-stage rocket. The sampler will be contained in the nose cone. At apogee of the flight, the nose cone will separate, a parachute will be deployed, the sampler's case will slide up to allow two "arms" containing filters to unfold and begin rotating. The unit will descend, gathering particle samples in its filters until it reaches 100,000 ft. At this point, the two three-sectioned arms will fold up and the unit will be driven back inside its case and sealed. The parachute will continue to float the unit to earth.

The unit will survive impact, be recovered, and opened under controlled conditions by a radio-chemistry laboratory for sample analysis.

Scientific Director

Scientific director of Sandia's SAND program is Glenn H. Miller of Aerospace Physics Division 5414. Initial work on the SAND program began in the fall of 1960 under the scientific direction of J. D. Shreve, supervisor of Division 5414, and with key theoretical guidance by J. R. Banister, supervisor of Division 5153.

Don Q. Matejka of Aerodynamic Research Division 7131 is SAND project engineer. He is responsible for coordinating the design of the SAND sampler system and the aerodynamics and ballistics of the program.

The 50-ft.-diameter parachute recovery system was designed by Mr. Matejka and Don J. Rigali (7131), assisted by H. E. Widdow (7134). An innovation of the parachute design is the use of a polyethylene torus or ring around the parachute containing a small amount of water. The atmosphere at 230,000 ft. is so thin that normally the chute would not inflate. However, water inside the polyethylene ring expands rapidly at this atmospheric pressure and forces the chute to open. Since the rocket flight lasts only two minutes to apogee, the water does not completely freeze.

Mechanical Design

Les F. Luehring (7133) assisted with mechanical design and ballistic vehicle design for the project.

Mr. Rigali, with J. R. Banister as principal consultant, is respon-

(Continued on Page 3)

Editorial Comment

Meet A Little-Known Library

Most Sandians are familiar with the work and services of public and technical libraries, so in recognition of National Library Week, Apr. 21-27, we thought we would present some facts and figures on the New Mexico State Library.

Currently operating from a former girls' dormitory in Santa Fe, the State Library offers a multitude of services to various agencies, schools, local libraries, and communities throughout New Mexico.

The State Library maintains a collection of all forms of educational and informational materials which serves as a center for reference, research, and loan services for the state. It supplies data and materials to all branches, agencies, and departments of state government, and provides consultant services in organization and administration to local public and school libraries.

Last year it loaned 91,716 books; 53,848 of these were to schools. The loans to schools are usually in the form of collections of books (not text books) with each book being circulated at least five times while at a school.

Even more impressive is the bookmobile service provided by the State Library. Last year almost 200,000 bookmobile books were read by New Mexico's rural residents. Ranchers, Indians, and residents of small communities rely on the bookmobiles for the library service that we urbanites take for granted.

In addition to its work with books, periodicals, newspapers and documents, the State Library maintains a statewide free film service. During the year it loaned 1,638 films, which were viewed by more than 355,000 people.

The next time you are in Santa Fe drop by your State Library and see first-hand the fine work that is being accomplished.

The Sandia Laboratory technical library will be covered soon in an article on organization 3400.

Ingenuity And Economy

In the course of America's history, someone put a label on what we know as "Yankee Ingenuity."

Faced with the brute fact of the wilderness, the pioneer developed a way of doing things economically. At least, that's the way we remember him.

Such a strain as "Yankee Ingenuity" doesn't die out of a people. It's with us today; we see it reflected in thousands of ways. But we sometimes lose sight of the importance of economizing.

In carving a place for himself, the pioneer used a multitude of skills. He could skin the bark off a log, and then apply somewhat the same skill in forging that lean and beautiful instrument, the Bill of Rights. He was forced to be practical; the wild land permitted him no frivolity (but he could afford to laugh at his situation: "I've never been lost in the woods in my life," Daniel Boone observed, "but once I was mighty confused for three days").

Above all, the frontiersman was economical. The wilderness wasn't a bountiful place, and he was obliged to manufacture literally everything for himself. As a result, he developed a great sense of craft; even today, we prize pieces of his handiwork.

Today, one of the major spawning grounds for such ingenuity is our job. It's an area where we can take pride in finding economical new ways of doing things.

The job we're doing at Sandia is an important one (we're proud of its importance) and it's an expensive one. But most of us, with careful thought, could come up with a dozen more ways of economizing our way of doing things. The little things are as important, in their own way, as the once-in-a-lifetime idea for cutting a major cost. Like suggesting a way to simplify a business form, or saving a transistor, unfit for one task, but fit for several not-so-precise others, from the waste can.

The little ideas, the small-time economizing actions we perform as individuals, all add up to major savings. And if a big idea comes to us, so much the better.

Important jobs don't have to be expensive ones, and important savings don't have to be big ones.

Quip Doesn't Stump The Stars But Yields Handsome Prize Anyway

Norma Carlson (7241-4) sent in a "quip" to "Stump the Stars" TV show and it was picked as one to be acted out in pantomime.

Her quip was "Indian smoke signaler to friend after watching first atomic bomb test, 'Gee, I wish I'd said that!'"

Sebastian Cabot interpreted the quip while the other stars guessed—successfully. So, Norma missed out on the big prize, but she will receive a set of luggage and a Polaroid camera.

Congratulations

Mr. and Mrs. Charles E. Shipley (4424-2) a son, Stephen James, on Apr. 5.

Mr. and Mrs. K. C. Bauhs (7312-2) a daughter, Ellen, on Apr. 9.

Mr. and Mrs. Benny M. Garcia (4611-2) a daughter, Alisa Marie, on Apr. 8.

Mr. and Mrs. K. J. Shumway (4431-3) a daughter, Nancy Kay, on Apr. 8.

Mr. and Mrs. Albert Ames (4413) a daughter, Kimberly Ann, on Feb. 24.

Careful on That Telephone-- Your Manners Are Showing

"Is this A-1 Gadget Testing?" the voice asked.

"Yeh," Joe said.

"Could I speak to Mr. Walker please?" the voice asked again.

"He's outferlunchorsomewhere," Joe said.

"Pardon me," the voice said, "but what did you say?"

"I said he's out," Joe said with irritation.

"When do you expect him to return?" the voice asked.

"I dunno."

"Would you take a message, please?"

"Yeh," Joe said, still irritated. "Let me find a pencil." A full minute passes. "OK, shoot."

"Never mind," the voice said with finality. "I can do business elsewhere."

* * * *

Somebody once said that every time you talk, your mind is on parade. Unfortunately, Joe's rudeness was speaking for himself, his organization, and the company. When you are talking on the telephone, you are Sandia Corporation to the fellow on the other end of the line.

By your telephone personality you can accomplish the purpose of your call, and leave a good impression of yourself and your company. The telephone makes your daily work easier, more effective, and pleasant—if you remember your telephone "manners."

Answer the phone promptly. State your name and organization. This saves time and is standard Sandia practice.

Greet the caller pleasantly. By being enthusiastic and yet sincere, you'll find your associates reciprocate and the conversation is productive and friendly.

Be attentive. The person at the other end will appreciate your listening politely and attentively. You would not turn away in a face-to-face conversation; just apply the same rules of courtesy in telephone conversation.

Take time to be helpful. It's better to spend seconds keeping a

Irma Buffett to Retire on Apr. 30

Retiring Apr. 30 will be Irma Buffett, data reduction clerk in Radiation Physics Division 5413. Mrs. Buffett has been with Sandia nearly 11 years and has been in her present type of work since 1954.

After her retirement, Mrs. Buffett plans to help her two sons in operation of Buffett's Candies. Her home is at 215 Dartmouth Dr. SE.

"I don't have any hobbies," Mrs. Buffett said, "but I find politics interesting and enjoy reading."

Sympathy

To Frank W. Neilson (5130) for the death of his father in Utah, Apr. 12.

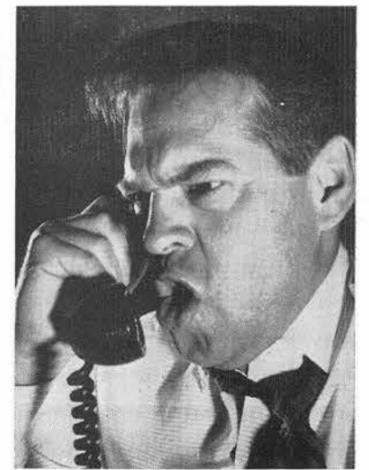
To R. G. Brooks (4232-4) for the death of his mother in Blackwell, Okla., Apr. 3.

To Roy C. Rentzsch (7118-2) for the death of his father Apr. 12.

To John C. Carter (4574) for the death of his father in Dallas, Apr. 10.

To N. L. Richardson (7244-1) for the death of his mother Apr. 14.

To E. David Clenney (7532-1) for the death of his father-in-law in Los Angeles, Apr. 6.



BEING A GOOD GUY or an old grouch on the telephone depends on your tone of voice and observance of simple courtesy. Remember that the caller can't see your expression. Posed by W. F. Huebner (4631-2).

caller happy than months regaining his good will.

Apologize for errors or delays. Maybe it's been a bad day, but you can always be courteous. And if you're genuinely sincere and natural, you won't sound "artificially" sorry.

Say "thank you" and "you're welcome." People know that courtesy on the telephone means courtesy in your work relationships. The use of such phrases is one way to smile over the telephone.

Good Voice Qualities

The person calling can't see you. He can't see your facial expression, your smile. He can only judge you by the way you sound. Here are some qualities of a good voice:

Alertness—Give the impression you are wide-awake and alert,

interested in the person calling.

Expressiveness—No matter how attractive, sincere, or alert you are, people will never know it if your telephone voice is a dull monotone. An expressive voice will carry your personality over the wire.

Naturalness—Just be yourself. Use a vocabulary and tone of voice which truly express your own natural best self.

Pleasantness—A pleasant, friendly voice on the telephone makes friends for you and for your organization.

Distinctness—Clear, distinct speech is a personal asset. No one likes to strain to understand what you're saying. Form your words clearly. Your lips should be about a half inch from the telephone mouthpiece.

AEC to Improve Parking Facilities In Tech Areas

The Atomic Energy Commission last week advised contractors that bids will be invited about May 3 for a general pavement repair and parking lot maintenance project in Tech Areas I and II.

Bids are scheduled to be opened about May 23. Work will include: removal and replacement of 700 ft. of curb and gutter and 1800 sq. yds. of asphalt pavement, including base course; construction of 300 sq. yds. of new asphalt pavement and 1300 sq. yds. of asphalt concrete overlay; cleaning and filling 7000 ft. of cracks and 70,000 ft. of asphalt pavement, and spreading some 24,000 gal. of government-furnished emulsified oil on asphalt pavement.

The work is to be completed within 125 days after the contractor receives notice to proceed. Plant Engineering Department project engineer is John C. Snowdon (4543-3).

Bowling Tourney

Second Annual Coronado Club Mixed Doubles Handicap Bowling Tournament will be held the weekends of May 18-19 and 25-26. Entry blanks may be obtained from Frank Adams (4152), Alice Woodley (4172), or at the club bowling desk. Deadline for entries is May 10. Entry fee is \$6.50 per couple.



Betty Healy (1413/3126)

Take a Memo, Please

Get help if there is any doubt as to your ability to handle a load alone.

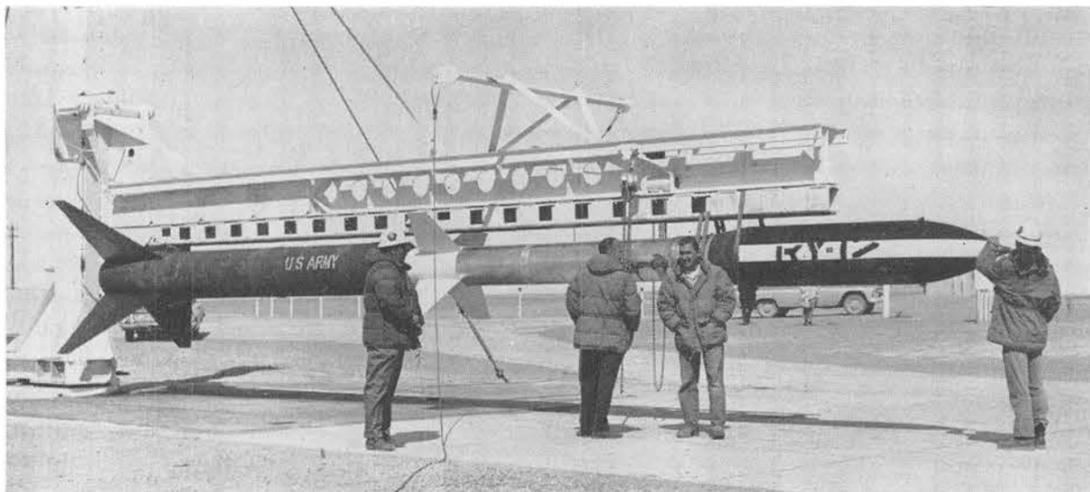
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SAND ROCKET SYSTEM consists of an Honest John first stage and a Nike second stage. Nine flight tests have been conducted from Tonopah Test Range to check out rockets, recovery system, and telemetering.

The first sampler unit is scheduled for flight testing in June. From left, above, are E. E. Wood (7231), Field Test project engineer; G. H. Miller (5414), SAND scientific director; B. E. Ercole (7231); L. F. Luehring (7133).

Continued from page one . . .

Sandia Nuclear Debris Sampler

sible for design and selection of the filter system in the sampler. An accordion arrangement of filters in the eight-ft. arms of the sampler provides 84 sq. ft. of filter area. The forced spinning of the arms at 10 revolutions per second, accomplished by small hydrogen peroxide jet motors, will allow a "flow-through" or sampling of 2½ million ambient cu. ft. of atmosphere. Waste products of the hydrogen peroxide jets, primarily oxygen and water, will not contaminate the filters.

Field Test project engineer for the SAND program is E. E. Wood of Rocket Projects Division 7231. He is responsible for the telemetering instrumentation on board the rockets and sampler.

The sampler will be boosted to altitude by an Honest John first stage rocket and a Nike second stage. Nine flight tests have been performed to date from Tonopah Test Range to check the rocket system, telemetering, and recovery system. One more flight without the sampler unit on board is planned during May. The first flight with the sampler is expected in June.

Environmental Tests

Prior to the flight, the sampler unit will undergo environmental tests at Sandia Laboratory. These will include performance tests of the sampler in a simulated flight inside one of the 10,000-cu.-ft. vacuum tanks of the Wind Tunnel Facility Bldg. 865. The tank has

been adapted to duplicate the atmospheric pressure variation of the sampler's descent from 230,000 ft. to 100,000 ft.

The entire sequence of sliding out of the nose cone, arms unfolding, firing of the hydrogen peroxide jets, spinning, closing, and sealing will be checked during the testing inside the vacuum tank.

The sampler payload weighs 800 lbs.

The sampler was fabricated by Mechanical Specialties Company, Los Angeles, Calif. Sandia's Pattern Shop 4221-4 built a precision full-scale mockup of the sampler out of wood as an aid in the fabrication of the unit.

Several sampler units are being built. It is planned that they will be reusable for several flights.

Pint Sized Biplane Takes Its Builder Into 'Wild Blue'

In this age of jets and rockets, a biplane is a rare sight. For the past two months, a beautiful little blue and white double-winged craft has been rising above Alameda airport to thrill ex-cropdusters, World War I aviators, model builders, and even jet jockeys.

The ship is an experimental home-built biplane constructed and flown by John Reynolds (7212). It passed FAA certification tests Feb. 19 and John has logged about 40 hours in it since.

"It was a tremendous feeling," John said, "when I first took it off the ground. All the work and the thousands of hours of building that went into it faded away."

Dimensions

The plane has a 17-ft. wingspread, is powered by a 75 h.p. Continental engine, weighs 562 lbs. empty, and took three and one-half years to build.

John bought the plans for the "Smith Miniplane" for \$25 in 1959. He turned his garage into a workshop and started building. He had to learn how to weld metal and mould fiberglass in the process. He built the fuselage and tail assembly out of steel tubing, the wings from spruce spars and ribs, and the engine cowling, cockpit seat, leading edges of wings, and control surfaces from fiberglass.

Instruments, wheels, motor, and propeller were purchased. The rest he built from scratch. "It was a slow process," John said. "There are 30 ribs in the wings, and each rib contains 52 individual pieces. I had never worked on an airplane before and had to learn as I went along."

John learned to fly on the GI bill right after World War II and has flown intermittently since, although he never owned his own plane. "Building one seemed a better idea than buying one," he explained.

Wringing Out

John is still "wringing out" the biplane, adjusting the trim, and testing various types of propellers. "It has a good feel," he

says, "and responds quickly to the controls. Rate of climb is about 400 ft. per minute and cruising speed is about 100 mph. I've put it through a series of maneuvers—rolls, spins, dives, loops—and have been well pleased with its performance. I have complete confidence in its stability and structural strength."

Stunt flying was primarily the reason for choosing the double wing design. Biplanes are extremely stable and possess great maneuverability.

In August, John and Lew Longmire (1322), who built a low-wing plane of his own design last year, plan to fly their "home-built" to the annual "Fly-In" of the Experimental Aircraft Association, at Rockford, Ill.



SITTING PRETTY — With white paint and blue stripes, John Reynolds' biplane is a trim beauty. Clean lines and careful craftsmanship are apparent. John learned

Hardening of the Arteries

(Editor's Note: This article is one of a series dealing with diseases of the heart and blood vessels. The next article by Dr. Bliss will discuss heart attacks.)

Atherosclerosis is the most common form of arteriosclerosis, or hardening of the arteries. Atherosclerosis leads to a thickening as well as a hardening of the walls of arteries. The process usually begins with the deposit of fatty material on the inner lining of the arterial wall. As more and more of these deposits are formed and increase in size, they gradually narrow the channel through which the blood flows.

Atherosclerosis may begin to develop at a relatively early age. Many people have it to some degree without troublesome symptoms, and live a normal life span. When symptoms do occur, they usually appear at middle age or later.

The process of atherosclerosis underlies the most serious cardiovascular disorders. Most heart attacks can be traced to atherosclerosis in the arteries that serve the heart muscle. Most strokes are the result of atherosclerosis which has affected arteries delivering blood to the brain. Some blood vessel diseases in the extremities are the result of atherosclerosis in the arteries of the limbs.

Much more research will be needed before scientists will be able to pinpoint the exact causes of atherosclerosis and find ways of preventing and curing it. Among the factors being explored are diet, exercise, stress, heredity, and sex hormones.

to fly on the GI Bill after World War II but had never owned his own plane. He completed building this one in his garage workshop in February. It took 3½ years.

AEC to Make 10 Special Awards at National Science Fair Next Month

Glenn T. Seaborg, Chairman of the Atomic Energy Commission, has announced that the Commission will make special awards to 10 students who enter the most outstanding nuclear-related exhibits in the 14th National Science Fair-International, at Albuquerque next month.

The AEC special awards include certificates and an opportunity for the winners and their science teachers to attend a seven-day "Atomic Energy Research Orientation Week" to be held in August at the Commission's Argonne National Laboratory near Chicago.

Ten alternate winners will also be selected at Albuquerque. Each will receive an honorable mention citation and, if one of the winners is unable to accept his award, may be chosen to replace him on the Argonne study-tour.

Winners of AEC special awards are selected on the basis of (1) scientific excellence of the exhibit content and its relationship to nuclear science, (2) effectiveness of the exhibit in imparting information to the general public, and (3) knowledge of nuclear science displayed by the exhibitor during interviews with the AEC's judges.

The AEC awards were made for the first time at last year's National Science Fair in Seattle, where 80 of the 380 exhibitors displayed projects either devoted to some phase of nuclear science or involving the use of nuclear research tools such as radioisotopes.

At Argonne the winners and their science teachers will be given a firsthand, behind-the-scenes look at nuclear science in action. They will hear Argonne scientists and engineers discuss their work, will study special experimental facilities, and will try their hands at some basic nuclear experiments. Evenings will be spent in round-

table discussions among themselves and with Argonne scientists. Throughout the program, special attention will be devoted to career opportunities provided by nuclear science.

Some 400 winners from more than 200 regional science fairs being held this month will be competing in the national event May 7-11 at Albuquerque. These 400 are the finalists among almost 1,000,000 students who are entering exhibits this spring in local fairs across the nation.

L. A. Wickham Retired Mar. 31

Lewis A. Wickham retired last month after three years with Sandia Laboratory. He was assigned the entire time to Janitor Service Division 4574.



Although he has been in poor health recently, Mr. Wickham plans later to follow his favorite

sports—hunting and fishing. He was 1958 big-bore rifle champion of New Mexico, and says he plans to "bust a few caps with the other shooters" on the rifle range.

Mr. and Mrs. Wickham live at 1317 Boatright NE and have five children. In the fall, they hope to visit their daughter in Washington, D.C. Their other sons and daughters live in Albuquerque.

Mr. Wickham owns 60 acres near North Highway 10, where he enjoys bird hunting, and eventually plans to live.

Free Hearing Tests To Be Offered Here By Hearing Society

"You'd Better Invest in a Hearing Test" will be proclaimed during May as the slogan for National Better Hearing Month.

Free hearing tests will be made available during the month to all city residents by the Albuquerque Hearing Society. The Society, a member agency of the United Community Fund, will operate audiometers in four shopping center locations and also conduct free hearing tests at its headquarters at 1001 Second St., N.W.

Results of the test will be reported to the individual to serve as a guide as to whether he should have a more complete hearing examination.

Mrs. Evelyn Smith, director of the Society, emphasizes the importance of these tests for persons of all ages. Early diagnosis of hearing loss in children provides a greater edge for the success of remedial treatment.

As a UCF agency, the Albuquerque Hearing Society receives part of its support from contributions of Sandia Laboratory employees. Sandians, members of the Employees' Contribution Plan, will provide \$2,328 toward the Society's total UCF budget of \$10,058 this year.

May Events Are Announced for Coronado Club

Coronado Club events for May begin with a special chicken buffet on May 3. Prices for adults, \$1.25; for children, \$1.00. Social hour will be held from 5:30-8:30 p.m.

The Club's annual free cocktail party for Club members will be held May 18 from 6:30-8:00 p.m. A roast beef buffet will be served from 7:00-8:45 for \$1.50. Dancing to the music of the Sand City Jazz Band will be from 9 p.m.-1 a.m.

The Sand City Jazz Band will also provide music for the Club events on May 24. Social hour and dancing will be from 5:30 to 7:30 p.m., and a Mexican buffet will be served. Prices for the buffet: Adults, \$1.25; children, \$1.00.

Labor Relations, Safety, Security --- This Is Industrial Relations



MEETINGS ARE frequently held between E. C. Peterson (left), Labor Relations Department manager, and Carl R. King (3242), president of International Guards Union of America, Local 27. Mr. Peterson also holds discussions with other unions representing Sandia employees.



FLASH POINT of highly volatile liquids is determined by Mina Carnicco (3211) through use of a tag closed cup tester as Safety Engineer J. E. Baylor (3210) looks on. Thermometers indicate heat rise of sample and water bath in cylinder. Proprietary products containing acetone or various alcohols are among liquids tested in container such as this.

Although on the surface there would seem to be little relationship between safety engineering, labor relations, and security, D. S. Tarbox, Director of Security and Industrial Relations 3200, points out that all three of the departments in his organization have an important service function.

"Safety Engineering Department 3210 helps both management and employees to recognize safe working environments and safe work practices," he explained. "Labor Relations Department 3220 helps company representatives and supervisors to be sure that their actions are in accordance with existing labor agreements. Department 3240 helps employees protect their work from the eyes of unauthorized persons and to know the reasons for the security rules, and provides physical protection for Sandia facilities."

The over-all function of Safety Engineering Department 3210 — under the supervision of J. E. Baylor — is as a staff organization to ensure that the company's obligations, objectives, and established regulations pertaining to accident prevention are carried out.

In carrying out its responsibilities, the Safety Engineering Department approaches the job from two directions: it "sells" the employees on the benefits derived from safety, and it assists organizations involved in hazardous operations with the technical aspects of safety through the establishment of Safe Operating Procedures. Direct supervision over these functions is given by D. L. Rost (3211) and R. G. Elsbrock (3211-1).

"This job of 'selling' safety is one of the most important phases of any safety program," Mr. Baylor said. "There are innumerable ways to do it, but the message always has the same general theme: Safety Everywhere... all the time! Off-the-job injuries outnumber on-the-job injuries more than 10 to one. If we are successful in developing safe attitudes, our employees will practice safety both on and off the job."

Safety Stressed
Safety is stressed at all orientation meetings with new employees and is also integrated into all regularly-scheduled training sessions for supervisors.

"At Sandia," Mr. Baylor continued, "we fully realize that people are our most valuable asset, and we try to preserve that asset through the development of an attitude, motivation, or a state of mind that results in safe work habits. We try to emphasize the advantages of safety—such as health, happiness, peace of mind, freedom from pain, freedom from financial losses—as benefits which can be expected from alertness, concern, and watchfulness."

"The promotion of industrial safety is recognized today as primarily a problem of people rather than of machines. While our safety personnel provide guidance to organizations and assist in the establishment and implementation of effective safety policies and work procedures, they are also aware of the important role the individual employee plays in any successful safety program. It is important that he recognizes he has a personal responsibility to perform his work assignments in accordance with safe job procedures."

Mr. Baylor added, "Industrial safety is never a static thing. It must be constantly watched or it will decline. The fight against occupational injuries must never end. As long as men and machines work closely together, some elements of danger will remain. Our job at Sandia is to keep cutting these hazards down."

Mr. Baylor's group works closely with supervisors throughout the Corporation in furnishing information, statistics, and other material suitable for use in the regularly-scheduled safety meetings.

When any on-job injury has occurred, representatives of the Safety Engineering Department investigate the accident along with members of supervision, and take measures to prevent a recurrence.

Give Assistance
Members of the department give assistance to any organization planning testing where explosive, electrical, electronic, or other hazards exist. Building plans, specifications, and procedures for operation are all reviewed with an eye toward having safety engineered into them.

This organization is also responsible for the issuance and physical testing of safety equipment (lineman's gloves, safety glass lenses, hard hats, etc.). To carry out this activity, and to further support its responsibility in control of explosives and flammable materials, a laboratory has been established in Bldg. 857 during the past year. This is in addition to a lab in Area II which can be assigned to a line organization when a new or chem-

ically-hazardous operation is to be performed.

All requisitions for explosives or flammable materials must pass through Safety Engineering for approval before going to the using organization. Some men of the organization have had broad experience in the manufacture, destruction, storage, handling, and machining of explosive materials. A member of the organization is usually assigned to Field Testing for assistance during testing in the Pacific, at Tonopah Test Range, Nevada Test Site, and other field test sites.

Other employees are "on call" to assist with safety problems at modification centers, suppliers' plants, or elsewhere.

Labor Relations Course
Several years ago, members of Labor Relations Department devised a course in Labor Management Relations which was set up with the assistance of the Training organization, 3130. Most supervisors have now attended this four-day course, which is conducted primarily by members of 3220. In the future, the course will be offered once a year for new supervisors. The instruction covers such things as grievance handling, discipline, selection, relationships between supervisors-employees-union officials, history, and the role of government organizations involved in the labor field (National Labor Relations Board, Federal Mediation and Conciliation Service, Atomic Energy Labor Management Relations Panel, etc.).

Advising, Counseling
The trio is charged with advising and counseling supervisors on labor problems and the administration of existing labor agreements; and investigating and preparing material for Sandia Corporation in labor-management proceedings, such as collective bargaining, grievances, arbitration, unfair labor practice charges, and representation cases.

"The major part of our time is devoted to employee-supervisory problems, which are brought to our attention by union officials, supervisors, or even individual employees," Mr. Peterson continued. Only part of these discussions relate to formal grievances. Members of this department also counsel non-represented employees in interpretation of contract rulings, which apply to non-represented and union-represented employees alike. A typical question might involve policy regarding administration of sick leave.

When requested, technical advice or counseling is extended to Livermore Laboratory.

Labor Relations Department members meet with union representatives at least once a week to discuss official grievances or any formal questions.

Sometime after May 7 they will start meeting with union representatives to go over provisions to be included in the forthcoming contracts. The meetings are scheduled at "mutual convenience" and the number of meetings varies from year to year.

"We actually start work on a future agreement as soon as a current contract is signed," Mr. Peterson said. This involves keeping abreast with the latest developments in the field of labor laws, philosophy, and arbitration. The department has a 200-volume library limited to this field and also receives quarterly, monthly, and even daily periodicals of various kinds.

Shipping Channels
Last June the division was given another responsibility: to establish classified mail and shipping channels. These formal and approved government or military channels are continually changed.

In February the AEC decided that Sandia could take over all direct processing of security clearances for Sandia Corporation suppliers, contractors, and Western Electric and Bell Telephone Laboratories employees. The preliminary information is directed to investigative agencies instead of being channeled through the AEC.

Other duties of this division include control of all keys or lock combinations of a security nature, issuance of notices of security infractions, time keeping for the security guard force, providing uniforms and other supplies for the guard force, and maintaining both dry firing range and live ammunition firing range for the use of security inspectors. The work of the division is divided between Access Control Section, D. H. Winner, supervisor, and Administrative Section, headed by N. O. Kent.

In 1960, when security infractions averaged 18 a month, a program was started to increase employees' awareness of their responsibility to Sandia Corporation. This ac-

tion made possible a universal badge system encompassing Sandia Laboratory, Livermore Laboratory, and Tonopah Test Range.

"But an equally time-consuming job is providing access to Sandia Corporation facilities for suppliers and other visitors commensurate with their security clearances and 'need to know,'" said Ralph P. Campbell, Division 3241 supervisor. The "visitor control" desks handle an average of 1000 outgoing requests per month and 950 incoming temporary and permanent visits per month.

There is also an access procedure to be followed when Sandia employees visit other cities or plants where classified matters will be discussed. "If, for example," Mr. Campbell said, "one of our engineers plans to talk on classified matters at a meeting in Washington, we must have a list in advance from the host facility certifying that all the attendees have clearances equal to the security category of the information to be discussed. This may involve getting clearance information on about 40-100 people from 15 or 20 agencies or contractors."

Security Awareness
"International tension and other news events of the day in 1961 and 1962 helped make employees more aware of security precautions," Mr. Wyly said. As a result, changes were made in the program. Aids and reminders were reduced in volume, and briefings were geared for small special groups, such as supervisors, secretaries, messengers, monitors, janitors, and people taking part in overseas tests.

Special treatment was given personnel in buildings showing the largest number of infractions and to departments having difficulty with security procedures; safe-locking demonstrations were given by security guards in each department; and a training film was produced on the subject, "How to Lock the Safes."

The monthly infraction average dropped even further (to 8.6). So far in 1963 the monthly average is down to 6, but the goal of "zero" remains. "We're concentrating now in specific trouble spots while continuing our program of lectures and briefings of consultants and other visitors," Mr. Wyly said. During March a pilot course was conducted on the problem of lost documents.

The other function of this division is emergency planning, which is handled by J. N. Timmons. Initial planning began about five years ago and has been expanded to include such categories as inclement weather, plane crash, evacuation, fire, explosion, and reactor excursion. The plans take into consideration people first, property second, then the protection of classified information. Possible presence of more than one hazard (such as fire and explosion) is recognized, and plans are continually updated.

Mr. Timmons is assisted by a 50-man volunteer emergency squad comprised of Sandia Laboratory employees. Approximately half are specialized in a trade or profession (carpenter, electrician, radio

operator, etc.). The other hand-picked men would be available to control crowds, assist in moving stretchers, etc. The squad is available to handle any unforeseen emergency in addition to carrying out the general emergency plan.

Jay W. Hughes, 3243 division supervisor, points out, "There are no minor mistakes in security. Book-keeping errors can be corrected, but we can never recall or correct a compromise."

"Security is not just a fence, a guard force, safes or vaults, but instead it is a concept—it is a protected condition of classified matter that enables us to maintain our competitive edge in weapon development and helps us protect our valuable lead time," he said.

There are six major areas of concern in Sandia's integrated security program: classification, personnel clearances, control of access to areas and to information, security standard operating procedures, security education and training, and security inspections and surveys.

The Security Standards and Development Division, which is comprised of two sections headed by T. B. Hanna and C. E. Jordan, reviews and interprets AEC Manual Chapters covering Information and Physical Security requirements, develops procedures covering accountability of classified documents, provides security criteria for the protection of material, performs investigations of thefts and security incidents, and periodically audits security procedures to maintain a balance between freedom to accomplish our mission and adequate protection for classified matter.

Members of this division recently conducted a training program for security inspector supervisors to stress the roles security people must play in a successful integrated security program. The theme, observation, time, and action was emphasized by a series of practical learning experiences based upon realistic job situations and problems.

Practically every Sandia Laboratory employee comes in contact with a security inspector at least

twice a day—upon entering and leaving a technical area. Although checking badges is a continuing function, an inspector's duties are by no means limited to this responsibility.

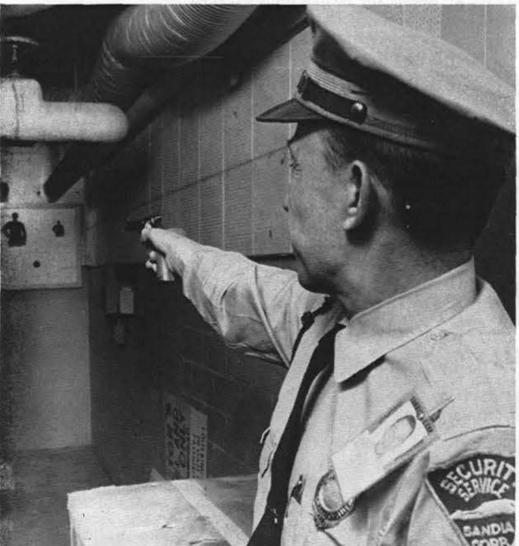
Other Duties
"Outside of normal Corporation working hours, the inspector on patrol becomes even more aware of his many responsibilities," in the opinion of C. A. "Buck" Weaver, who has been supervisor of Patrol Division 3242 since late 1950. "In addition to security hazards such as unlocked safes, there are fire hazards or safety hazards such as icy sidewalks. An inspector must also check equipment which operates unattended through the night," he said. These things, noticed on routine patrol, are reported daily and the information is relayed to other organizations—mainly Plant Engineering, Plant Maintenance, or Transportation and Services Departments—for appropriate action.

Other duties that may be assigned security inspectors include escorting unclassified visitors, construction workers, or shipments within the technical areas, controlling access to exclusion areas, and making sure that employees in certain areas or buildings have film badges.

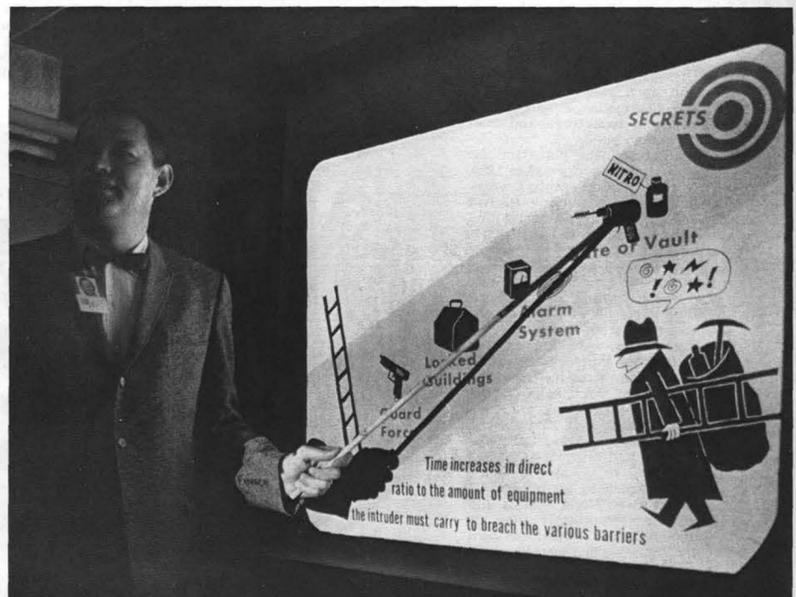
All inspectors have Red Cross first aid training and attend refresher courses at periodic intervals. Inspector Earl Noel and Lt. W. W. Littrell had to administer first aid on a cold, windy night this winter when an injured, incoherent stranger wandered into Sandia Laboratory's Tech Area III. The man had walked three miles on a broken ankle after his private plane crashed west of the area.

The guard force as we know it came into being in September 1950. Previously, military policemen guarded the entire area, and a small group of civilians under Harry Pastorius (now manager of Plant Engineering Department 4540) checked inside the buildings for possible fire hazards. Of the 146 men presently in the Patrol Division, about two-thirds of them have been with this organization more than 10 years.

Practically every Sandia Laboratory employee comes in contact with a security inspector at least



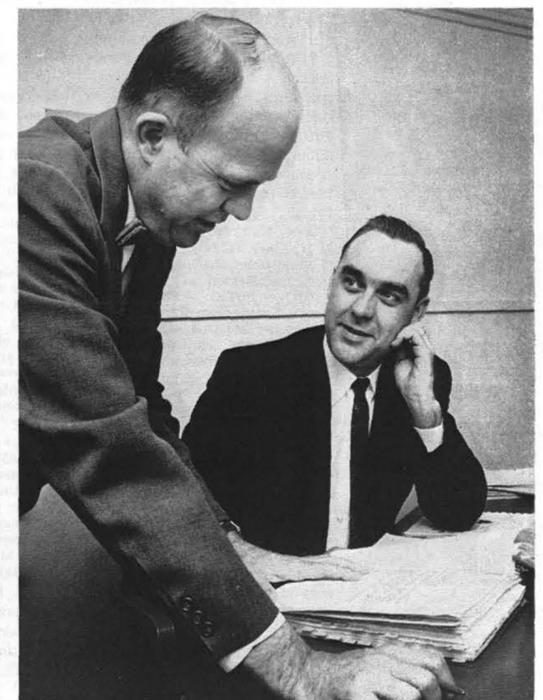
SIGHTING IN on a target in the "dry run range" in the basement of Bldg. 801 is Julian T. Chavez (3242). Silhouettes of different sizes represent images seen from varied distances. A live ammunition range is also available for use by security patrolmen to keep in practice.



AN INTEGRATED SECURITY program is promoted by Security Standards and Development 3243 in six ways. Security education and training, such as this lecture being given by John S. Todd (3243), is one of these ways.



BRAND NEW RED badge, to remind employees working late that they are responsible for an open safe, is shown to D. S. Tarbox (left), Director of Security and Industrial Relations, by Percy Wyly II, 3244 head.



GIVING ADVICE to J. F. Hayes, left, supervisor of Division 3462, and other supervisors is one of the jobs of W. L. Martin, Labor Relations Division. Such advice would include interpretation of Corporation policy on various matters. D. R. Weldon gives similar assistance.

Tech Council Members Prepare For National Science Fair Activities

Preparations for the National Science Fair-International, to be held in Albuquerque May 6-11, are nearing completion. Many Sandia Laboratory employees are participating in preparations for the Fair and in various Fair events.

The New Mexico Council of Scientific and Technical Societies will participate in three phases of the Fair program. C. E. Runyan (4220) and R. F. Kinney are serving as Joint Council coordinators.

Member organizations of the Council will provide guides and counselors in one phase of the Fair—the National Science Education Exhibits—to be presented in the hobby building adjacent to Tingley Coliseum. The following organization members will participate: R. F. Kinney, American Institute of Electrical Engineers; B. B. Asher (4542-3), American

Institute of Industrial Engineers; W. H. Schmidt (5331), American Nuclear Society; E. L. Harley (7118), American Society of Mechanical Engineers; B. W. Bell (7511-2), American Society for Quality Control; Robert Yearout, New Mexico Society of Professional Engineers;

D. H. Emrick (2322-1), Society of Technical Writers and Publishers; D. R. Johnson (1121-3), Society of Nondestructive Testing; and W. M. Sundt (1442) and Floyd Jean, Institute of Electrical and Electronic Engineers. Also participating will be members of the American Society for Metals, the American Welding Society, and the Instrument Society of America. C. E. Runyan is general chairman for this activity.

A second phase of the Tech Council participation involves the National Science Seminar Series. W. C. Kraft (2450) is coordinator for supplying hosts for the seminar speakers. The seminar program includes some 120 presentations at Highland High School.

Sandia speakers participating in the seminars include G. C. Dacey (5000)—who will also serve on the panel of judges for the AEC special awards—D. B. Shuster (7200), E. H. Beckner (5153), D. R. Morrison (5426), L. H. Koopmans (5425), J. A. Schatz (5426), and G. M. Wing (5421). Julius Blum, a former Sandia employee now at the University of New Mexico, will also speak.

A third phase of the Tech Council's participation involves tours of Sandia Laboratory, Los Alamos Scientific Laboratory, and other installations and historical points of interest in New Mexico. Approximately 24 tour guides and alternates will be provided from Tech Council membership.

During tours of Sandia Laboratory, the following Sandians will speak on scientific topics and Sandia facilities: D. H. Anderson (5132), F. L. Vook (5311), C. D. Broyles (5413), and G. W. McClure (5152). In Area III, P. H. Adams, M. R. Madsen, and other 7320 personnel will discuss environmental test facilities.

Safety of the Public Has Always Been Top Priority in Atomic Energy Program

The safety of the public has been uppermost in the minds of people working with atomic energy ever since the days of the Fermi plant in 1942. The concern has resulted in a remarkable record in safe operation. This is another in a series of articles on the first 20 years of the atomic energy program.

Moving the 1942 Fermi plant from the racquets court of the University of Chicago to the Argonne Forest Preserve was dictated in part by safety factors. The enormous radiation produced in the fission process in a nuclear reactor is a hazard which must be controlled.

Even in the necessary haste of wartime development, safety had a top priority. Protection of the public, as well as of workers in nuclear energy plants, still has a top priority and, in addition, now is a statutory responsibility of the Atomic Energy Commission.

A National Academy of Sciences Report in 1956 said: "The use of atomic energy is perhaps one of the few major technological developments of the past 50 years in which careful consideration of the relationship of a new technology to the needs and welfare of human beings has kept pace with its development."

The result is a remarkable safety record in a potentially dangerous industry. The AEC and its contractors have won national awards of the National Safety Council several times. In the 43 categories set up by the Council, the average for all industry is 5.99 injuries per million man hours. Currently, the AEC, including its

contractors, is fifth, with a 2.03 injury rate. Nearly all AEC and AEC contractor employees get insurance at regular rates.

The major purpose of the regulatory functions assigned to the AEC in the 1954 Act is to protect the public from radiation hazards. Through a system of licensing now well developed, the AEC sets safety requirements for the location, testing and operation of reactors, and for the transport, handling and use of nuclear materials. It specifies standards to be followed by licensees using radioisotopes.

The eye-catching domes and spheres that mark the location of a number of large reactors around the country are only a small but obvious part of the many safety requirements designed to protect the public.

In the score of years that reactors have been in operation in the United States, there has been only one serious accident — one that

cost three lives*—and up to date, no serious radiation exposure to the public has occurred.

Commercial insurance pools have been formed to provide public liability protection to the public and to reactor operators and others engaged in nuclear work. Recognizing that a serious accident, however unlikely, could bring valid claims beyond the capacity of private insurance, the Congress in 1957 amended the atomic energy law to provide up to \$500 million for indemnification when the liability exceeds the amount of financial protection required by the AEC.

President Eisenhower launched the Atoms-for-Peace program in 1953. It was his intention that nuclear materials be diverted from weapons stockpiles to civilian uses. The next installment of this series will tell of the success of this program.

*The SL-1 military reactor accident at the National Reactor Testing Station on January 3, 1961.

Service Awards

15 Year Pins



C. M. Vick
7212
Apr. 15, 1948



E. L. Jenkins, Jr.
7254
Apr. 20, 1948



Charles H. Whitmer
4212
Apr. 21, 1948



Donald R. Cotter
9100
May 3, 1948



John S. Maxon
2414
May 3, 1948



James P. Seay
4320
May 3, 1948



Marvin H. Brown
3242
May 6, 1948



Willie A. Montoya
4513
May 6, 1948



Thomas W. Taylor
7214
May 7, 1948



Harry H. Pastorius
4540
May 10, 1948



Tony C. Garcia
4623
May 12, 1948

10 Year Pins

Apr. 27-May 12

John J. Bahlman 4413, Kenneth J. Bennett 8214, William D. Harwood 7523, C. D. Ramirez 3453, Ruth M. Simpson 3450, Frank L. Keene 2641, Doris M. Welch 3441.

Thaddeus R. Blaz 4413, Thomas R. Stevenson 7251, John E. Haaland 2313, Gilbert B. Lener 4541, Hugh E. Sherman 4224, M. E. Therklidson 3151, John L. Wheeler 3151, Ralph R. Wynant 2621, and Clifford A. Blossom 2643.

Welcome Newcomers

Apr. 8-19

Albuquerque	
Ann M. Elniff	3126
Arthur J. Jacobs	4574
Juan R. Marquez	4574
Luis G. Mora	4574
Barbara B. Rogers	3452
Jose P. Sanchez	4574
Mary E. Swaim	3452
Kansas	
Ronald D. Andreas, Lawrence	2421
Minnesota	
Otmar M. Stuetzer, Minneapolis	5136
North Carolina	
J. Ellis Heustess, Clarkson	4411
Virginia	
John W. Grau, Norfolk	4412

Sandia Speakers

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

C. A. Hall (1124), "The Ferroelectric-Antiferroelectric Transition and Dielectric Properties in the Ternary System $PbZrO_3-PbHfO_3-PbTiO_3$," American Ceramic Society Spring Meeting, Apr. 28-May 1, Pittsburgh, Pa. Co-author is R. L. Cook, University of Illinois.

C. A. Hall, R. H. Dungan, and A. H. Stark (1124), "Investigation of Solid Solutions in the Antiferroelectric Region of the System $PbHfO_3 - PbTiO_3 - PbSnO_3 - PbNb_2O_6$," American Ceramic Society Spring Meeting, Apr. 28-May 1, Pittsburgh, Pa. Mr. Dungan will make the presentation.

G. H. Haertling (5132), "Physical and Electrical Properties of Hot-Pressed Ceramics," American Ceramic Society Spring Meeting, Apr. 28-May 1, Pittsburgh, Pa.

J. W. Easley (5300), "Radiation Damage in Semiconductor Devices," 1963 Institute of Electrical and Electronic Engineers International Convention, Mar. 27, New York City.

C. E. Land (5132), "Measurement of the Polarization Dependence of the Small Signal Properties of Ferroelectric Ceramics," 28th Annual meeting, American Association for the Advancement of Science, Southwestern and Rocky Mountain Division, Apr. 28-May 2, Albuquerque.

L. B. Plumlee (3133), "Estimating Means and Standard Deviations from Partial Data—An Empirical Check on Lord's Item Sampling Technique," American

Association for the Advancement of Science, Apr. 28-May 2, Albuquerque.

R. E. Plumlee (5132), "Electrokinetic Properties of Ferroelectric and Electromorphic Lead-Zirconate-Titanate-Stannate Solid Solutions," American Association for the Advancement of Science, Apr. 28-May 2, Albuquerque.

R. H. Plumlee and W. D. McLachlan (both 5132), "Pulse Techniques for Measurement of Electrokinetic Properties of Polycrystalline Ferroelectric Compositions," American Association for the Advancement of Science, Apr. 28-May 2, Albuquerque. Mr. Plumlee will make the presentation.

W. J. Whitfield (2564), "The Design of a Dust-Controlled Clean Bench and Hood Utilizing Laminar Air Flow," American Association of Contamination Control, May 1, Boston, Mass.

S. E. Harrison (5322), F. N. Coppage (5322), and A. W. Snyder (5320), "Gamma-Ray and Neutron-Induced Conductivity in Insulating Materials," Electro-Nuclear Conference, sponsored by the American Institute of Electrical Engineers, Apr. 29-30, Richland, Wash. Mr. Harrison will make the presentation.

E. S. Roth (2564), "The Phantom Gage," 31st ASTM Annual Engineering Conference and Tool Exposition, Apr. 29-May 3, Chicago, Ill.

A. D. Swain (1443-2), "Human Factors Associated with Prescribed Action Links," Military Operations Symposium, Apr. 20-May 2, U. S. Naval Academy, Annapolis, Md.

Supervisory Appointments

ROBERT V. NORVILL to supervisor of Position Evaluation and Classification Division 3112, Wage and Salary Administration Department.



Bob has been with Sandia since 1954 and has been a section supervisor for nearly six years. His work has been in job evaluation, industrial engineering, and organization engineering.

Prior to coming to Albuquerque he taught mathematics and business administration for two years at Midwestern University in Wichita Falls, Tex.

He also worked for Cable Engineering Company in Wichita Falls in property evaluation, for the 3-M Company in South Texas as a sales engineer, and was a buyer for The Emporium in San Francisco for two years.

Bob received a Bachelor's degree in engineering from the University of Oklahoma and a Master's in business administration from Stanford University. He is a member of the American Institute of Industrial Engineers.

For three years he served in the Air Force.

KENNETH J. SHUMWAY to supervisor of Analysis and Engineering Release Change Section 4431-3, Design Information Integrating Division.



"Ken" first came to Sandia in 1954, terminated after two years, then returned two years later. He has been assigned to Specialties and Special Assignments Division 2543, Quality Control Division II, 2563, and for the past year has been a member of the Paperware Task Group (attached to Division 4111).

During the two years he was away from Sandia, Ken was in engineering sales work in Phoenix, Ariz.

He holds a BS degree in electrical engineering from the University of Utah and is a member of the Institute of Electrical and Electronic Engineers.

Ken served three years in the Air Force.

OTTO H. SCHREIBER to supervisor of newly-created Section 8142-3, Preliminary Design Department, Livermore Laboratory.



Otto has been working in Reliability Department 1440 since he was hired by Sandia in August 1957.

Immediately prior he was attending the University of Florida, where he was graduated with a BS degree in electrical engineering. He was a member of Sigma Tau and Phi Kappa Phi, honorary societies.

Otto served four years in the Navy.

EARL R. WANGERIN to supervisor of Fiscal Methods Section II, 4113-2, Administration Systems and Procedures Division.



Earl has worked with both Systems and Procedures Department and Auditing Department since coming to Sandia more than three years ago.

Previously he worked a year as an auditor for El Paso Natural Gas Co., more than five years as a controller for a small manufacturing company in Rochester, Minn., and five years for Pillsbury Mills in Minneapolis in accounting, auditing, and the treasurer's office.

Earl has a Bachelor's degree in business administration from the University of Minnesota.

ECP Distributes \$63,110 to Member Agencies This Year

Members of the Employees' Contribution Plan have contributed \$63,110 to the 25 participating agencies of the United Community Fund and nine other health and welfare agencies since December. As the March checks — totaling \$13,217—were mailed, the following distribution had been made:

	March	Year to Date
United Community Fund	\$10,312	\$48,474
American Cancer Society	661	3,242
Bernalillo County Heart Association	542	2,616
Arthritis and Rheumatism Foundation	211	1,013
Albuquerque Association for Mental Health	132	622
N. Mex. Society for Crippled Children and Adults	528	2,471
National Multiple Sclerosis Society	92	462
Albuquerque Association for Retarded Children	198	988
Cerebral Palsy Association of Bernalillo County	277	1,311
Muscular Dystrophy Association of America	132	617

Sandia Employees May Join Cut-Rate Tour

Four Sandians have already signed on for a special vacation trip to Europe sponsored by the Radiation Lab Recreation Association (RLRA) of the University of California. Under the plan, vacationers will spend over three weeks in Europe for a reduced package price of \$999. The price includes transportation, meals, accommodations, and incidental costs.

The vacationers will leave from the San Francisco airport for Europe on Sept. 21 and return

Oct. 18. They will visit Copenhagen, London, Belgium, Holland, Germany, Switzerland, Austria, Italy, Paris, the French Riviera, and other famous scenic locations.

The trip is open to all Sandia Corporation and Lawrence Radiation Laboratory employees and their immediate families. However, a maximum of 130 people can be accepted. The deadline for sign-ups is July 15.

Livermore Laboratory employees now signed up for the trip are

Matt Connors (8213-1), Pat Hinrichsen (8233-2), Irmal Brown (8116-2), and Ferne Saylor (8161-1).

Sandia Laboratory employees interested in joining the tour or obtaining additional information may write Madelon Schubert, University of California Lawrence Radiation Laboratory, Bldg. 7, Room 108, Berkeley, Calif.

All passengers must meet the flight at San Francisco.

Meet your reporter

Barbara Vandenberg Uses Skills of Radio Operator to Good Advantage

Barbara M. Vandenberg has been a volunteer Lab News reporter for only a year; however, she has been at Sandia Laboratory for six years. Her first job at Sandia was in the technical library (3421-1), and after several transfers, she has returned to that organization as a receiving and expediting clerk.

Both Barbara and her husband, Paul (who works in 7312), are licensed radio amateurs. They are



members of the Radio Amateur Civil emergency Service (RACES) and the VHF Club.

Barbara has bowled five years in the Coronado Club's Jewelle League and will be president of that group for the 1963-64 season.

Bowling

Sandia Laboratory Mixed Handicap Summer Bowling League play starts May 16 at 6:30 p.m. at the Holiday Bowl. Eleven weeks of competition are scheduled. Openings exist for seven couples. Anyone interested may contact J. E. Sieglitz (4516), ext. 43131, or N. R. Carpenter (1413), ext. 22140.

coronado club



April 26 - May 11

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28 Family Night "The Far Horizons"	29 Duplicate Bridge 7:30	30 Adult Dance Instruction Basic 7:00 Advanced 8:30	1 Game Night 8 p.m.	2 Bossa Nova, Mambo Merengue Instr. 8 p.m. Sandia Open Pairs Tournament Third Session 7:30 p.m.	26 Social Hour—4:45-7:30 Combo Mexican Buffet \$1.25 Adults \$1.00 Children	27 ACF Union #794 Dance—9:00-1:00 Bowling Night Men and Women Films 7:30 Free Beer & Snacks
5 Get Acquainted Bridge 7 p.m.	6 Adult Dance Instruction Basic 7:00 p.m. Advanced 9:30 p.m.	7 Ladies Bridge 1:15 p.m.	8 BossaNova, Mambo Merengue Instr. 8:00 p.m.	9 Social Hour—4:45-7:30 Combo—5:30-7:30 Regular Buffet Adults \$1.95 Children \$1.40	10 Sanado Spring Formal Cocktails 6:00 Dinner 7:00 Dancing 9-1	11 Dancing—9-1 No Charge LaGranada Room No Food Served

EVENTS

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

'59 CHEV. Impala convertible, white w/ red interior, 438 motor, PS, automatic shift. Stiver, AM 8-5170.

3 ACRES in NE Valley, 6 miles from Central Ave. Smith, DI 4-3956.

SCHWINN RACER bicycle, boy's, \$25. Warden, AL 5-0557.

26" BOY'S Schwinn Tornado bicycle, thorn-proof tubes, new tires, \$20. Houghton, AX 9-3386.

3 BDR Bellamah, \$14,500, corner lot, carpeting, a/c, wall, GI loan, 3 1/2 years old. Ahr, AM 5-0653.

ONE BUCK RABBIT, eight months old, good strain, choice of black or white, \$5. Breitenbach, 268-7900.

TORO POWER MOWER, reel type, Sport-lawn model, 21" blade, grass catcher. Besser, AM 8-5194 after 5 p.m.

TENT, 9x12, umbrella, w/floor, all poles, ropes, pegs, two windows, used one season, \$35. Bagg, 298-1088.

'51 PLYMOUTH 4-dr., \$200 cash. Young, AL 6-0272.

THREE-PIECE living room suite, plastic and fabric covered; three matching plastic top tables. Milligan, AM 5-0350.

21" ADMIRAL television on wheeled stand, just over-hauled, \$60 or will trade. Miller, AM 8-3240.

GUITAR complete w/instruction book, \$12; Eljer bathroom lavatory, complete w/trim, \$15. Schneider, AX 9-6243.

'57 PLYMOUTH V-8, 4-dr., R&H, auto. trans., will consider trade, \$475. Gregory, AL 5-8066.

'57 CHEVROLET 2-dr. station wagon, standard transmission w/OD, 2-tone, heater, a/c, owner, no trades, \$795. Clark, AL 5-5747.

'60 CUSHMAN EAGLE scooter, w/extras, \$245. Schafer, 3637 Georgia NE, 299-4634 after 5.

20" WINDOW COOLER, Hallmark, thermostatically controlled, \$45. Risk, 298-4617.

ZEISS CONTAFLEX, single lens reflex 35 mm, F 2.8 lens, built-in meter, range finder, case, flash, 4 close-up lenses, wide angle, tripod, \$120. Wagoner, AX 9-6801.

T-BAR CLOTHES-LINE poles (Sears Cat. P-1204) pair \$5 w/lines; trade 30" gas range for small concrete mixer. Banks, AL 5-2544.

FORMICA DINETTE SET, table 36x48x60, four matching chairs, grey w/chrome trim. Sundberg, AX 9-2177.

800-WATT transmitter and misc. ham radio parts and equipment. Durham, AL 6-6284.

HOTPOINT automatic washer, \$50. Hopkins, AM 8-0885.

UMBRELLA TENT, 9x9, sewn-in floor, corner poles, sheets 3.4, \$20. Stark, 1334 Marron Cir. NE, 299-5953.

4-BDR. MOSSMAN Riviera, corner lot, sprinklers front and back, double garage, a/c, \$22,500. Fairbanks, AX 8-0953.

UTILITY TRAILER, needs new bed, \$5. Oberst, AX 9-1224.

RADIO-PHONO combination, AM-FM radio w/Garrard changer, \$20; steel twin bed frames, \$5; kerosene lantern, \$5; 12-volt evap. type car cooler, \$15. Shadel, 299-5537.

ENGINE, 7.5 HP, Cushman Husky, Mod. 24M9-53, new carb., \$30. Boxx, AX 9-2855.

NEW FINE ARTS CHINA, four-place settings, and three-piece Royal Splendor setting. MacGibbon, 268-9134 after 6 p.m.

QUICKCAMPER TRAILER, set up in 4 minutes, sleeps 6, new mattresses plywood box and top, \$350 cash, \$350 terms. Stamm, DI 4-7431.

UPRIGHT PIANO, \$80. Perea, AM 5-0861.

CRIB w/mattress, Sears, \$15. Stevens, AX 9-6086.

'54 FORD 2-dr., \$225; Toro 18" reel type power mower, 1 yr. old, \$60. Snyder, AX 9-0110.

USED 21" GE console TV, mahogany cabinet. Peterson, 298-4097.

NEW SEARS 12-volt battery for Ford or Mercury, 2 yr. guarantee, \$12. Perdew, 299-0705 after 5 p.m.

BOAT TRAILER, 16 ft. Goldenrod, 8x4:00 tires; 4400 cfm cooler; 3/4 ton Admiral air conditioner, 220 volts. Williams, 298-4602 after 5.

MUST SACRIFICE, Acrosonic Baldwin piano, ebony finish, \$550. Sanchez, AX 9-1677 after 5 p.m.

COFFEE TABLE, two matching end tables, mahogany finish, Pembroke style. Gamberale, 268-8903.

KEYSTONE 8 mm camera with type A conversion filter and auxiliary lenses, \$25; Viking 75 tape deck with RP 61 preamp, \$70. Reinman, AL 6-9737.

4 BDR, 1 3/4 bath, dbl garage, 26' living room, separate dining room, over 2000 sq. ft., w/carpeting, AC, electric kitchen, at appraisal \$17,500. Bassett, 10320 Apache NE, 299-5685.

BOSTON TERRIER puppies, AKC registered, good markings, one female, two males, seven weeks old. White, CH 2-3519.

KENMORE WASHER, Kodak 8 mm movie projector. Osterby, AX 9-4606.

'47 CHRYSLER 6-cyl., 4-dr., Windsor, runs good, \$85. Halliacker receiver, \$40. Atkinson, 299-3250.

NORGE AUTOMATIC clothes washer, \$40. Treadwell, AL 6-3018.

SORREL MARE saddle horse and brown gelding kid's horse. Taylor, AL 6-3774.

MOTORS: 1/8 hp, \$4; 1/4 hp \$5; Sears sofa bed, \$30. Pitti, 836 Georgia SE, AL 6-1629.

KENMORE WASHER, \$25. Syroid, AX 9-8256.

3-BDR Mankin, NE Heights, near Bases, hw floors, sprinklers, AC, patio, FHA loan. Tanaka, 345 Glorietta NE, AX 8-0489 evenings or weekends.

GENTLE MARE, 11 years old, reins very well, \$125. Ortega, CH 2-1587.

LONE STAR boat, motor and trailer, \$350; saddle mare, \$200. Morrison, TR 7-3656 after 6 p.m.

'55 PONTIAC 2-dr. hardtop, R&H, ww. Wilson, AX 8-0049.

MERCURY OUTBOARD motor, 5 hp; drop-leaf typewriter table, \$5; Bissell carpet sweeper, \$5. Newman, AL 6-2395.

FOX TERRIER puppies, black and white, seven weeks old. Adams, 256-6691.

NEXT DEADLINE

FOR SHOPPING CENTER ADS

Friday Noon, May 3

'55 OLDS 88 4-dr. hardtop, PS, PB, Hydramatic, original owner, \$445. Mooney, AX 9-3618.

'55 MGTF, wire wheels, fiberglass top, \$900. Scott, AM 8-7573 after 5 p.m.

PADLOCKS, No. 1 Master, keyed-alike, \$1.25 each or eight for \$8. Stuart, AX 9-9190.

'55 PLYMOUTH Belvedere, 4-dr., \$395. Balok, AX 9-4394 after 5 p.m.

CHIHUAHUA puppy, male, AKC registered, five months old, \$35. Roberts, AX 8-2124.

NO QUALIFYING, 3-bdr, 2 baths, built-ins, drapes, carpeting, AC, landscaped, sprinklers, walled, near base, shopping, schools. Booth, 298-2107.

BEDROOM furniture, light solid oak, Shoemaker, AL 5-8820.

HALF-ARABIAN yearling registered filly. Placed in the ribbons in large halter class at New Mexico State Fair. \$250. Redlinger, AX 8-1116.

GAS RANGE, 40" with Dutch oven and deep well. McCoach, 298-5960.

TRANSMITTER, B&W 5100B XMTR, 140 watts fone, 180 watts CW, \$150. Martinez, AL 6-7395 after 5:30 p.m.

DOBERMAN PINSCHER, female, two months old, black and tan, pedigreed. Cundiff, 256-0043 after 5 p.m.

EVAPORATIVE AIR cooler for automobile, 6 volts, sits on floor of car, \$20. Weber, AX 9-1389.

PACKARD BELL radio-phonograph, blond table model, \$50 or best offer. Grady, DI 4-6407 or AX 9-0396 after 5 p.m.

HI-FI SYSTEM, University, Karlson, Garrard and Heath components, call for details. Schuster, AX 9-1072.

INEZ BRICK, below appraisal, no qualifying, \$1100 to present loan. 3-BDRS, carpet, drapes, dishwasher, sprinklers, landscaped, large patio. Scott, 7722 Leah NE.

STATION WAGON, '56 Dodge V-8, 41,000 miles, \$475. Kever, 1501 Glorietta St. NE, AX 9-1334.

BOY'S BICYCLE 20", \$10; Royal upright vacuum with attachments, \$15. Haskins, AX 8-1997.

STEEL FRAME, non-opening window, 4'5" x 3'2", 9 panes, \$6. Freund, AX 9-3716.

'52 FORD, 2-dr., R&H, automatic transmission. Davis, 321 General Hodges, NE.

'56 PLYMOUTH Belvedere 2-dr. hardtop, powerflite, 6-cyl., one owner, priced below book. Akerstrom, BU 2-3162.

12' FIBREGLASS fishing boat w/running lights, \$145; 30 cal. carbine w/sling, extra clips and ammo, \$65. Benson, AM 8-3586.

'58 FORD Country Sedan station wagon, under list price, Church, 256-3960.

'55 CUSHMAN Eagle, \$75. Bryant, AX 9-8315.

ZUNDOPP BELLA scooter, 150cc, 4-speeds, double seat, 3400 miles. Corll, 268-2746.

'61 FALCON 2-dr. with R&H, standard transmission, seat belts, 11,000 miles, \$1250. Schnetz, CH 3-6574.

12 VOLT automobile evaporative cooler with pump and blower. Used only once, \$35. Astorga, DI 4-2844.

TORO ROTARY never-fail-type 18" mower, \$25. Sutton, 2616 Vermont NE, AX 9-0384.

ALL METAL, fully-enclosed, one wheel trailer, fine for transporting camping gear. Ernst, 268-9414.

SNOW 3-BDR, AC, attached garage, walled, carpets, \$350 down, approx, \$80 per month, total \$11,250. Ray, 2412 Elizabeth NE, AX 9-4302.

'60 FALCON, 2-dr., stick, new tires. Griffith, AX 9-4769.

HI-CHAIR; mahogany dining set; kitchen table, chairs; table, floor lamps; 21" TV; hand lawnmower; coffee table; misc. items. Anderson, AX 9-2232.

MOSSMAN 3-BDR, hw/floors, fireplace, AC, landscaped, near schools, ceramic tile bath, patio, garage, \$13,300. Barbo, 1101 Field Dr., AX 9-5832.

HEATH VTVM model V-7A, \$15. Allen, AX 9-9075.

TAPE RECORDER, Webcor Royal Coronet; tent can attach to station wagon; 24" jig saw and stand. Goss, 299-3093 starting Monday.

6 VOLT car radio, Motorola, manual tuning, \$6. Martin, AM 8-5464.

SELL OR RENT: 4-bdr. house, a/c, near schools, bases, shopping centers. Minter, AL 6-9225 after 5 p.m.

BOY'S 24" bike, needs paint, \$15 or trade for girl's 24" bike. Merillat, CH 2-4873.

LEICA IIIIF with red synco dial, new Elmar lens, recently factory reconditioned. Cobb, AX 9-1995.

TWO-WHEEL hauling trailer, metal frame, springs, 42x72" wooden bed w/bumper hitch, \$50. Barber, 299-4287.

NO DOWN GI, \$350 down FHA, 3-bdr. attached garage, walled yard, landscaped, carpet, a/c, at appraisal. Higgins, AX 9-4302.

'62 T-BIRD, all power and a/c, \$130 below March NADA book value. Chandler, 298-5069.

'54 HARLEY DAVIDSON 74, new tires, chain, battery, lights, saddle bags, buddy seat, helmets, \$375. Robnett, AX 9-9192.

AUTOMATIC WASHER, Deluxe Westinghouse. Bliss, 255-7980.

'55 FORD 9-passenger station wagon, V-8, standard transmission, by owner, 7016 Bellrose Ave. NE. Bruce, AX 8-2173.

RCA STEREO, separate 12-watt amplifier, new diamond stylus, \$125; chest of drawers, \$20. Butler, AX 9-5626.

'59 GM 1/2-ton pickup, 3-speed, heater. Morrison, ext. 33207.

FREE, jet black kittens, long hair, 6 wks. old, housebroken, looking for good homes. Swain, 265-0098.

HAM RECEIVER Hammarlund HQ-110C, 160 thru 6 meters, \$175; Morrow 3-BR-1 mobile converter, 80, 20, and 10 meters, \$25, both for \$185. Dawirs, AX 9-3039.

'59 RAMBLER Classic, 4-dr., 6-cyl., OD, ww, R&H, recl. seats, 30,000 miles, 1837 Gretha NE. Bytheway, 299-2791.

GATELEG TABLE; dressing table, mirror; chaise longue; double box spring, mattress; revolving desk chair; high-backed chair, 6' steel casement window. Wallis, 255-2935.

'57 FORD V-8, 4-dr., Fairlane, automatic transmission, tinted glass, one owner. Smith, 268-2141.

'53 FORD WAGON, R&H, OD, \$145; electric dryer, \$30; cartop sleeper, sleeps 2, \$25; 5 1/2 HP outboard, \$30. Hassia, 298-1455.

'55 FORD 4-dr. V-8, stick transmission. Boettcher, AX 8-2578.

RAYON CARPETS, beige, 9x12 and 12x15, used, the pair \$25; 6-yr. crib without mattress, needs paint, \$4. Driver, 256-7941.

3-BDR, den, 1 3/4 bath, carpeted, draped, patio cover, landscaped, by owner, 817 Truman NE. Peterson, AL 6-7514.

APT. Size gas range. Sayers, 244-8597 after 5 p.m.

POWER MOWER, Craftsman 18" reel type, \$30; Admiral 21" TV, \$40; Kenmore washer, overhauled six months ago. Nelson, 247-1072.

'58 RAMBLER V-8, 4-dr. custom sedan, standard transmission with OD, \$700. Holmes, AX 9-4167.

'55 PONTIAC hardtop, power brakes, radio, Hydromatic, 1956 engine, clean. Cericola, 10012 Mesa Arriba NE, AX 8-2426.

DOUBLE BED, springs, mattress, \$20. Hansen, DI 4-8985.

JEWELER'S LATHE; Argus C-3 35mm camera. Iverson, 298-1936.

FOR RENT

DUPLEX, stove and refrigerator, near base, garbage and water paid, 417 Rhode Island SE, \$50/mo. Saavedra, 268-6945.

3-BDR HOUSE, five minutes from either base, near Holy Ghost, Wilson Jr. Hi, and Emerson schools, SE. McCoy, AX 8-0193 after 5.

SANDIA MT. COTTAGE, modern furnished, insulated, suitable for 1 or 2, 25 minutes from base, water and gas paid, \$45/mo. McMillen, BU 2-3226.

NEW 2-BDR. duplex, carpeted, lots of storage, convenient location, \$90/mo., water paid. Potts, 10206 Candelaria NE after 5 p.m.

SUMMER RENTALS, mountain cabin and or horse pasturage. McKinley, AM 8-4779.

FURNISHED SLEEPING ROOM, \$30/mo., 318 Oak St. SE. Nogales, 1100 Silver SE, CH 7-1178.

WANTED

HOMES FOR KITTENS. Osterby, AX 9-4606.

MEMBERS for car pool vicinity of Baldwin and Morris NE. Walters, AX 9-2866 or McKinney, AX 9-2481.

RIDE from 4416 Douglas MacArthur NE to Bldg. 800. Kamm, DI 4-0314.

RIDE, daily, 1004 Madeira SE to Bldg. 836. Davis, 265-4882.

GOOD HOME for small black young male dog, cocker cross, good watchdog, friendly, likes children. Matlack, AL 6-7371 after 5, or AL 6-0694.

TO BUY old issues of Model Airplane News magazine. Breitenbach, 268-7900.

USED rowboat or canoe. Wallis, 255-2939.

HOMES FOR housebroken, intelligent kittens, from long line of character-cats. Johnson, AL 5-8851.

BOY SCOUT field book. Arning, AL 6-9229.

WISH TO JOIN or start car pool, 9708 Aztec Rd. NE, Candelaria and Eubank. Ellison, 298-2978.

SMALL OUTDOOR PLAYHOUSE. Luna, AX 9-2488.

LOST AND FOUND

LOST—10-yr. SC pin, prescription metal frame glasses in brown case, safety sun glasses, brown to tan silk scarf, book on war heros, 5 keys on plastic chain, metal pipe, reading glasses, key on red tag. LOST AND FOUND, ext. 29157.

FOUND—Black fur-lined gloves. LOST AND FOUND, ext. 29157.

Polo Players Wear Stetsons

Lloyd Rutledge (4613-2) knows horses. He's been around them for as long as he can remember. He was born 53 years ago.

"I was raised near Springer, in Colfax County, New Mexico," he says. "My folks were dry-land farmers; we raised cattle and feed crops. Growing up on a ranch, a person would find it hard not to be interested in animals, especially horses. I'm no exception."

Eight years ago Lloyd took an interest in polo. "It wasn't the kind you generally see played in Florida and the East, though," he says. "It was played with similar ground rules, but with some other differences. The players rode in western saddles, and they wore chaps padded with foam rubber. They used mallets with fiberglass handles and hard rubber heads, and their polo ball was 12 to 13 inches in diameter. Instead of the white helmet of the eastern polo player, they wore the western Stetson with a rolled brim."

The game was played by stockmen, ranchers, and others interested in horses, and it became known as "cowboy polo." "It's becoming popular rapidly," Lloyd says. "A National Cowboy Polo Association has been formed; there are several ladies' teams; and this fall, a world's championship cowboy polo tournament will be played in Lubbock, Tex., over the Labor Day weekend."

Another Sandian, Art Menapace (4613-1) plays on the same team as Lloyd. Art has been playing for three years. Lloyd's son, Bob, aged 16, is also an avid player. There's no age limit for players; some of the best are in their teens.

"The horses are best started at cowboy polo when they're between six and ten years old," Lloyd continues. "It seems to take them that long to gain the 'background experience' to be good polo ponies. And after they've played for a while, they get very fond of the game; they sometimes seem to know the rules better than their riders."

Quarter horses are most widely used, although no special breed is recommended. The age of a horse doesn't necessarily affect its performance. Some of the outstanding horses being used today

are in their teens and twenties.

Cowboy polo is played with two teams of five players each. Each team has one player in each of five zones on the playing field. Play is limited to four 15-minute "chukkers," with a four-minute rest at the end of each chukker and a nine-minute rest at half-time. Teams change goals at the end of each chukker.

The ball is placed on a center line, and, at a referee's signal, two opposing "center" players ride for the ball and attempt to drive it toward the opponent's goal. When the ball is driven from the center zone, possession is taken by the players in the zone in which the ball is driven, and in turns, these players try to drive the ball toward their respective goal lines for a scoring tally.

Lloyd, Art, and Bob are mem-

bers of the Albuquerque Polo Team, a group made up of residents of the Albuquerque vicinity. The team members pay all of their own expenses, including those for tournament trips.

On Feb. 23 and 24, the team won first place at an invitational tournament held in Las Cruces, N. Mex., and on Mar. 30-31 they won first place at an invitational tournament in Tucson, Ariz. Last fall, the team journeyed to San Angelo, Tex., for the National Cowboy Polo Tournament, where they took fourth place.

On June 1 and 2, the team will play at an invitational tourney in Albuquerque. "It'll be a good time for anyone who's interested to come around and see what the game is all about," Lloyd concludes.



COWBOY POLO player R. L. Rutledge (4613-2) displays some of the trophies his team, the Albuquerque Polo Team, has won in recent years. At left is New Mexico State Cowboy Polo Championship trophy for 1962; at center, the Cowboy Polo Association's traveling trophy, 1961; and at right, the Tucson "A" Championship trophy presented in 1963.

Sandia Papers To Be Presented At DASA Radiation Effects Symposium

Several Sandians are expected to participate in the Transient Radiation Effects on Electronics (TREE) Symposium, sponsored by the Defense Atomic Support Agency, Apr. 29-May 3 in Bethesda, Md.

The first two days of the symposium will consist of reading 15 invited papers on selected subjects to help provide basic information on radiation environments and effects required for appreciation of current investigations of transient radiation effects on electronics.

This group of papers will include the following: "Pulsed Radiation Sources for Studies of Radiation Effects in Electronics" by A. W. Snyder (5320); "Capacitor Response to Transient Radiation" by F. N. Coppage (5322); "Mechanisms of Radiation Effects — Dis-

placement or 'Discomposition' Effects" by J. W. Easley (5300); "Diode and Transistor Transient Response to Ionizing Radiation" by S. C. Rogers (5321); "Typical Circuit Effects" by Fred Gross (9130); and "Radiation Environment" and "Comparison of Weapon-Generated Environments and Shielding Effects" by C. R. Mehl (5411) and C. D. Broyles (5413).

The remainder of the symposium will be devoted to providing current information through presentation of contributed papers covering various facets of TREE research.

J. L. Wirth (5321) will present a paper entitled "The Effect of Electric Fields on Secondary Photoconductivity in Transistors" during this part of the program.

R. H. Schultz Named to Head ECP Committee

New committee officers for the Sandia Laboratory Employees' Contribution Plan committee were appointed Apr. 3. Effective Apr. 1, R. H. Schultz, manager of Environmental Research and Operations Department 7320, assumed the duties of committee chairman, and R. W. DeVore, manager of Systems Programming and Administration Department 2630, assumed duties of deputy chairman.

W. R. Rosenburg, Assistant Purchasing Agent, Commercial Department 4360, leaves the committee after several years service, and is replaced by J. W. Hook, manager of Systems and Procedures Department 4110 and former chairman of the committee. Mrs. Betty McKinstry (3462) has been named by the Metal Trades Council to serve as its representative on the committee.

Other committee members include J. C. L. Leslie (3433-1), committee secretary; M. D. Tucker (4131-1), committee treasurer; C. King (3242); Mrs. M. G. Mayes (1314); M. J. Sektan (3121-2); C. W. Allen (2313-1); R. D. Golding (1124-2); Mrs. J. M. Sharp (4423-2); and G. C. Wayland (3433-1), ECP coordinator.

Seeking Funds For Expanding School's Facilities

The College of St. Joseph on the Rio Grande is currently conducting a \$750,000 fund drive to expand the facilities of the liberal arts educational institution.

Serving New Mexico since 1920, the fully accredited coeducational college currently has an enrollment of 510 in a full curriculum of liberal arts and vocational courses at the undergraduate level and in education at the graduate level.

Expansion plans call for a new library, student union and cafeteria, faculty residence, and faculty administration building. The college expects an enrollment of 1000 by 1972.

Construction of the administration and library buildings will increase available classroom space by 3100 sq. ft. in present buildings.

Gifts to the building fund should be made to the College of St. Joseph Building Fund, Room 234, 610 Gold Avenue SW, Albuquerque. Senator Clinton P. Anderson is Honorary Chairman of the fund drive.

Do You Know?

About 18 per cent of the Health Care Plan's benefits are paid for (non-maternity) surgical charges. In a recent 12-month period, persons covered by the plan underwent 3,163 operations. Some of the more frequent surgical procedures were:

Procedure	Number
Tonsillectomy and Adenoidectomy	236
Hysterectomy & Non-Maternity Dilatation & Curettage	125
Lacerations of Face, Neck or Trunk	81
Hernia	71
Hemorrhoidectomy	63
Fracture of Clavicle or Upper Arm	60
Appendectomy	60
Skin Growths	57
Cystoscopy	43

C. W. Harrison, Jr. To Present Papers At Ordnance Congress

Four papers will be presented by Charles W. Harrison, Jr. (1425-1) at a meeting in Philadelphia next week in addition to acceptance of three other articles by him for publication in the July issue of a technical journal.

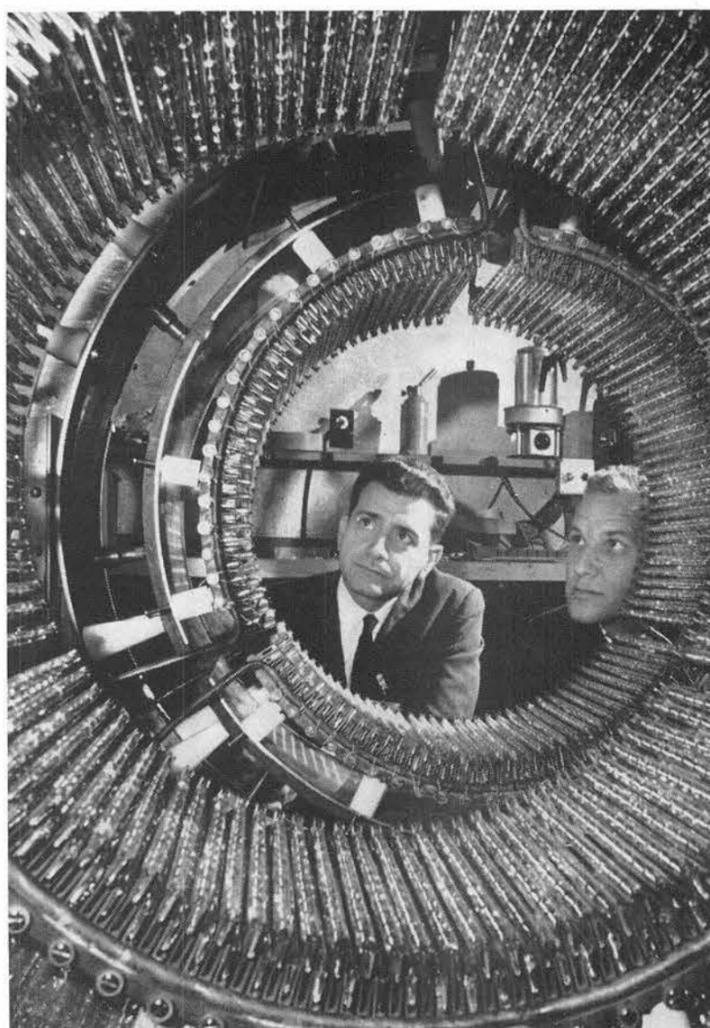
The following papers will be presented (and later published in the Proceedings) at the Second HERO (Hazards of Electromagnetic Radiation to Ordnance) Congress sponsored by the Bureau of Naval Records at the Franklin Institute in Philadelphia Apr. 30-May 2: "Transient Electromagnetic Field Propagation Through Infinite Sheets, into Spherical Shells, and into Hollow Cylinders"; "Slot Receiving Antennas as Related to Radio Frequency Hazards to Ordnance"; "Missile with Attached Umbilical Cable as a Receiving Antenna"; and Radio Frequency Leakage into Missiles."

The July issue of the IEEE Transactions on Antennas and Propagation will contain these papers by Mr. Harrison: "On the Radar Cross Section of Rods, Tubes, and Strips of Finite Conductivity," co-author is R. Heinz, former Sandia Corporation summer hire who is currently a student at the University of California, Berkeley; "Missile with Attached Umbilical Cable as a Receiving Antenna"; and "Monopole with Inductive Loading." "Radio Frequency Leakage into Missiles," co-authored by R. Duncan, Professor of Physics and Electrical Engineering at New Mexico State University, has also been accepted for publication in the same periodical.

In addition, "Impedances of Long Antennas in Air and in Dissipative Media," by Mr. Harrison, will appear in the May-June issue of the Journal of Research of the National Bureau of Standards Section D -- Radio Propagation.

Mr. Harrison has been on Sandia Laboratory's technical staff since 1957. He received BSE and EE degrees from the University of Virginia, an MS degree in communication engineering, and ME and PhD degrees in applied physics from Harvard University.

He has about 100 published papers and is currently working on a book.



VISITORS to Sandia Laboratory, E. J. Casenave (center) and J. B. White toured Sandia facilities on Apr. 16. Mr. Casenave is Coordinator of College Recruiting for Southern Bell Telephone Company, and Mr. White is General Personnel Manager of Southern Bell. Both are from Jackson, Miss., and represent all Bell System companies on the various college campuses in Mississippi. Above, they view quartz elements at Radiant Heat Facility during their tour of Sandia Laboratory.

Sandia's Safety Record

Sandia Laboratory HAS WORKED 1,750,000 MAN HOURS OR 50 DAYS WITHOUT A DISABLING INJURY

Livermore Laboratory HAS WORKED 1,248,000 MAN HOURS OR 236 DAYS WITHOUT A DISABLING INJURY