



C. R. Smith



A. P. Clow

C. R. Smith Retires Feb. 28; To Be Succeeded by A. P. Clow

C. Raymond Smith, who has been Western Electric Vice President—Defense Activities and a member of Sandia Corporation's Board of Directors since 1958, will retire at his own request Feb. 28.

Mr. Smith joined the Bell System in 1925. He graduated from the U.S. Naval Academy in 1918 and received a Master of Science degree in electrical engineering from Columbia University in 1923.

Mr. Smith served in a series of positions at the Kearny Works, Hawthorne Works in Chicago, and became Plant Manager at Indianapolis Works in 1952. In 1957 he was elected vice president and

given responsibility for manufacturing operations at Indianapolis Works, Baltimore Works, and the Buffalo Plant. In 1958 he became Administrative Vice President of the company's Radio Division (now Defense Activities Division) and was elected a Director of Western Electric Company. He has been a member of the Sandia Corporation Board of Directors since Aug. 12, 1958.

Succeeding Mr. Smith as Vice President—Defense Activities will be Arthur P. Clow, who has been Vice President of The Chesapeake and Potomac Telephone Company.

United Kingdom UN Official Opens 'Great Decisions' Here

A special invitation has been issued to Sandia Laboratory and AEC employees to hear an address by Sir Patrick Dean, United Kingdom Permanent Representative to the United Nations. He will speak at 8:30 p.m., Tuesday, Jan. 29, in the Student Union ballroom at UNM at the kickoff meeting of the program **Great Decisions—1963**. The neighborhood discussion series is held each year in February and March.

Sir Patrick, whose position at the UN is equivalent to that of Adlai Stevenson's, is regarded as an excellent speaker and has an extensive background of experience upon which to draw for his talk. He has been in government service since World War II, when he joined the Foreign Office after studying several years in the field of international law. He was educated at Rugby School and Gonville and Caius College.

At Yalta, Potsdam

In addition to taking part in numerous negotiations concerning trade and military activities with Britain's allies, Sir Patrick attended the Yalta and Potsdam conferences as legal adviser. He was one of the Foreign Office advisers to the British legal team at the first Nuremberg trial of war criminals and in 1946 headed the German Political Department in the Foreign Office. He was a member of the British delegation to all the meetings of the Council of Foreign Ministers for several years in Germany.

After spending the years 1950 and 1951 in Rome as Minister in the British Embassy, he returned to serve for a year as senior civilian instructor and in the Imperial Defence College. He then returned to the Foreign Office and in 1956 became Deputy Under Secretary of State. In recent years he has been concerned with liaison between the Foreign Office and the Ministry of Defence, and with the Chiefs of Staff committee. He has also been involved in defense problems connected with atomic energy. He accompanied Prime Minister Macmillan when he visited President Eisenhower in 1957 and the following spring went with Mr. Macmillan and Selwyn Lloyd, the Foreign Secretary, on their visit to Moscow.

Sir Patrick's visit to Albuquerque is being arranged jointly by



Sir Patrick Dean

the University of New Mexico and the Albuquerque Great Decisions Committee, headed by Dick Heim, former Sandian who is now assistant vice president, First National Bank in Albuquerque. The public is invited to attend the meeting, free of charge.

Planning Reception

A reception honoring Sir Patrick is being arranged at the University, according to Dr. Harold O. Ried, head of the Extension Division, who is handling arrangements.

Great Decisions—1963 consists of a series of eight topics to be discussed each week by participants beginning Feb. 10 and running through March. The topics are: The Common Market, Red China and the USSR, Algeria, Spain, India, Laos and Viet Nam, Alliance for Progress, and Prospects for World Peace. Fact sheets covering the various topics are available at the Sandia Laboratory technical library and all Albuquerque Public Libraries. The kit of eight fact sheets costs \$1.50. There is no other charge for participation in the program.

Information on how to go about forming a discussion group may be obtained from Max Linn (3430), immediate past chairman of the Albuquerque Great Decisions Committee; Ted Sherwin (3431), publicity chairman; or Bob Colgan (3431-1), television program coordinator.

High-Flying Rocket-Borne Flares to Be Fired in Tonopah Test Range Experiment

Flares of one million candlepower are scheduled to be fired at high altitudes over Sandia's Tonopah Test Range Jan. 23. It is anticipated that the illumination from the flares may be visible for several hundred miles from the range.

Two rockets are to carry the pyrotechnic flares to an altitude of about 300,000 ft. (about 56 miles) over the Tonopah Test Range and are scheduled to be launched by Sandia Corporation between 7 and 11 p.m.

The Sandia tests are designed to check the visibility of the flares from distant observation posts and to evaluate their feasibility as high altitude tracking aids. One group of Sandia observers will be on Charleston Peak near Las Vegas, Nev., and another group will be at a station near Reno, Nev. The observation posts are about 100 and 200 miles from the range.

Two Deacon-Arrow rockets will be used to carry the flares to the desired altitude over the range. Each one will have three flares in

the nose cone. At about 300,000 ft., the nose cone will detach from the rocket motor and the million candlepower flares will ignite in succession. The illumination sequence will take about a minute.

Should one or both of the rocket firings be postponed because of weather or other unfavorable conditions, they will be rescheduled for the following night, Thursday, Jan. 24.

The flight of the rockets and the flares will be confined to the Tonopah Test Range.



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Centrifuge to Yield 154 RPM Carrying 8000-Lb. Test Load

A new centrifuge, capable of spinning a load equivalent to a trailer van in a 50-ft. circle at 274 mph, is being built for Sandia Laboratory.

The centrifuge is designed to accelerate an eight-ton specimen at 108 rpm, producing forces of 100 G and a dynamic load of 1,600,000 G-lbs. With a four-ton test specimen, the centrifuge will be capable of speeds up to 154 rpm (200 G), equivalent to 274 mph.

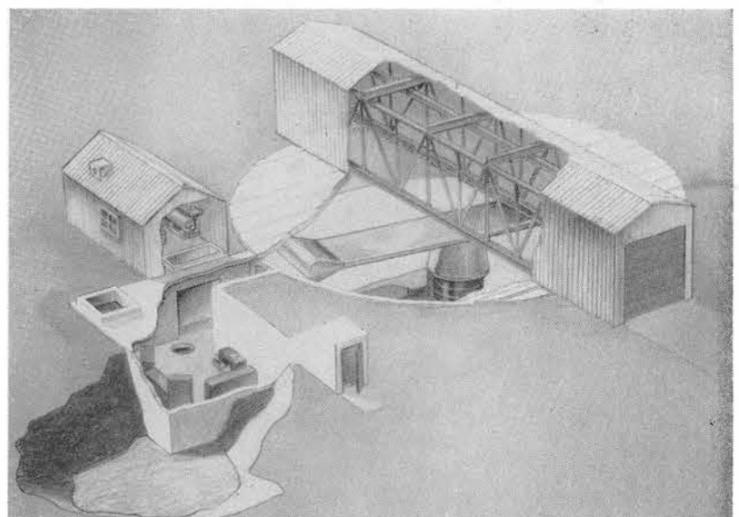
The arm of the centrifuge will have a 25-ft. radius. Environmental Research and Operations Department 7320 will use the new centrifuge in combined environmental tests—both acceleration and vibration—to simulate forces of rocket launch and reentry.

The machine will be mounted in a reinforced concrete arena measuring 80 ft. in diameter about 200 ft. northeast of Sandia's present centrifuge in Area III. The hydraulic power supply from the existing centrifuge will be used to drive the new machine.

Project engineers for the new facility are Marcel R. Reynolds (7311-1) and John C. Krimmell (7311-2).

The machine is being built to Sandia specifications by the Rucker Company, Oakland, Calif., builders of Sandia's present centrifuge in Area III. A \$336,000 contract was awarded to Rucker, which includes providing the centrifuge, two control and monitoring systems for local and remote testing, and installation.

Construction at the site is expected to start in March and the facility should be in operation early in 1964.



NEW CENTRIFUGE, largest in the free world in terms of dynamic load capacity, is being built for Sandia Laboratory. Installation will be adjacent to the present centrifuge in Area III. The new facility will be used to simulate vibration and acceleration of rocket launch and reentry.

40,000 Aerospace Articles to Be Abstracted, Published This Year

Some 40,000 scientific articles of interest to the world's aerospace technicians will be abstracted, indexed, and made available to scientists, engineers, and librarians during 1963.

The project is a cooperative effort of the National Aeronautics and Space Administration, private industry, and the Institute of the Aerospace Sciences.

Effective Jan. 1, 1963, **International Aerospace Abstracts (IAA)** and **Scientific and Technical Aerospace Reports (STAR)** started

publishing on a semi-monthly basis on alternate weeks. IAA, published by the professional society, abstracts and indexes published literature from journal articles, books, meeting papers, and proceedings of conferences and symposia from all parts of the world. STAR, published by NASA previously under the name **Technical Publications Announcements**, abstracts and indexes unpublished literature from scientific and technical reports on a worldwide basis.

Both publications are available at the Sandia and Livermore Lab Technical Libraries.

A typical document may be indexed under 20 to 25 different topic headings. The information is fed into computers at NASA for quick recall.

In addition, microfilms of complete documents are made available immediately at many locations throughout the country for ready reference by those whose work is in support of, or in direct interest to, the national research, development, and operational efforts in aeronautics and space.

Notice

The Sandia Base Exchange Cafeteria in Bldg. 206 will be closed for inventory Thursday, Jan. 24, until approximately 8:30 a.m.

ECP Surplus Fund Being Used For Special New Equipment

Sandia Laboratory Employees' Contribution Plan Committee distributed \$1225 in the 1962 reserve fund last week. The money went to six health and welfare organizations for purchase of special equipment, according to J. W. Hook (4110), committee chairman.

The committee had polled agencies in the plan to learn of any pressing needs for equipment not provided for in current budgets. From the requests submitted, the committee made the following allocation:

The New Mexico Hearing Society will purchase eight Telex headsets with their \$200.

The Special Education Center

received \$200 to buy remedial reading books, sonic reading records, and other educational equipment.

Christina Kent Day Nursery received \$87.80 for toys.

Martineztown House of Neighborly Service will use its \$225 to provide play area basketball standards.

Albuquerque Child Guidance Center received \$185 for an outdoor table and chairs, tape recorder, and doll house.

Wheelchair trays, glidabout chairs, and a wheelchair will be purchased by the Muscular Dystrophy Association with their \$327.20.

Editorial Comment

Car Or Coffin?

A stirring discussion of your automobile, your handling of the automobile, and the consequences of your actions will be placed in the booklet racks in a few days. It's not light reading to make you laugh. It's serious treatment of a ghastly subject — automobile accident causes.

Reminiscent of the still-famous 25-year-old article by J. C. Furnas, "And Sudden Death," "Car or Coffin" tells you where and when something might go wrong — and too frequently does.

Written by an accident insurance investigator who drove more than 200,000 miles completing assignments and who conducted more than 10,000 accident interviews, "Car or Coffin" preaches a mighty lesson.

"Safety," the booklet reminds us, is "the product of knowing and doing the right thing." Sensible driving, we are reminded, is largely a matter of attitude. The driver who does not think about driving in an intelligent way, who does not avoid the lapses caused by hurry or thoughtlessness, who is not familiar with the fundamentals of safe driving, is well equipped to play and lose at this giant game of Russian roulette.

The booklet leaves us with these reminders:

Rain-slick pavements are far more deadly than roads clogged with ice and snow.

Look at least a half block ahead, instead of riveting your eyes to the bumper of the car before you.

Pass only one car at a time.

When you drive, always expect the unexpected. You risk your life when you assume you can outguess the other driver.

Get out of the traffic lane when you look for an address, or for directions, or before stopping to orient yourself.

When someone cuts you off on the road, remember you are the driver of a machine, not a knight in armor on a horse.

Memorize: "If it's dark enough for parking lights, it's dark enough for headlights."

Pull off the highway — then park.

"Car or Coffin" dramatizes these cautions with true incidents.



DESTINATION FOR A RALLY is discussed by John Michaels (7125), left, and Gary Willingham (7147), president of the Albuquerque Sports Car Club. John's 1963 Austin Healey is ready for the next rally.

Gary Willingham Elected President Of Albuquerque Sports Car Club

Year 'round rallies are a top attraction offered by the Albuquerque Sports Car Club, which recently elected Gary Willingham (7147) its president for 1963.

"The club has at least one social or competitive event each month, and they are a wide range in variety," Gary said. The January event is a night-time navigational rally on the 19th. Others have included treasure hunts, economy runs, gimmick rallies, and a telephone rally in which participants must plot the shortest route between predetermined addresses in a telephone book. In all of these, drivers attempt to maintain a set average speed, which is never above the posted speed limit.

Organized in 1954, the group currently has about 45 active members including Sandians Earl Gruer (4541), John Michaels (7125), Kevin Moriarty (4121), Ray Reynolds (7233), and Ann

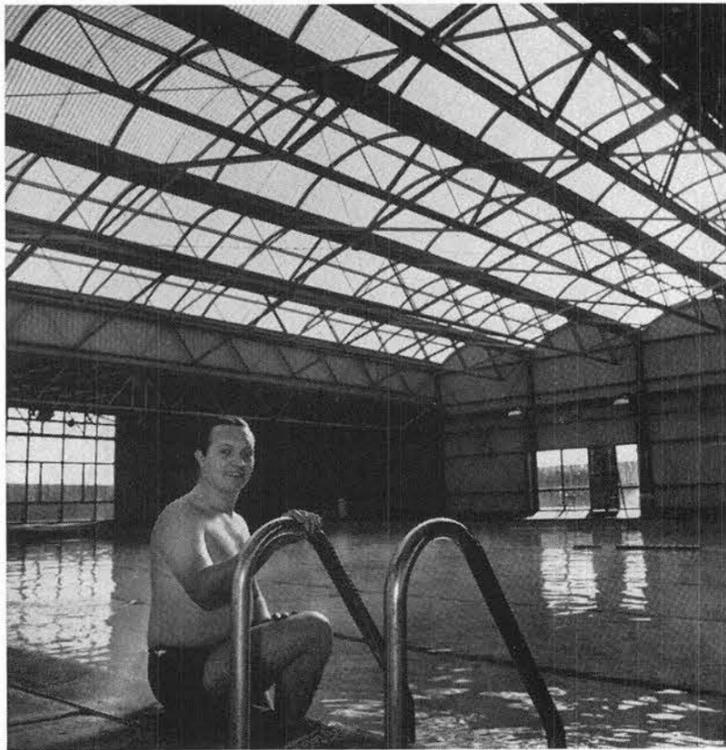
Van Camp (1122). Members meet the first and third Thursday of each month at 8 p.m. at Odom Rogers Motor Co., 8009 Central N.E. Prospective members are invited to attend.

"You don't have to own a sports car to become a member," Gary said. "Interest in sports cars is the big thing. We always have a need for navigators and checkers during our rallies."

For further information call Gary at 265-0481.

Wedding

Best wishes are extended to Mary Lou Werner (3421-1) who was married recently to S/Sgt. C. T. Cooper. Sergeant Cooper is stationed at Sandia Base with the DASA Technical Training group. Mary Lou has been with the Corporation for six years and is the commercial catalog librarian.



BOB FERGUSON (3465) is one of five volunteer swimming instructors at the city-owned Los Altos swimming pool. A new retractable roof makes the heated pool pleasant for both summer and winter use.

Wintertime Swimming Classes Are Taught by Sandia's Bob Ferguson

It's January. Imagine jumping into a large, bright swimming pool filled with luxuriously warm water. In the distance you can see the Sandias covered with snow. Sounds expensive? Well, it isn't. You need pay only 65 cents at the city-owned Los Altos swimming pool, 10100 Lomas NE.

Originally built in 1959, the outdoor pool received a retractable, translucent roof last June which makes it suitable for year-round use.

Robert M. Ferguson, Jr. (3465) is one of six instructors available for swimming lessons. They all give their time and talent on a volunteer basis except for Martin Valdez, who is the pool manager and only full-time employee.

Bob has been a Red Cross Certified Water Safety Instructor since 1950 and previously taught swimming in Denver and its suburbs. "I've been swimming since I was four years old, when someone threw me into a pool," he said. That's not a recommended way to learn to swim.

Currently he teaches about 20 children and an equal number of adults, and discussions are underway with the Albuquerque Boys

Club for adding a Saturday morning class. Mr. Valdez says, "Bob is an exceptional swimmer, and is well-liked by his students."

The enclosed pool is 82 ft. by 63 ft. with depth ranging from three ft. to five ft. The water is kept at 80° F. On winter afternoons it is used by the physical education classes of several public schools and by two high school swimming teams. The pool is open for recreational swimming evenings during the week and week-ends from noon to 6 p.m.

New courses of instruction for beginners and intermediates will start Jan. 21 with registration now underway. Children from 6-17 will be taught Tuesdays and Thursdays from 4-5 p.m. and 5-6 p.m.; adults will receive instruction Mondays and Wednesdays from 7-8 p.m. The courses last six weeks. Additional information can be obtained from the pool manager at AX 9-9461.

Stumps Find Extremes In European Weather During Recent Visit

Extremes in weather marked the Howard Stumps' recent trip to Europe. Howard (9100) returned to work Jan. 7; his wife is still in England visiting relatives.

Their six-week vacation began in England, and they had planned a mid-December ski trip to St. Anton am Arlberg in Austria. However, at that time, the major European ski resorts were all devoid of snow. Instead, the Stumps went to Paris, where the 55 degree temperature was positively spring-like, to Florence, and to Rome, where tulips and hyacinths were in bloom.

They returned to England on Dec. 20 to spend eight days in the northern part of the country. By the time they returned to London the city was in the throes of its worst storm in history. "There were several feet of snow on the city streets and traffic was hopeless," Howard recalled. "We saw a number of plays while there, and found the easiest way to get about was on foot."

Sandia Speakers

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

N. J. DeLollis (1112-2), "Structural Adhesives Applications," American Society of Tool and Manufacturing Engineers, Welding and Metals Joining Seminar, Cleveland, O., Jan. 30-31.

D. W. Braudaway (2412-3), "An Automatic Standard Cell Comparator," Winter General Meeting, Institute of Electrical and Electronic Engineers, New York City, Jan. 27-Feb. 1.

B. O. Allen (2442), "Reliability Assurance for Custom Testers," American Society for Quality Control joint meeting with the Reliability Professional Group of the IRE, St. Petersburg, Fla., Jan. 16. W. W. Westman (2442) is co-author.

W. W. Westman (2442) "Reliability Assurance for Custom Testers," Ninth National Symposium on Reliability and Quality Control, San Francisco, Calif., Jan. 22-24. B. O. Allen (2442) is co-author.

A. D. Swain (1443), "Reliable Systems Versus Automatic Testing," Ninth National Symposium on Reliability and Quality Control, San Francisco, Calif., Jan. 22-24.

C. J. McGarr (4600), "Sandia Corporation Presentation — Automating Supply Management in the Federal Government," Advanced Seminar in Automatic Data Processing and Supply Management, The Brookings Institute, Washington, D.C., Jan. 17.

D. D. Glover (5322), "Radiation Effects in 65/35 PZT Ferroelectrics," American Physical Society Annual Meeting, New York City, Jan. 23-26.



Jane Everett (3126-1)

Take a Memo, Please

One off-guard second is all it takes to become the victim in an accident. Burns, electrical shocks, cuts or fractures can all occur in less than a minute.

No job is so important and no service is so urgent that we cannot take time to perform our work safely.

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Sandia Mycologist Studies Fungus Effect on Materials

Frank McCulloch (1112-1) is an anomaly. "I'm a biologist," he explained recently, "in a world of chemists, physicists, and metallurgists." But he's other things as well: a teacher, and a specialist in an unusual field. He's the only mycologist at Sandia Laboratory.

"Mycology, a branch of botany, is the study of fungi—from mushrooms (macrofungi) to molds and other organisms (microfungi)" he continued. "Our concern with mycology at Sandia springs from the fact that many microfungi have a taste for various organic materials and compounds."

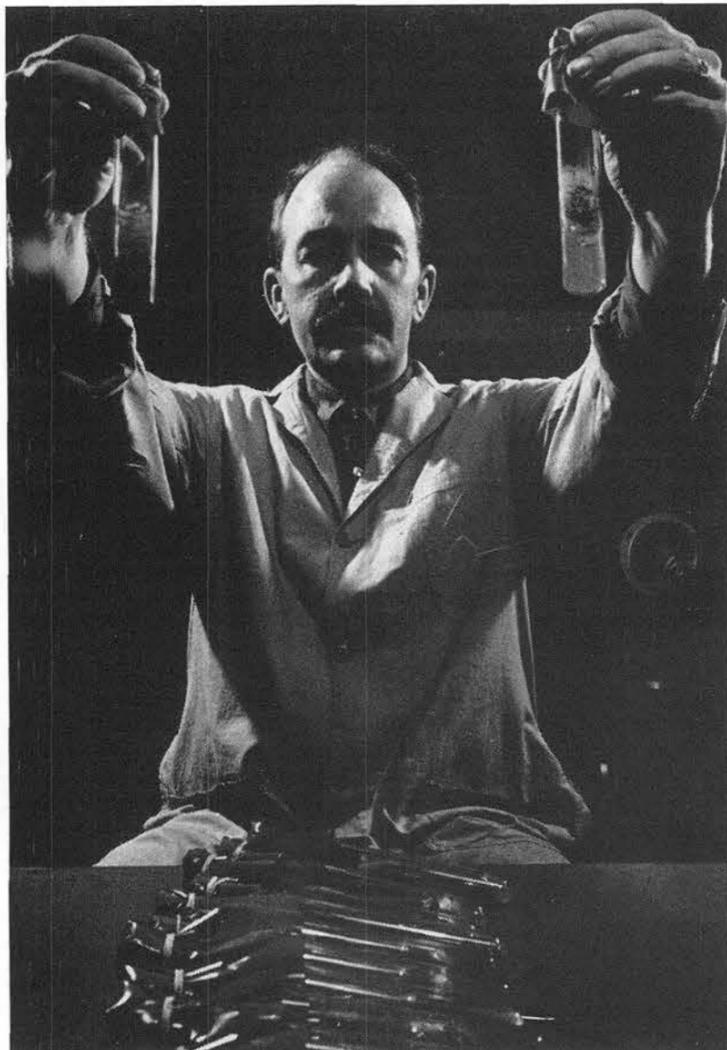
There are numerous molds—somewhat like those that attack foods, fabrics, wood, etc.—which, under certain environmental conditions, are capable of attacking and degrading materials which might be used in Sandia-designed equipment. Generally, use of materials susceptible to biological degradation is avoided but exceptions may be desirable for other overriding reasons. Frank tests certain materials to see if they'll support fungus growth.

Susceptible to Fungus?

"It all boils down to whether or not fungal growth will disturb the function of an item which utilizes a susceptible material," he observed. "This susceptibility is determined through standard bacteriological techniques. Tests are run on individual items—some of them made of several organic and inorganic ingredients—on pure materials, and on materials requiring long-term tests which continue for a year or more."

In a typical test, the material is first thoroughly sterilized to isolate it from random spores it may have picked up on the way to the mycology lab or elsewhere. After sterilization is complete, the test material is inoculated with spores and placed in an incubating atmosphere where the mold will flourish.

"Standard incubation time for most microfungi is about 28 days," Frank continued, "but some of our



SPECIMENS of mold culture are displayed by Sandia Lab's mycologist, Frank McCulloch (1112-1). Mycology is study of fungi, including molds.

tests must be repeated and become somewhat drawn out."

The fungi grow by breaking down food materials in the test substance into nutrients. They do so with enzymes which break down certain

materials in the plastics and produce waste products. The human digestive system uses enzymes in somewhat the same manner.

Molds Inhibit Molds

"Some molds inhibit other molds," Frank continued, "and they relish different things; they're selective in their diets. All this makes them difficult to work with. Because mycology deals with living organisms, it presents an element of chance one doesn't find in chemistry or physics or metallurgy."

Frank has been associated with Sandia since 1958. He is also a teacher of biology at Highland High School. His graduate studies concerned embryology. "The fields are inter-related," he concluded, "and, of course, mycology is a specialty. But it's a fascinating study, especially in its relation to the work being done at Sandia."

into the water when he picked up something soft. It was Dave's wallet.

Giles took the wallet back to Livermore and dropped it off at the home of Jerry Ward, Dave's supervisor. When Dave reported the loss to Jerry on Monday, Jerry feigned deep concern and suggested that Security be notified. Finally, no longer able to keep a straight face, Jerry reached into his desk drawer and pulled out the wallet. "Is this what you're looking for?" he asked.

Dave was too amazed to answer. After Jerry explained what happened, Dave recalled that the cutter had made a short stop at the Jack London Square dock. The wallet must have slipped out of his pocket when he tied up the boat, he reasoned.

The wallet remained untouched on the dock for 24 hours. And when it was found, it was recovered by a fellow Sandian 35 miles away from home. Small world?

Week-End Sailor's Spirits Dampened When His Wallet Turns Up Missing

Dave Arnett (8121-3), on Saturday duty with the Coast Guard Reserve recently, didn't notice that he had lost his wallet until he started to leave the Coast Guard base in San Francisco to return to Livermore.

The wallet, containing his gate pass, credit cards, Sandia ID, and \$150 in cash and traveler's checks, had apparently fallen overboard while he was out on patrol in a Coast Guard cutter. After a frantic search, Dave returned dejectedly to Livermore, thinking his wallet was at the bottom of the Bay.

But unknown to Dave, Fate had stepped into the picture.

Sunday evening, Giles Reed (8127-1) and his 11-year-old boy Robert had driven to Jack London Square in Oakland to have dinner at a waterfront restaurant. After dinner, Robert had gone down to the docks to play. He was throwing debris from the dock

First '63 ECP Funds Sent To 10 Member Agencies

December marked the first month for payroll deductions to go into effect for the 1963 Sandia Laboratory Employees' Contribution Plan. A total of \$12,940 was mailed last week to the 25 participating agencies of the United Community Fund and nine other health and welfare agencies.

The tables below will show totals contributed to date. The figures include cash contributions made at the beginning of the drive. In addition, Sandia Laboratory employees gave \$670.50 in cash to specific agencies not represented in the ECP.

As the December checks were mailed, the following distribution of ECP funds had been made:

	December Contribution	Total to date
United Community Fund	\$10,198	\$17,602
American Cancer Society	653	1,263
Bernalillo County Heart Association	536	994
Arthritis and Rheumatism Foundation	209	380
Albuquerque Association for Mental Health	130	227
N. Mex. Society for Crippled Children and Adults	523	888
National Multiple Sclerosis Society	91	185
Albuquerque Association for Retarded Children	196	395
Cerebral Palsy Association of Bernalillo County	274	480
Muscular Dystrophy Association of America	130	222

Telstar II to Be Used to Study Satellite Radiation Damage

A second Telstar will be launched in the spring of 1963, the American Telephone and Telegraph Company has announced. An important objective of Telstar II is to learn how to extend satellite life by avoiding or overcoming radiation damage. It was radiation which disabled Telstar I's command circuit after four months of successful operation.

Telstar II will be launched for AT&T by the National Aeronautics and Space Administration, with the Telephone Company paying all costs for launching as it did for Telstar I.

Bell Telephone Laboratories, the research and development organization of the Bell System and creator of Telstar, has been studying various means of reducing the radiation damage from the time its intensity became apparent. Among the possibilities are additional shielding for the satellite, and placing it in an orbit more suitable than the orbit of Telstar I.

In providing additional shielding, special attention will be given to insuring greater protection for the command circuit. This circuit receives a series of coded signals from the ground stations, and "readies" the satellite for communication; the last signal, in effect, turns on the receiver and transmitter. Radiation damage to this command circuit has meant that, for several weeks, no communications functions were scheduled for Telstar I. Recently, however, by simulating actual conditions in the laboratory, communications were renewed.

The availability of a modified Thor Delta rocket, more powerful than that used for Telstar I, makes possible a higher and more suitable orbit. The altered orbit could be meaningful, Bell Laboratories believes, if Telstar II could be exposed to less of the high energy

levels of the electron radiation in the inner Van Allen Belt.

Also, a modification will be made in the radiation package to be used in Telstar II, and this should give additional information on radiation in space.

Under terms of the launch agreement, AT&T will provide NASA with complete scientific data, much of which may be valuable in planning communications satellite programs. Also, all experimental data and progress reports will be made available to the general scientific community by Bell Telephone Laboratories.

Telstar I was launched July 10, 1962. Since that date, it has been furnishing telemetry information on its own condition as well as measurements of radiation and the space environment. Such information is important to the planning of any operable satellite system.

During the four-month period Telstar I was relaying communications, it was used in more than 250 technical tests and over 400 demonstrations of voice, telegraph, data, facsimile, telephotos, and television. Trans-Atlantic television was demonstrated 47 times, five times in color.

Credit Union Members Meet January 23

Annual meeting of members of the Sandia Laboratory Federal Credit Union will be held Wednesday, Jan. 23, at 7:30 p.m. at the Coronado Club, J. S. Miller (4122), Credit Union President, announces.

Election of 1963 directors and credit committee members will be held. Reports of the past year's operation will be presented.

Following the meeting, a buffet snack will be served.

Plant Maintenance Personnel Complete First Aid Training

A special request to Technical and Trades Training Division 3132 was fulfilled last week when 21 men completed a Red Cross Standard First Aid Course.

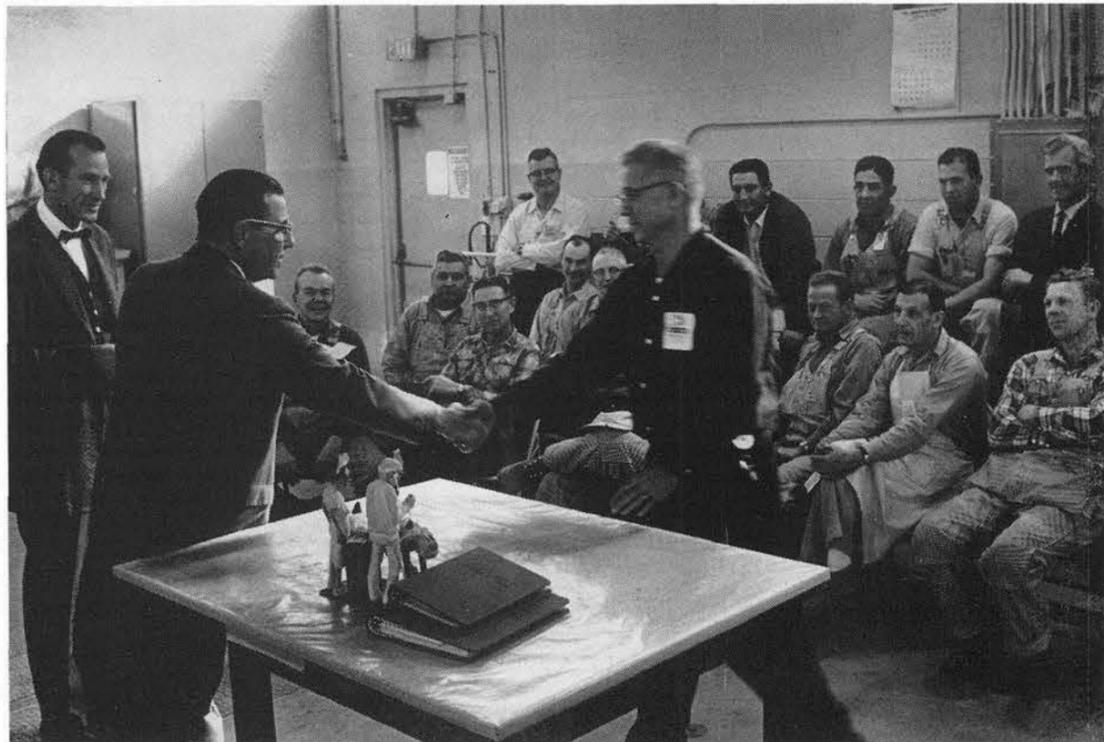
Request for the first aid training came from men of Plant Maintenance Department 4510, many of whom live in small communities around Albuquerque and remote from medical facilities.

The 12-session course was conducted in the Carpentry Shop work area during noon hours. Instructors were M. G. Young (7523) and D. L. Vath (7523).

J. C. Hart, manager of Plant

Maintenance Department 4510, presented certificates of completion for the First Aid course to the following:

Oscar H. Berlier, Aubrey O. Butts, Walter H. Martin, Epimeno G. Ortiz, and W. Vern Sawyer (all 4514); Everett V. Breeden, Jess Denton, Dale A. Easton, Doo-mas T. Easton, James C. Farmer, Reynel Garcia, Frank J. Lesperance, Rosendo Lesperance, Hiram L. McKinney, Santos Quintana, Loy A. Robinson, Orville T. Schurr, J. Hardin Simmons, and James F. Wolfe (all 4513); John J. Ransom (4516); and Elmo J. Whitmore (4575).



J. C. HART, manager of Plant Maintenance Department 4510, congratulated 21 graduates of a Red Cross Standard First Aid course last week. The 12-session training

program was conducted during noon hours in the Carpentry Shop. D. L. Vath (7523), one of the course instructors, is at left. M. G. Young (7523) also taught.



RECENT VISITOR to the military liaison training area of Bldg. 892 was W. J. Jackel, general manager of ACF's Albuquerque division. Shown with his Sandia hosts as tour started (l to r), President S. P. Schwartz, G. C. Dacey, Vice President Research, Mr. Jackel, and R. W. Henderson, Vice President Weapon Programs.

Three Leading Causes of Death Are Heart Diseases, Cancer, Accidents

by S. P. Bliss, M.D.
Sandia Corporation Medical Director

For the past few decades, medical research has made great strides toward better understanding of the causes of disease, disability, and deaths. As a result of these studies, new drugs, new and better methods of medical care, and new and life-saving surgical procedures have evolved; consequently, the average length of life has been increased.

Because of this latter development, the types of leading causes of death have changed from the infectious types to those generally classified as degenerative types. Hence, the three leading causes of death at all ages for 1961 were (1) diseases of heart and blood vessels, (2) cancer, (3) accidents as depicted in the accompanying figure.

Although research continues in these areas, prevention and early diagnosis are important in reducing the frequency of these deaths. What is more important, every individual can personally do something about the problem. Greater knowledge and understanding by the average person of these three leading causes of death in the United States not only will help to reduce deaths, but also will help to eliminate much personal, financial, and physical loss.

In subsequent articles we will discuss these topics, starting with the leading cause of death—diseases of the heart and blood vessels. These diseases accounted for 928,670 deaths last year. This total represents 54.6 per cent of all deaths. Thirty-five per cent of these deaths occurred in individuals under 65 years of age.

The subjects to be discussed will be:

Atherosclerosis (a form of arteriosclerosis, or hardening of the arteries.)

Coronary Thrombosis (heart attack)

Angina Pectoris (a disease characterized by intense chest pain)

Stroke (loss of consciousness or paralysis caused by hemorrhage or obstruction of a blood vessel in the brain)

Hypertension (high blood pressure) and Hypertensive Heart Disease

Rheumatic Fever and Rheumatic Heart Disease

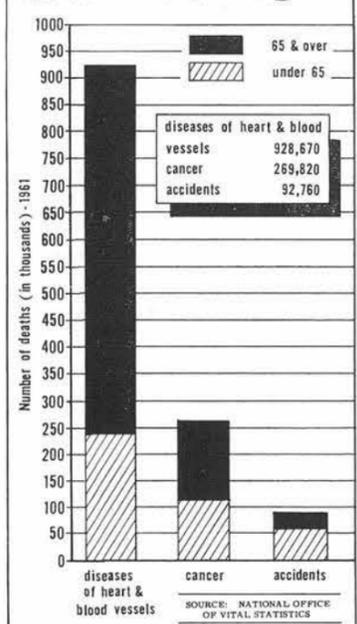
Congenital (inborn) Heart Defects

Bacterial Endocarditis (bacterial

inflammation of heart membranes)

Congestive Heart Failure (failure of the heart)

Leading causes of death at all ages



ure in which the heart is unable to maintain adequate circulation of the blood)

PERIPHERAL VASCULAR DISEASES:

Atherosclerosis of the Extremities

Buerger's Disease (inflammation of blood vessel linings in extremities, especially the feet)

Raynaud's Syndrome (a disorder characterized by spasm of the capillaries, especially those of fingers and toes)

Varicose Veins (abnormally dilated and lengthened veins)

Thrombophlebitis (characterized by clotting of the blood plus inflammation)

Venous Thrombosis (characterized by clotting of the blood).

Article by A. Y. Pope Is Published in NATO Journal

An article by A. Y. Pope (7130), entitled "Wind Tunnel Calibration Techniques," appeared in a recent issue of AGARDograph, a publication of NATO's Advisory Group for Air Research and Development. The paper was presented by Mr. Pope in Istanbul, Turkey, two years ago.

R. B. Powell Named to State Personnel Board

R. B. Powell, Vice President, Personnel, was appointed to the State Personnel Board on Jan. 12 by Governor Jack Campbell. He succeeds R. M. Moran of Hobbs, who resigned.

Mr. Powell entered the personnel field in 1946 when he was appointed Assistant Personnel Director at Los Alamos Scientific Laboratory. Upon transfer to Sandia Laboratory, he continued in the same field and on Aug. 1, 1959, assumed his present position.

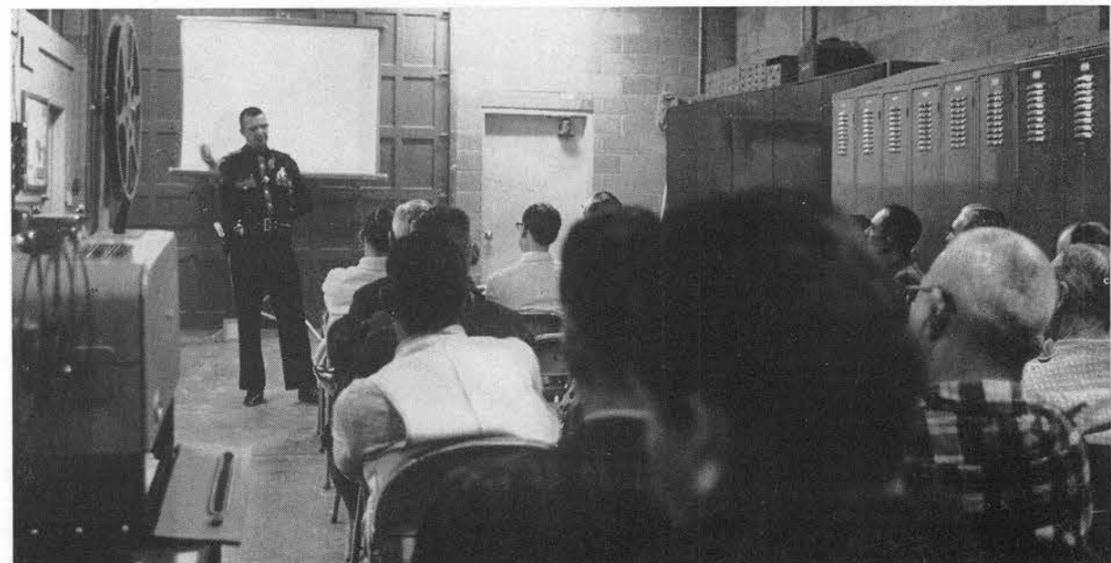
He served three years on the Albuquerque City Personnel Board, and is a member of the New Mexico Council for Economic Education, the American Society for Public Administration, and the American Society for Engineering Education.

J. M. Stueber Author Of Article Appearing In Radio Magazine

James M. Stueber (7232) is author of an article, "R-45 Slant Line ARR-7 Receiver Modifications," appearing in the December issue of 73 Amateur Radio.

The article describes work Jim performed in adapting an airborne spectrum-scanning device to amateur radio use.

He has been co-author of three other articles appearing in ham radio publications. Jim became interested in the hobby after coming to Sandia 12 years ago.



TRAFFIC SAFETY was discussed during a safety meeting of Labor Support and Grounds Maintenance Division 4575 recently. State Police Officer Jerry Workman presented a movie, "Signal 30," which told a grim tale of careless driving and death on the highways. Program was arranged by Safety Engineering Division 3211.

Industrial Engineers Show Active Interest in Youth Education Work

This is the first in a series of articles describing activities of member organizations of the New Mexico Council of Technical and Scientific Societies.

The Albuquerque Area Chapter of the American Institute of Industrial Engineers is one of the youngest technical societies in New Mexico. Organized in May 1956, the organization has a statewide membership of 42.

Currently the group is involved in several projects. A one-day conference, planned for March 22, 1963, is requiring the most effort.

"We plan a conference that will make a real contribution to the industrial engineering profession," Jack Hueter (2563), AIEE president, says. "Keynote speaker will be Dr. Lillian M. Gilbreth, one of the pioneers in industrial engineering."

The conferees will present technical papers on human factors and human engineering, manufacturing processes and methods engineering, electronic data processing for small business, value engineering, and non-statistical aspects of quality control.

"In addition to being valuable to engineers, this conference is also geared to the needs of New Mexico businessmen," Jack says. "This aspect is part of our continuing educational program for business to show how industrial engineering can help their operations."

The local chapter of AIEE is also currently working on a work flow process and plant layout study for the Goodwill Industries of New Mexico. A wage and salary analysis

for the New Mexico Rehabilitation Center will start soon.

"We make these engineering studies for various charitable organizations as our contribution to the community," Jack says. "In the past we have conducted studies for the YMCA, Boy Scouts of America, and various churches."

The AIEE participates in Engineering Week activities by contributing to various student funds. The chapter helps with the New Mexico Council of Technical and Scientific Societies' efforts to bring high school students to the Engineering Week activities held at the University of New Mexico. In addition, the chapter donates funds to other educational programs designed to interest high school and college students in industrial engineering.

A regular program of monthly educational technical meetings is held for members and guests.

Nationally, the AIEE has approximately 10,000 members in 106 senior chapters and 46 student chapters. The organization was formed in 1948.

In addition to Mr. Hueter, other Sandians serving as officers of the Albuquerque Area Chapter include Don Arquette (1423), president; John W. Moyer (7513), secretary; Richard Keen (2543), treasurer.

L. E. Fuller (3110), A. D. Smaller (2563), A. E. Kaping (4332), and C. J. Ricker (3112) serve on the Board of Directors.

Local Scotsmen Will Honor Robbie Burns in High Style

If strange wails are heard in downtown Albuquerque on Jan. 25, attribute the noise to local Scotsmen honoring poet Robbie Burns.

The second annual Robbie Burns Night, sponsored by the St. Andrew's Society of Albuquerque, will offer a bit of entertainment for everyone's taste; quoting of the poet's finest; imported movies of Scotland; Scottish singers; Heilan' dancing by members of the British Brides Club; and old Scottish songs. The event will be held at the Fez Club.

For the traditionalists, there will be "piping in o' the Haggis." (You almost have to be a traditionalist to enjoy Haggis—it's oatmeal, tripe, meat, and grits cooked in a sheep's stomach.)

The skirling o' the pipes will be another not-soon-forgotten feature. Pipers from the Balmoral Highlanders, the Shrine Bagpipe Band, and possibly the Belaire Pipe Band of El Paso (female-types), will be huffing and puffing.

Club President A. P. Gruer (7530) reports that special invitations have been sent to Governor Jack Campbell; The Hon. Sir David Ormsby-Gore, the British Ambassador to the United States, who will be in the Southwest at that time; and the British Consuls in El Paso and Denver.

Everyone is invited (you don't

even have to be Scottish). For tickets or information call J. M. Ralls (7524), AL 5-7835; Mr. Gruer, BU 2-3420; E. J. McGarvie (7512), 298-3364; or H. D. Doro (3450), AM 8-1257.

Professional Societies Present Traveling Education Exhibit

"The Story of Productivity," a traveling education exhibit, will be presented Jan. 22 at 7:30 at the Highland High School auditorium under the sponsorship of the American Society for Quality Control, the American Institute of Industrial Engineers, and the American Society of Tool and Manufacturing Engineers.

The exhibit is comprised of both display material and historical items depicting the importance of productivity to progress and human welfare through the past, present, and future.

C. G. Schelly, director of educational research for the DoAll Company, will present the program.

Further information may be obtained from Program Chairmen W. H. Robertson (1442) for ASQC members, J. W. Moyer (7513) for AIEE members, and W. Q. Wales (tel. CH 7-3781) for ASTM members.

(From Western Electric GHQ, publication for employees at WE Headquarters, New York City)

Bellcomm, the Bell System company founded some months ago to assist the National Aeronautics and Space Administration in its manned space flight programs, is steadily growing into "an organization of modest size and, we hope, high ability"—a goal declared by its president and chief executive officer, Dr. John A. Hornbeck. The highly specialized company today numbers over 100 people. More than half are technical people and the remainder are supporting staff.

Most of Bellcomm's present technical staff are from the Bell Telephone Laboratories, where Dr. Hornbeck was executive director of the semiconductor device and electron tube division. During the next 12 months Bellcomm plans to build to about 250 people, two-thirds of whom will be technical and one-third administrative.

Owned jointly by A.T.&T. and Western Electric, Bellcomm, Inc., is performing systems engineering studies for NASA on Project Apollo—possibly the largest technical program ever undertaken by the United States—which will land men on the moon and bring them back.

The company's principal assignments are in the areas of feasibility studies, operations analysis, and technical advice.

NASA, which is responsible for the nation's space exploration program, on Feb. 21 of this year asked the Bell System for assistance. In a letter to A.T.&T. Board Chairman Frederick R. Kappel, NASA Administrator James E. Webb said, "The job of coordinating a worldwide communications network must have presented many of the same kinds of system planning, engineering, and integration problems, on a very large scale, that we expect to encounter in carrying out the nation's program of manned space exploration. It would be a public service of the very first order of importance if the Bell System would undertake to assist NASA in this work by providing an organization of experienced men capable of giving the responsible NASA officials the benefit of the most advanced analytical procedures and the factual basis they need to make the wide range of system engineering decisions required by the successful execution of the manned space flight mission."

A.T.&T. President Eugene J. McNeely answered Mr. Webb on March 1. His letter said in part, "As you know, it is not our practice to seek work for the Government or for others which is outside the communications area.

However, as citizens we hold to the belief that the national interest must come first in industry as well as in every other segment of our national community, and we have invariably accepted and embraced requests from the Government to undertake work in the national interest wherever our organization is especially qualified to be of assistance. For this reason, we will be glad to assist you in accomplishing the mission described in your letter."

Bellcomm, Inc. was incorporated March 21, envisioned as a "self-contained unit, able to stand on its own feet," according to Dr. Hornbeck. The new company is taking shape from the top down and its first members were those named to its board of directors.

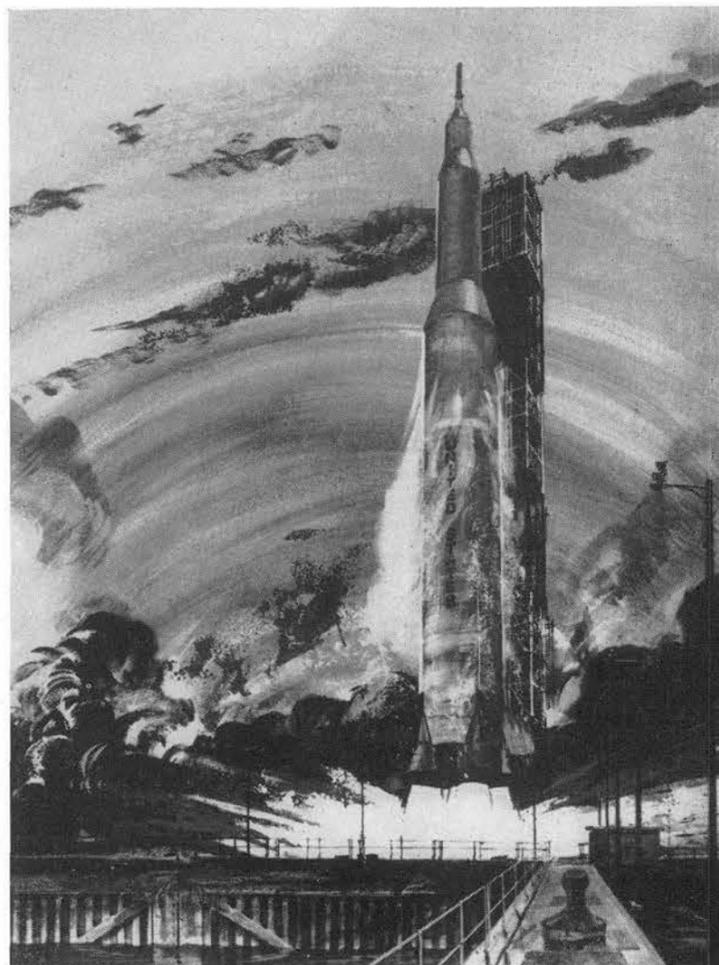
A "working board," the group is a carefully picked blend of broad business and top technical experts from the Labs, Western Electric, and A.T.&T.

In addition to Dr. Hornbeck, its members are: R. R. Hough, vice president of A.T.&T.'s engineering department, board chairman; H. W. Bode, vice president of military systems engineering at Bell Labs; K. G. McKay, executive vice president, systems engineering, Bell Labs; H. G. Mehlhouse, vice president of personnel and

public relations at Western Electric and formerly with Sandia Corporation; L. R. Cook, engineer of manufacture, Western Electric; J. H. Felker, assistant chief engineer, A.T.&T.; J. A. Farmer, A.T.&T. general attorney; and W. J. Whittaker, former assistant vice president of Long Lines personnel and general service, Bellcomm's vice president and general manager.

The new company's major technical divisions are headed by W. Deming Lewis, former executive director of the Labs' research-communications systems division, and Julian M. West, former executive director of the military systems division at Bell Laboratories. Gordon Brill, a former supervising accountant for A.T.&T., is comptroller. F. Carter Childs, formerly with Sandia Corporation, is secretary-treasurer and general attorney.

The company's officers are drawing the majority of Bellcomm technical personnel from within the Bell System. From the start, the company has counted on Bell Labs technical people for specialized work, and at present about 25 Labs engineers and scientists are involved in Bellcomm projects, without being transferred to the new firm.



SPACE VEHICLE — Artist's conception of 188-ft. Saturn which will be used in Project Apollo to land men on the moon and bring them back.

Rare Errors Found in U. S. Postage Stamps Make Collecting More Exciting Hobby

Inverted stamps—those with portions of the stamp printed upside down—are what every stamp collector dreams of finding, says Chet Wolowicz (8117), a collector for 30 years.

"Inverted stamps are sometimes worth a fortune," he said, "like the famous 1918 airmail stamp. This inverted 24-cent stamp is worth almost \$10,000 today. A sheet of 100 of them would bring about one million dollars."

Even the recent Dag Hammarskjold error would have been valuable if the government hadn't printed more, according to Chet. "The original sheet of these four-cent inverted stamps would have perhaps been worth about \$300,000," he said. "Now, with millions of reprints already issued, the originals are worth much less and the reprints aren't worth more than any other commemorative stamp."

Stamps on Order

Chet has some Hammarskjold stamps on order. Right now, there isn't a single inverted stamp in his entire collection of over 20,000 different stamps from all over the world. However, some of his stamps have become scarce and

their value has soared. A three-cent United Nations stamp he bought at face value in 1954 is now worth \$13.

"Most stamps have little value except to the person collecting them," Chet believes. "So it isn't a hobby you go into with the thought of making money. The only time a stamp becomes valuable to others is when the demand is greater than the supply. There are some 100-year-old stamps you can buy for three or four cents, while some more recent issues with short printings can bring \$10 or more."

Thick Albums

Chet keeps his collection in five stamp albums, each about four inches thick. One album has spaces marked for one of each of the different stamps of the world printed for a 100-year-period before 1950. The other four volumes have room for one each of the world's different stamps printed after 1950.

"It's easy to see how enormous the printing of stamps has been these past 12 years from the number of albums needed to hold them," said Chet. "Because so

many different stamps are being issued every year, many collectors today are tending to specialize. Many will concentrate on airmail stamps, others on animal, railroad, ship, or historical event stamps."

As for quantity of a single stamp printing, Chet reports that for each commemorative issue in the U. S. alone, the average number printed is from 100 to 150 million. In the four-cent denomination alone, the average number printed is from 100 to 150 million. In the four-cent denomination alone, the U. S. generally has a dozen or more different commemoratives a year.

Chet's collection contains many unusual stamps—some are diamond-shaped, some octagonal, and some triangular; some contain silk threads; others are watermarked. He has some from new countries such as Viet Nam and Ghana; others from defunct governments such as Nazi Germany and the Confederate States of America.

Confederate Stamps

"The Confederate States of America stamps are worth from \$1.50 to \$300 each," said Chet. "For a long time they were almost worthless, then all of a sudden they became popular, and for a time the used stamps were more valuable than the unused ones. Generally, the reverse is true—unused stamps are considered the choicest and most valuable."

Besides the enjoyment and educational value derived from stamp collecting, it is one of the world's most inexpensive hobbies, according to Chet. "A packet of 2000 different world-wide stamps can be bought from a stamp dealer for \$3.50," he said.

Chet buys his stamps from the Post Office or from stamp dealers. He subscribes to a biweekly stamp collectors' newspaper to keep abreast of current developments in the hobby and new stamp issues.

"To begin a collection," says Chet, "all you need are some stamps, a book to keep them in, and some hinges to paste them down. That's how I began 30 years ago and I've enjoyed every minute I've been able to spare for the hobby since."

Service Awards 15 Year Pins



Robert L. Siglock
8114
Jan. 19, 1948

Ernest L. Bolton
4332
Jan. 20, 1948



Patty Atkins
4131
Jan. 21, 1948

Elmo G. Hirni
5311
Jan. 21, 1948



Maclovio S. Suazo
4623
Jan. 21, 1948

Robert S. Hewitt
4412
Jan. 26, 1948



Richard A. Richards
2412
Jan. 26, 1948

William E. Myers
4221
Jan. 30, 1948



Henry A. Tendall
7125
Jan. 30, 1948

Ten Year Pins

Jan. 19-31

Lewis A. Fjelseth 7164, Richard C. Holman 2331, Dorothy J. Mercer 4131, Franklin E. Moore 8123, Lawrence E. Myers 7118, Carlton A. Scott 8118, James H. Harrell, Jr. 7312, R. R. Teasdale 3126, Joseph G. Comiskey 4611, Delfred M. Olson 7163, Lennox B. Green, Jr. 8122, Edward J. Szyper 1431.



EXAMINING scarce mother-and-child United Nations stamp (see inset) from his collection of over 20,000 different stamps of the world is Chet Wolowicz (8117).

Stamp has appreciated in value from three-cents in 1954 to \$13 today. Also shown are sampling of Chet's other stamps and three of his five large stamp albums.

YMCA Offers Adult Members Exercise Plan

Membership drive for the YMCA — both downtown and Heights Branch — kicks off Jan. 24. Dean E. Irvin, supervisor of Secretarial Services Division 3126, is Drive co-chairman for the Heights Branch.

"Prospective members are invited to attend an Open House at the Heights YMCA Branch Sunday, Jan. 20, from 1:30 to 5 p.m.," Dean said. "Exhibits, demonstrations, and refreshments are planned. A special recreational swimming period for non-member families from 4 to 5 p.m. will be held in the indoor pool."

Dean will be participating in the program for a Membership Kick-off dinner Jan. 24. More than 150 drive team members will be present. W. R. Rosenberg (4360) will direct the training program for drive workers.

Both YMCA branches provide full programs of activities for all ages. At the Heights Branch, adults participate in programs ranging from leathercraft to scuba diving. Two adult dancing classes of more than 50 couples are currently receiving instruction at the Heights YMCA.

"Stay-Fit" is a continuing program for physical fitness at the Heights YMCA. Both men and women participate in swimming, archery, weightlifting, and calisthenics under the guidance of a YMCA physical fitness instructor.

"Exercise becomes fun," S. R. Peres (3133), Heights Program Chairman, said. "This way, it's easy to keep in shape. Our program also stresses group activities for the entire family."

Another program for physical fitness for adult men is a feature of the Downtown YMCA. Called the "Zia Club," the activity makes available all of the physical fitness facilities of the Downtown YMCA in an individually tailored program. Swimming, handball, exercise machines, trampoline workouts, volleyball, steam room, judo, and wrestling are available in the Zia program. In addition, a masseur is provided. Zia Club memberships start at \$60.

YMCA family memberships cost \$65 per year. An adult membership is \$35 and a youth membership is \$20.

Maude Buchanan Retired Jan. 4

Maude McCarthy Buchanan, 1312 division secretary, retired Jan. 4 after nine years at Sandia Laboratory.



Her early retirement was precipitated by her marriage Dec. 23 to Fred J. Buchanan. "I'm going to stay at home and be a housewife," she explained. Home

is at 914 Rio Vista Circle SW.

Mrs. Buchanan plans to devote much time to her rose garden and patio. She has played the organ for a number of years, and has an extensive library. The Buchanans also have several trips in mind.

Leo Gutierrez Elected Chairman Livermore Park Board

Leo Gutierrez, manager of Preliminary Design Department 8140, was elected 1963 chairman of the Livermore Area Recreation and Park District at the board of directors' first regular meeting this year.

Leo, who served last year as chairman of the Special Activities Committee, was elected to a four-year term on the board by Livermore voters in 1960.

no loan too small

terms

No \$ Down

\$ 10 / MO

BANK RATES

6%

FINANCING

TV \$ 1 DOWN

Hasty Loan

Interest Rates -- There Are All Kinds -- Know Them

(Based on an article appearing in "Pen and Inco," employee publication of International Nickel Co., Inc.)

"Buy now and pay later" the sign reads. "Easy terms. Ten dollars down, Ten dollars a month." Perhaps it's "Nothing down, \$2 per week," or "Name your own terms." Borrowing is a necessary part of life for many of us. So, as long as we are going to borrow, we should do so wisely.

Almost everything you might want to buy these days can be obtained "on the cuff." But there is always interest to pay, and interest is not always what it seems. In fact, installment credit and true annual interest are subjects about which most people know very little, sad to say.

When borrowing money, always ask, "What is the total amount I have to pay back?" This lets you determine the dollar cost of using the money.

Interest can be considered rent charged for the use of money, or the amount we pay for the use of someone else's money. Interest and interest rate are two different things. "Interest" is how much you pay. Interest rate refers to the per cent paid in interest on the original amount borrowed or, if an installment loan, the average balance, and should be related to the length of time one has the borrowed money.

The familiar formula for computing interest follows—

Interest = Principal x rate x time.

This is good to use when the loan is paid off in one lump sum. But nowadays, with payments made weekly or monthly, we are no longer using all the money for the full period of the loan. This makes computation of interest rate more important. Here is a simple example:

We borrow \$120 and plan to pay it back at the rate of \$10 per month over 12 months. Interest is said to be 6 per cent. We have use of the full \$120 for the first month only. The second month we have reduced the principal by \$10 and have only \$110 for our use. By the third month we have only \$100 of the original principal left. And if at the end of the 12th month we pay \$7.20 in interest our true interest rate is not 6 per cent.

To find the true rate of interest it is necessary to determine first what the average unpaid balance was during the year on the loan. To find the average unpaid balance you add the balance left after each payment:

Month	Unpaid Balance	Payment
1	\$120	\$10
2	110	10
3	100	10
4	90	10
5	80	10
6	70	10
7	60	10
8	50	10
9	40	10
10	30	10
11	20	10
12	10	10

plus \$7.20 interest \$780

Divide the total by the number of payments which were made, in this case 12.

\$780 divided by 12 equals \$65 average unpaid monthly balance.

Now use the formula:

$I = P \times R \times T$

Because this loan was paid back in installments, "P" is not the original principal but the average unpaid monthly balance. Thus, with \$7.20 as interest, \$65 as the principal (average unpaid monthly

balance) and 12/12 or one year as time:

$\$7.20 = \$65 \times R \times T$

\$7.20 divided by T times \$65 equals R

$R = .110$ (an 11 per cent interest rate)

Interest charged by lending agencies is frequently based on the costs of extending the loan. This includes more than just "rent on money." If the loan is paid in monthly installments, administration costs rise. If it is necessary to send delinquent notices, costs go up. Higher interest rates are charged of people with poorer credit ratings, poorer security.

Experts in the loan business feel the key to quoting an interest rate is whether the words "on the unpaid balance" follow the quotation of interest.

A promissory note containing the following words gives you a true cost of your loan:

"For value received I (we) promise to pay to the order of (name of lender) dollars (\$.....) being \$..... principal, and \$..... interest, payable in monthly payments of \$..... each, and one final payment of \$.....; such payments will result in the payment of principal and interest thereon at the rate of per cent per month on the unpaid balance thereof."

Of course, don't stop reading there. Study all the statements and conditions contained in the "fine print," and if you don't understand, ask questions until you are satisfied.

When you borrow, you don't always get money; you sometimes get the goods or services money buys.

"Buy Now—Pay Later" reads the advertisement. The appeal of a new possession for a mere \$500 is irresistible. The fact we are shy the \$500 is a trifle as long as we can pay later. All we have to do is pay 10 per cent down. The rest is paid back in 12 easy monthly installments.

So we pay the 10 per cent down — \$50 and sign a contract to pay the remaining \$450 in 12 monthly installments of \$42 each. We are told the interest is one per cent per month, thus \$4.50 of each monthly payment will pay the interest charge and \$37.50 will go to pay off the principal.

By the end of 12 months we have paid \$54 total interest charges — or 12 per cent of the original \$450. But since the money was paid back in installments, we didn't have the use of the full \$450 for the full year. We must find our average unpaid monthly balance before we can determine the true interest rate.

By using the method explained in the previous example, we find our average unpaid monthly balance is \$243.75. Now to use the formula.

"I" is total interest paid—\$54

"P" is average unpaid monthly balance—\$243.75

"T" is time 12/12 or 1 year

$I = P \times R \times T$

$\$54 = \$243.75 \times R \times T$

\$54 divided by 1 times \$243.75 equals R

$R = .2215$ or 22.15 per cent true interest rate

Below are two tables. Table I is the record of payment when you are paying a straight 1 per cent

per month on the total loan. Table II is the record of payment when you are paying 1 per cent per month on the unpaid balance.

A comparison of figures in these two tables shows that the "one per cent per month" bargain is no bargain at all.

TABLE I
Record of Payments
Interest 1 per cent per month
on total amount loaned

	Unpaid Balance	Paym't on Principal	Paym't on Interest	Total Payment
0	\$450.00	—	—	—
1	412.50	\$37.50	\$4.50	\$42.00
2	375.00	37.50	4.50	42.00
3	337.50	37.50	4.50	42.00
4	300.00	37.50	4.50	42.00
5	262.50	37.50	4.50	42.00
6	225.00	37.50	4.50	42.00
7	187.50	37.50	4.50	42.00
8	150.00	37.50	4.50	42.00
9	112.50	37.50	4.50	42.00
10	75.00	37.50	4.50	42.00
11	37.50	37.50	4.50	42.00
12	—	37.50	4.50	42.00
	\$450.00	\$54.00	\$504.75	

TABLE II
Interest of one per cent per month
on unpaid balance

	Unpaid Balance	Paym't on Principal	Paym't on Interest	Total Payment
0	\$450.00	—	—	—
1	414.52	\$35.48	\$4.50	\$39.98
2	378.66	33.84	4.14	39.98
3	342.48	32.20	3.78	39.98
4	305.92	30.56	3.42	39.98
5	268.99	28.93	3.05	39.98
6	231.70	27.29	2.69	39.98
7	194.03	25.67	2.31	39.98
8	155.99	24.04	1.94	39.98
9	117.57	22.42	1.56	39.98
10	78.77	20.80	1.18	39.98
11	39.58	19.19	.79	39.98
12	—	17.58	.40	39.98
	\$450.00	\$29.76	\$479.76	

An advertisement captivates us. Investigation shows that the item is a good buy for the \$75 mentioned. However, \$75 is a bit hard to come by at the moment so we take advantage of the terms, "Yours for just \$10 down, \$10 a month, plus a small carrying charge." After all, we will pay only a small service charge of \$5.

Here's the table showing schedule of payments. The \$5 service charge is included in the last payment.

	Unpaid Balance	Payment Per Month
0	\$65.00 one month	\$10.00
1	55.00 one month	10.00
2	45.00 one month	10.00
3	35.00 one month	10.00
4	25.00 one month	10.00
5	15.00 one month	10.00
6	5.00 one month	10.00
7	— one month	10.00

Technicians Being Offered Special Opportunity to Seek Certification

The Institute for the Certification of Engineering Technicians has established a voluntary program for certifying engineering technicians. Graduates from institutes of technology accredited by the Engineers' Council for Professional Development who have two years experience are eligible to apply. The Institute is sponsored by the National Society of Professional Engineers.

Three certification grades have been established. The grade of Junior Engineering Technician requires either (a) two years of experience in work requiring elementary technical ability as evidenced by endorsement of a professional engineer or equivalent, or (b) graduation from a program of engineering technology accredited by the Engineers' Council.

Your average unpaid balance is \$245 divided by 7 or \$35, since you pay for only seven months. Now the formula:

$I = \$5$

$P = \$35$

$T = 7/12$

$\$5 = \$35 \times R \times 7/12$

$\$5 = \$245 \text{ divided by } 12 \times R$

$\$5 = 20.42 \times R$

$\$5 \text{ divided by } \$20.42 \text{ equals } R$

$R = .245$ (24.5% true annual interest).

Not such a bargain after all.

Frequently we run into the term "discount rate" when borrowing. You are loaned \$100 for a year discounted at 6 per cent. The lender takes out the interest in advance, giving you \$100 less \$6, or \$94. A year later you pay back \$100.

In this case the principal is \$94, the interest is \$6, and the time 12/12 or 1 year. Use the formula:

$I = P \times R \times T$

$\$6 = \$94 \times R \times T$

$\$6 \text{ divided by } 1 \text{ times } \$94 \text{ equals } R$

$R = .0638$ or 6.38 per cent true annual interest.

Borrowing money is a necessity which is found in most present-day business transactions. There is nothing wrong with borrowing when the need is justified.

We should remember that sometimes interest rates are higher due to the element of risk assumed by the lender. This comes about by the quality of (or complete lack of) security offered by the borrower. Also, rate of interest is not the only controlling factor when one borrows money. The lowest rate does not always have the privileges of another rate that may be a bit higher. Open-end features and pre-payment privileges are two points which could make a person select a higher rate of interest when borrowing money.

If we all would shop for interest rates as carefully as we shop for a new automobile we would be showing good business sense.

Meet your reporter . . .

Lab News Writer Has Use of 50-Man Captive Story Source



Evelyn McCoy

Evelyn McCoy has been with Sandia's Secretarial Services Division 3126 for three years and has been assigned to Mechanical Support Division 7214 since 1961. As volunteer Lab News reporter for the past year, her position is unique: she has a captive source for stories. She works in an "exclusion" area with some 50 men. "I miss seeing the other Field Test girls in Bldg. 880, but there's seldom a dull moment in my office," she said.

Evelyn is originally from Pittsburgh, Pa., but after 12 years in Albuquerque, she considers herself almost a native New Mexican. She and her husband, Bob, enjoy playing bridge and singing with barbershop and Sweet Adeline quartets. Son John also has a strong interest in music. Their new home in the northeast heights is a real joy.



CHAMPION FOOTBALL TEAM of Sandia Laboratory is the 25-44-7500 group pictured above. The team won eight, lost one, and tied one to emerge victor of the league. In the front row, from left, are Stanley Love (7522), Cliff Kinabrew (7534), coach, Bob Balthaser

(7521), Bill Peila (2531), Elmer Leslie (2532), and Dave Schultz (2541). In the second row are Phil Loeper (4412), Don Dekker (2531), Ron Martell (2531), Paul Walkup (4411), Sam Berry (2541), Todd Rachel (2544), Ron Bump (7523). Not shown is Rea Chandler (7511).

Bldg. 831 Addition Announced by AEC

A new 600-sq.-ft. addition for Bldg. 831 to be used by Medical organization 3300 has been announced for Sandia Laboratory by the AEC.

Bids were called last week and are scheduled to be opened Feb. 1.

Included in the work will be a concrete floor, footings, and masonry walls. Relocation of exterior utilities and connections to existing water heating, ventilating, and sewer systems are other modifications.

Work is to be completed within 75 days after the contractor is told to proceed by the AEC. Plant Engineering Department project engineer is A. W. Dennis (4543-3).

coronado club



Jan. 18 - Feb. 2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					18	19
					5:15-7:30 Sol Chavez Buffet 6:30-8 p.m.	Youngsters Dance Instruction 1:00 p.m. Local 1689 Dinner Dance 6:30 p.m.
20	21	22	23	24	25	26
	Duplicate Bridge 7:30	Adult Dance Instruction Basic — 7:00 Advanced — 8:30	ACF Bridge Sandia Lab Credit Union Meeting 7:30		Social Hour 5:15-7:30 Combo Buffet 6:30-8 p.m.	Youngsters Dance Instruction 1:00 p.m. Men's Sports Smoker 7:30
27	28	29	30	31	February 1	2
Family Nite	Master Point Bridge 7:30	Adult Dance Instruction Basic — 7:00 Advanced — 8:30	Ladies Bridge 1:15 p.m. Game Night 8:00 p.m.		Social Hour 5:15-7:30 Combo Buffet 6:30-8 p.m.	Youngsters Dance Instruction 1:00 p.m.

EVENTS

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

- '62 CHEVY II, Nova 400 convertible, 6 cyl., std. transmission, low mileage, \$2150. White, 256-3077 after 5:30 p.m.
- UNDERWOOD typewriter, \$30; 3" scope, \$20; 10 meter whip antenna and bumper mount, \$6. Kanode, 408 1/2 Cornell SE, CH 3-0493.
- ARMSTRONG FLUTE. Ellis, 265-1315.
- REGISTERED FRENCH POODLE, Silver, female, miniature, 9 weeks old, terms. Fernandez, AM 5-0472.
- 3-BDR HOME, carpet, drapes, a/c, disposal, walls, landscaped, sprinklers; assume 4 1/2% GI, low down, 10207 Snow Heights, NE. Wardlow, AX 9-5485.
- '59 CHEV station wagon and 17' Clipper trailer, \$2000; Powerglide, PS, air; sleeps 6, pressure water system, floor furnace, electric brakes. Brathovde, AM 5-0783.
- NORGE electric stove, double oven, \$85. Sebald, AX 9-1534.
- '51 NASH Ambassador: VW sedan, 1960 Sunroof. Linn, BU 2-3986.
- GIRL's 3-piece wool coat set, 6X, \$7. Nix, 298-4282.
- POMERANIAN Chihuahua puppies, 7 weeks old, 2 left, \$15 ea. Davis, 9406 Claremont NE, AX 8-1957.
- MAN's golf starter set, new clubs, bag and 12 new balls, \$30 or best offer. Yunker, 299-5389.
- CORNET, original cost, \$240, \$75 or trade for SLR camera. Nielsen, AL 5-2045.
- GARAGE DOOR 8' x 7', overhead, metal, complete w/hardware, \$35. Wilson, AX 9-1721.
- THREE CAR RADIOS, \$8 ea., you remove from cars. Chavez, AL 5-5461.
- MOUNTAIN SITE, 1.20 acres, community well; near proposed playground, artificial lake, \$1750, \$250 down, South 10 highway. Chaves, AL 5-6155.
- DRAFTING TABLE and Bruning 18" drafting machine. Canter, 268-0608.
- 3-BDR BRICK veneer J. E. Brown home, carpets, drapes, sprinklers, near Catholic school and church, landscaped, \$20,500, 2708 Palomas NE. Robertson, AL 5-6942.
- 3500 USED RED BRICK, will sell all or part. De Zeeuw, DI 4-7392.

- 4-BDR HOME, convenient location to Base, carpets, drapes, built-in range and oven, patio, \$16,250. Minter, AL 6-9225 after 5 p.m.
- ARGUS 35 mm 100 watt slide projector, \$10. Strome, AL 6-3324.
- STANDARDYNE 1925 radio; Magnavox 1924 speaker, \$20; original Sioux Indian bow, 7 arrows and quiver, \$45. Smitha, AX 9-1096.
- PORTABLE RECORD PLAYER, \$25, 3-speed, VM automatic changer. Thayer, 1424 Hoffman Dr. NE, AX 9-3127.
- '53 FORD station wagon, R&H, \$225. Post, AX 8-0481.
- TV, 21", walnut, 3-way combination. Martinez, DI 4-6994.
- SOFA, rose color, \$25. Selph, AX 9-6833.
- LIGHT BAR, four lamps, metal case, \$5; Foremost Stenderbelt, cost \$80, sell for \$35. Buchanan, 242-1865.
- 90x160 LOT, Southwest valley, corner Maria Ave. and El Porvenir Circle, easy terms. Conklin, AM 6-6050.
- 2-PIECE SECTIONAL w/ chair, \$35; lined oak coffee table, \$5; drapes, 2 windows, \$5; old rocker, \$5; Hollywood bed, complete, \$12. Richardson, AX 8-1688 after 5:30.
- BUNK BEDS, maple, w/mattresses, convert to twin beds, initial cost \$230, sell for \$115. Hughes, 2916 Av. Nevada NE, 299-6674.
- '57 VOLKSWAGEN, new paint, 2 extra wheels, oversize snow tires, seat belts, \$935. Foster, ext. 27231 or Box 198 Escabosa St. Rt., Tijeras, N. M.
- ZEISS IKON super Ikonta 120, F 3.5 lens, range finder, \$65. Free med. sized puppies. Johnson, 298-0905.
- 21" TV, \$25, w/cart, 4 jacks, and ear-phone headsets. Baxter, 1610 Bayita Lane NW, DI 4-7601.
- RUG, all wool cut pile, grey/beige, 8 1/2' x 11', w/foam rubber pad, \$30; golf shoes, size 8, \$5. Connelly, 299-6795.
- PIANO, upright, ribbon grain mahogany, refinished to natural wood, \$165. Hancock, ext. 41268.
- LIBRARY TABLE, Empire period, old, refinished red mahogany, \$100. Ogdan, CH 3-4723.
- '57 CHEVY 1/2-ton pickup, 3-speed, 6-cyl, \$750. Chester, BU 2-3145.
- ELECTRIC GUITAR and amp., \$50; double bed and springs, \$15. Pritchard, AM 8-6430.
- GAS RANGE, 36", \$20. Polly, AL 6-0223.
- 1 1/3 ROLL asphalt felt roofing paper, 15#, \$3.25; clothes hamper, grey, \$4; '60 Falcon rim for 600-13 tube type tire, \$4.50. Evans, AM 8-8419 after 5:30.
- MERSMAN step table, mahogany, \$8; metal room divider, black, brass trim, \$6; bookcase, mahogany, \$10. Irwin, AL 5-8180.
- '56 CHEVROLET, 8-cyl. automatic, Power Pack, new battery, \$595. Matlack, AL 6-7371.
- GIRL's 20" bicycle, thornproof tubes, \$15. Reed, AL 5-8094.
- 3-PIECE BEDROOM SET, blond. Schafer, 299-4634 after 5 p.m.

NEXT DEADLINE
 FOR SHOPPING CENTER ADS
 Friday Noon, Jan. 25

- '59 MERCURY MONTCLAIR, 4-dr., HT, w/AT, PS, PB and air conditioning. Warren, AL 5-4808.
- 90 ACRES Manzano mountains, 40 tillable, 50-wooded, old well and house on property, fenced. Kane, 299-0382.
- '60 Scrambler motorcycle, \$395; Model 71, .348 cal. Winchester, \$85; two 15" wheels for Chevrolet, \$8. Wilson, AX 8-0049.
- HAULING TRAILER, sturdy 2-wheel, w/bumper hitch, \$50. Barber, 299-4287.
- ACCORDION, 120 bass, 3 treble switches, 2 bass switches, black. Verdardo, AL 5-6385.
- ONE ONLY, AKC Dachsund, male, will accept reasonable offer. Besser, DI 4-1424.
- DOUBLE BED, bookcase headboard, triple dresser, \$70; mahogany Duncan Phyfe drop leaf table, \$20. Barth, AX 9-2668.
- LUND F.I.S. skis, 6'3"; Kasmite boots, ladies size 7, Cubco bindings, poles, \$45 Smith, 299-1665.
- '55 FORD Ranchwagon, V-8, standard transmission w/OD, R&H, \$300. Maginins, AX 9-1751.
- '53 FORD V-8 station wagon, R&H, custom seat covers, \$225. Netz, AX 9-7036.
- WHITE ENAMELED FURNITURE for girl's bedroom, dresser, vanity, desk, twin bed frames, etc., \$60. Willis, AX 9-9285.
- PEKINGESE, male 1 1/2 yrs. old, blond, house trained, registered. Kyser, AL 6-1285.
- 1700 SQ. FT. HOME, VA loan, 3-bdr, den, LR, hw/floors, landscaped, pitched roof. Coonce, AX 9-2026.
- WASHER, Westinghouse deluxe, \$100. Bliss, 255-7980.
- 3 BDR, paneled den w/fireplace, walled landscaped, \$500 down, 529 Torrance SE. Burns, CH 2-2407 evenings or AX 8-1952 weekends.
- STORKLINE baby crib mattress, springs, matching Junior-Line chest of drawers. Baldwin, AX 8-2508, 328 Glorietta NE.
- HAM RADIO COMPONENTS, all for list; metal portable wardrobe, \$8. Fossum, AL 5-0535.
- 3-BDR HOUSE, shake shingle roof, carpet living room, dining room and hall. Meek, AX 8-1214.
- MAUSOLEUM DOUBLE CRYPT, Sunset Memorial Park, liberal discount on equity, take over \$38 monthly payments. Rathbun, 298-4745 after 6 p.m.
- '54 PONTIAC 4-dr., 8-cyl., automatic transmission; crib mattress and cover; oak play pen. Miller, AL 6-6020.
- 3-BDR, den, double garage, w/ fireplace, 1 3/4 baths, Montezuma, Jefferson, and Hilland Schools, low down FHA. Wilson, 1300 Richmond NE, 268-3633.

- PICKUP, '59 Studebaker 6, 1/2-ton, aluminum cover on 6' bed, OD, \$1000. Graham, AM 8-8967 after 5:30 p.m.
- DOG, small Manchester, has shots, papers are obtainable, \$15. Johnson, 299-8894.
- 50 REAMERS 1/4 to 1 1/2"; electric concrete hammer; 1-ton chain hoist; 1 1/2-ton spur gear hoist; paint sprayer; steam cleaner; 1/4-1/2" drills. Geilenfeldt, AL 6-7357.
- '59 FORD convertible, power, R&H, new wsw tires, blue and white. Humphrey, AX 9-0020 after 5 p.m. and weekends.
- 2 RIFLES; 5 handguns; all metal fully enclosed 1-wheel trailer; 20-watt Hi-Fi amp, pre amp and 12" speaker. Ernst, 268-9414.
- 35 MM CAMERA, sell or trade for stereo components. Bentz, AM 8-8267.
- '60 SILVERTONE STEREO tape recorder, portable; VTVM; and multimeter. Stang, 299-4842.
- '58 ENGLISH FORD station wagon; '62 Ford Fairlane 500, automatic, air, R&H; Singer model 401A fully automatic zigzag. Naumann, 298-6476.
- 6-YEAR CRIB without mattress \$8; matching 12x15 and 9x12 beige rayon carpets, both for \$25. Driver, 256-7941.
- AKC registered Dalmatian puppy. Ellett, AM 8-1419.
- '54 VOLKSWAGEN, 35,000 miles on factory rebuilt motor, best offer over \$400. Donaldson, 282-3175.
- '56 BUICK CENTURY 2-dr. HT; '47 Chevrolet Club Coupe. Stixrud, 1017 Glorietta, 298-0478.
- HEATH FM tuner, pre amp, amplifier, \$50; 35mm Retina II, \$35; kitchen set, formica, \$12. Johnson, AL 5-5427.
- HAM equipment HQ-180, DX100B, SB-10, PMR-7, AF-67, and power supply. Martin, AX 8-2064.
- '56 2-dr. FORD, 6-cyl, Fordomatic, R&H, padded dash, new white paint, 54,000 miles. Groll, 344-4560.
- SINGLE BED, box springs and mattress; dressing table, large mirror, 4 deep drawers and bench; new antenna. Terry, 242-4659.
- BICYCLE, 26" J. C. Higgins medium weight, about 1 yr. old, \$25. DeLollis, AX 9-5384.
- '61 CUSHMAN EAGLE, extras, \$325. Thompson, AX 8-0946.
- TELEVISION, 16" cabinet model. Buchanan, AX 9-7487.
- 3-BDR HOUSE, \$350 down, \$81.50/mo., FHA, Hoffmantown, landscaped, walled yard, a/c, 8815 Cordova NE. Bentz, AX 9-2961.
- LADIES ENGAGEMENT and wedding ring set, 10 diamonds, total 1/4 carat, \$125. Massey, 298-4650.
- '62 CADILLAC, model 62, 4-dr., 4-window, factory air, all power, 14,000 miles, \$5150 Blue Book price \$4800. Henderson, 255-1941.
- WOMAN's figure skates, size 5, w/guards, \$6; dress form w/stand, jr. size, will adjust to 30-37, 23-29, 33-40, \$12. Balentine, AL 5-7374.

- SILHOUETTE VIBRATOR couch w/timer, fold for storing, \$95; platform rocker, solid maple frame w/foam cushions, \$59.55. Welker, AX 9-1179.
- 3-BDR, separate den w/fireplace, 1 3/4 baths, cost \$15,500 3 yrs. ago, sell for \$15,950, \$951 down, 11017 Phoenix NE. Roy, AX 8-0408.
- AMPLIFIERS, 10W, \$15, 20W, \$40; auto. turntable, \$10; clarinet w/case, \$60; 13 x 18 cotton carpeting, beige, \$20. Carlson, 299-0258.
- '56 PLYMOUTH 4-dr. sedan, V-8, straight stick, \$400. Olson, AL 5-8360.
- FOR RENT**
- 3-BDR, unfurnished, electric stove and refrigerator, carpeted, \$90. Princess Jeanne. Pinkerton, AL 5-2505.
- PRIVATE ENTRANCE and bath, living-bedroom combination, 324 Manzano, NE, Brummell.
- UNFURNISHED 2-bdr, brick, FHA, blinds, stove, refrig., off-street parking, 1033 Louisiana SE. Huddleston, AL 5-1312.
- AVAILABLE FEB. 1, large unfurnished apt, 1-bdr. and study, w/w carpeting, drapes, electric built-ins, refrig. Schaefer, 299-8969.
- WANTED**
- RIDE from 309 MANZANA NE to Bldg. 880, temporary last 3 weeks of February only. Cosstick, 268-3515.
- WILL CARE for girls, age 3 thru 5, for working mother, Monday thru Friday, NE Heights area, call anytime. Plegler, AX 9-1709.
- WANT TO RENT a travel trailer from Feb. 8 to March 4. Hassebrook, DI 4-2435.
- RIDER from vicinity of Marquette and Washington NE to Gate 4 or Bldg. 880 parking lot. Way, 255-5693 after 6 p.m.
- RIDE from Lexington and Betts NE or Lexington and Blume NE to Gate 4, 5, or 6. Dyer, 299-3231.
- THREE RIDERS from Eubank and Candelaria to Bldg. 894, drive every day. Nelson, AX 9-0135.
- SHOP MANUAL for 1955 Ford. Swain, 265-0098.
- USED PIANO, upright or spinet, must be functional, will trade good hunting rifle or mobile ham rig 75M. Poore, AM 8-2036.
- 26" BICYCLE in good working condition. Floyd, AX 9-2419.
- RIDE from 5600 block West Central. Ortega, CH 2-9424.
- CONTROLLER for 12-volt electric trailer brakes. Muilenburg, DI 4-7664 after 4:30 p.m.
- RIDE from Gate 4 or nearby area to Mankin Foothills, vicinity of 12908 Turquoise NE, on Thursday evening only. Thorp, 298-6030.
- PIANO—spinet or 40" studio type in good condition, reasonable. Sundberg, AX 9-2177.
- SET OF BARBELLS. Fite, AL 5-6943.
- 8 TO 10 FT. CAB-OVER camper. Revels, 255-9544.
- LOST**
- LOST: WHITE Spitz male dog. Vicinity Florida and Menaul, Jan. 13. Dog is sick, needs medicine. Reward. Marianne Newton, 265-1042.

The interim period — 1946

Fermi-Led Committee Recommended U.S. Keep Nuclear Research Lead

World War II ended and the future of the Manhattan Engineer District was uncertain. In this atmosphere of uncertainty, work went on in nuclear development despite the exodus of scientists back to their universities and laboratories.

Before it turned over its work to the civilian Atomic Energy Commission at the end of 1946, the MED completed the other two plutonium producing reactors at Hanford and constructed two small reactors for experimenting with fast neutrons at Los Alamos, N. Mex., the last of three large centers built for the wartime project. Both Los Alamos reactors were "firsts." One used plutonium as fuel and the other enriched uranium.

Even before the war ended, scientists were turning their thoughts to future development of reactors and to shaping a national nuclear energy program. In November 1944, a committee on which Fermi served recommended that attention be focused on designing reactors to produce electric power and that the United States keep its lead in nuclear research. The committee stressed that a world-wide organization would be needed to control the use of this new source of energy.

A more formal group, the MED Committee on Post-War Policy, urged that the United States maintain superiority in nuclear weapons, put nuclear development under a national authority, explore the possibility of using reactors in naval propulsion, and encourage industrial development and fundamental research.

On Oct. 3, 1945, President Truman outlined a national program which contemplated military control. In 1946, after an historic debate, Congress passed the Atomic Energy Act of 1946 which gave control to a civilian commission. The law became effective on Aug. 1 and Truman appointed the

first five members of the new Atomic Energy Commission with David E. Lillenthal designated as Chairman.*

The law established a government monopoly in the nuclear field and set up a special Congressional committee, the Joint Committee on Atomic Energy (JCAE), to oversee the AEC operations. The late Senator Brien McMahon of Connecticut, who had championed civilian control, became the first JCAE Chairman.

Meanwhile, despite the exodus of scientists back to their universities and laboratories, important events were taking place. The MED decided to sponsor two reactor projects in Fiscal Year 1947.

One was a fast neutron reactor which became the first experimental "breeder" (EBR-I), i.e., a reactor designed to produce more fissionable material than it consumed. The other, a helium-cooled high temperature power reactor, did not get beyond the design stage.

Radioisotopes were made available for use outside of the MED project. The first shipment—carbon 14 produced in the X-10 reactor—left Oak Ridge on Aug. 2, 1946, for a cancer hospital in St. Louis, Mo.

Other important MED decisions had included plans to make national laboratories of the research centers at Argonne and Oak Ridge, to establish a nuclear power laboratory at Schenectady, N. Y. and to authorize the Brookhaven National Laboratory, a research center for the Northeastern states, to be built on Long Island. Its central facility was to be a versatile research reactor. The new Atomic Energy Commission carried out these plans.

The Oak Ridge Institute of Nuclear Studies (ORINS) was organized at Oak Ridge to stimulate nuclear research and training in southern universities. ORINS submitted its first contract to the Army on Oct. 31, 1946.

The next installment of this series tells of the civilian-controlled Atomic Energy Commission replacing the Manhattan Engineer District — and the United States' detection of the first Russian nuclear test in 1949.

*Succeeding chairmen have been: Gordon Dean 1950-1953; Lewis L. Strauss 1953-1958; John A. McCone 1958-1961; and Glenn T. Seaborg 1961 to date.

Wallace G. Smith Died Dec. 28

Wallace G. Smith, a Sandia employee for nearly 11 years, died Dec. 28 after a long illness. He was 43.



Mr. Smith worked in Plant Accounting Section 4153-1, but had been on sick leave since late November.

Survivors include his widow, two daughters, and two sons,

all of Albuquerque, and three sisters, four brothers, and his parents, all residing out-of-state.

Hand Injury Ends Sandia Lab Safety Record Jan. 14

Monday, Jan. 14, Sandia Laboratory's safety record went from 3,655,000 man-hours to zero when a maintenance man working in the Sandia Engineering Reactor Facility was injured.

The man was helping fit some heavy auxiliary control equipment into position when the accident occurred. He had lifted a heavy masonite and steel plate and was moving backwards to move the piece into a working position. He stumbled over other pieces of the assembly stacked on

the floor. He fell, retaining his grip on the piece of steel. His right hand was caught between the steel and the pieces on the floor.

The injury consisted of severe contusions and lacerations of fingers of the right hand and fracture of the right little finger. The employee was taken by company ambulance with a Sandia doctor in attendance to a local hospital. He is still recuperating.

At the time of the accident, Sandia Lab employees had worked 106 days without a disabling injury.

Packing and Shipping Problems Are Tough But Sandia Lab's Experts Whip Them All

"You might say that the successful packager is one who can outguess the weather, provide prompt service to his customers, and still assure that a packaged item will arrive at its destination intact," W. A. Otero, supervisor of Packaging-Shipping and Commercial Inspection Division 4624, commented. "We pack for any climatic or environmental conditions, and for shipment by any vehicle, anywhere in the world."

It is a knotty task packing, shipping, and inspecting for an organization as large as Sandia Laboratory. The men and women of Division 4624 make an average of 1600 shipments monthly.

"We try to take things in stride," G. L. Hutchinson, supervisor of Shipping Control and Commercial Inspection Section 4624-1, continued. During the buildup period for recent Pacific testing, we made overseas shipments totaling 1,338,877 lbs., or 143,004 cu. ft. during one period of six weeks. Of course, shipments continued longer than six weeks, but that was a typical high period."

Section 4624-1 handles paperwork and preparation for packing. Three service clerks receive and process shipping authorizations. A copy of the authorization remains with each item; meanwhile, five record typists assign control numbers to the shipment and prepare the necessary bills and forms. The material is handled by two material handlers who prepare it for the packers, if necessary.

Keep Records

"We send a copy of the bill to the shipping office after logging the shipment in our books," Mr. Hutchinson continued. "There, a service clerk presents the bill and the material to the trucker or shipper when pickup is made."

The material is packaged by the men of Packaging Section 4624-2, supervised by Adolph Sanchez. "Our first consideration is where the shipment is going, and how it will be shipped," he said. "Fragile items, and those bound overseas receive special protective treatment."

Section 4624-2 uses a variety of packing materials to protect the items it ships out. A typical item is thoroughly cleaned before packing begins. If it's susceptible to corrosion, it is coated with a removable protective coating. If going overseas, the coated item may be wrapped in foil, water-vapor-proof paper, and sealed with tape. Then, it is wrapped in shock insulation and placed in a fiberboard or wooden box. The box with its shipping forms is sealed shut.

The largest items sometimes tax the ingenuity of the packagers. "We often find ourselves building a box around the items instead of putting them into a box," he continued. The job is often complicated by the delicacy of a bulky item such as a computer. "Sometimes, the shipment will be subjected to several environments, such as salt spray, high humidity, and the arid heat of the desert," Mr. Sanchez said. "We package the item to withstand the effects of all of these environments."

Shipping Boxes

Shipping boxes are built by Carpentry and Boxmaking Section 4513-4. The sides for the boxes are assembled in several sizes which can be combined to form a box of practically any dimensions.

Fiberboard boxes are made up in the Packaging Section's box-making machine. It takes only two or three minutes to set the machine and make a box, and for production-line assembling, once the machine is set, all the operator has to do is feed it fiberboard. An operator and a stapler can produce some 600 boxes a day.

"Our object is to provide service," Mr. Sanchez concluded. "We work to provide the best possible service to our customers."



BOXES BIGGER THAN MEN are sometimes needed by Division 4624 for shipping or storing materials. Here, Ben Salazar (4624-2) brushes liquid preservative on an item destined for storage. Preservative hardens, forms rust-and-corrosion-proof coating which protects surface of item.



RECORDS, an important part of packing and shipping at Sandia Lab, are prepared by members of Shipping Control and Commercial Inspection Section 4624-1, supervised by G. L. Hutchinson, left. Seated (l to r): Betty Thom and Jean Haycock. Standing are Virginia Sims and Natalie Lariviere. These shop clerks keep track of shipments at Sandia.



PACKED for overseas shipment, tape recorder is inspected by Arthur D. Bacon (3624-2). Wooden crate is painted with adhesive, lined with water-vaporproof paper. Next comes a lining of shock insulating material, then another foil-fabric-paper vapor barrier. Finally, the instrument itself, wrapped in a nest of crepe fiber.



SACKS of desiccant are packed around electronic gear destined for long-range shipment by Gabriel Chavez (4624-2). They'll absorb stray moisture in metal packing container, reduce chance of possible humidity contamination.

Sandia's Safety Record

Sandia Laboratory HAS WORKED 35,000 MAN HOURS OR 1 DAY WITHOUT A DISABLING INJURY

Livermore Laboratory HAS WORKED 703,000 MAN HOURS OR 137 DAYS WITHOUT A DISABLING INJURY