



New Mexico ASME Members Will Study State's Aerospace Frontiers

Preparations are underway for the Fifth Annual Symposium of the New Mexico Section, American Society of Mechanical Engineers, to be held at the University of New Mexico Student Union Building, Oct. 15-17 in conjunction with the 75th Anniversary of UNM. Program for the symposium will be "Aerospace Frontiers in New Mexico."

General chairman for the symposium is R. H. Schultz, manager of Sandia's Environmental Research and Operations Department. Administrative chairman is E. L. Harley, supervisor of Aerospace Design Project Division I.

"There are four major objectives to the

symposium," Mr. Schultz points out. "The first is to provide technically oriented personnel in New Mexico with a comprehensive view of the level of effort going into the aerospace program. The second is to give specific examples of technical programs on the frontiers of design and development for aerospace.

"The third objective is to illustrate the wide range of engineering fields participating in the technological advances required to reach the goals set by progressive scientific planners. The fourth is to recognize the correlation between academic and industrial technical endeavors.

Seven Sandians will serve as session chairmen and will make presentations at Symposium sessions: R. W. Henderson, Vice President, Weapon Programs; E. H. Draper, Vice President, Development, and Vice President, Region VIII, ASME; G. A. Fowler, Vice President, Development; V. E. Blake, Jr., manager of Aerospace Nuclear Safety Department; A. Y. Pope, manager of Aero- and Thermodynamics Department; S. A. Moore, manager of Engineering Analysis and Equipment Design Department; and H. H. Patterson, manager of Information Systems Department.

Other Sandians serving on preparation committees include the following: Publicity: R. G. Illing (7419) chairman, J. E. Postlethwaite (1515), and D. Spatz (1522); Finance, C. J. Mauck (7214) chairman, W. A. Adams (1513), and T. A. Reinhart (2541);

Facilities: L. H. Stradford (1552) chairman; Proceedings: W. A. Sebrell (1542) chairman, R. Krieg (1422), L. S. Johnson (1543), E. M. Austin (1511), and H. F. Maciolek (1521); Registration and Reservations: R. J. Hart (1533) chairman, K. C. Goettsche (1111), W. J. Dalby (7412), and G. H. Bradley (2113);

Printing: J. M. Michaels (1513) chairman; D. K. Buchanan (7331), J. E. Bear (7331), and K. D. Nokes (2451).

Sessions at the Symposium will include the following: Research at New Mexico Universities Related to Aerospace; Air Force Programs at Air Force Weapons Laboratory, Air Force Special Weapons Center, and Holloman AFB; White Sands Missile Range, Department of the Army and National Aeronautics and Space Administration; Sandia Corporation; and ACF Industries, Inc., and Los Alamos Scientific Laboratory.

Accountants Chapter Wins Top Honors In Nat'l Competition

Seventeen Sandians have reason to be proud of their membership in the Albuquerque Chapter of the National Association of Accountants. The chapter has received word that it has attained first place in competition with all other chapters in the nation at the close of the first fiscal quarter of the current year. At the close of the 1963-64 membership year, the chapter occupied position number 163 out of 167 positions.

The NAA sponsors competition among all member chapters on a nationwide level, under which points are awarded for chapter performance in several areas. At the end of each fiscal year, special incentive awards are presented to the chapters scoring highest in these areas.

Sandians on the Albuquerque Chapter's board of directors include F. E. Mitchell, Director of Special Activities; and S. F. Harvey, Sr., Membership Director. L. E. Cole represents the Albuquerque Chapter in the local affairs of the Accounting Careers Council, which contacts promising high school students throughout the state, inviting them to consider accounting as a career.

Other Sandians who are members of the local chapter include C. R. Andes, Mrs. L. P. Bowers, R. S. Cox, R. E. Duke, C. R. Gardner, J. W. Holdridge, D. K. McCoy, H. A. Romme, G. W. Stohner, A. M. Torneby, R. F. Tuffnell, D. R. Vickrey, E. R. Wangerin, and W. White.

J. W. Easley Returning on Oct. 1 To Bell Telephone Laboratories



Sandia's Director of Radiation Physics, James W. Easley, will return to Bell Telephone Laboratories, Whippany, N. J., Oct. 1 to assume the position of Director, Military Digital Systems Laboratory. His successor at Sandia Corporation will be announced at a later date.

Mr. Easley was assigned to Sandia in June 1960 as Manager of Radiation Effects Department, and in January 1962 was appointed Director of Radiation

Physics. His organization is comprised of Radiation Physics Department and Applied Nuclear Science Department. His previous association with Sandia included several months on loan to Physical Sciences Research Department during the summer of 1959.

As a physicist with Bell Telephone Laboratories since 1954, Mr. Easley's work has been mainly with semiconductors and semiconductor devices. He previously was with the University of California's Radiation Laboratory at Berkeley for several years doing research in the field of high energy neutron scattering.

Mr. Easley received both Bachelor's and PhD degrees in physics from the University of California.

(Editorial Comment)

You Are Asked To Do So Little

Because of its rapid growth and multi-cultural history, Albuquerque is a true cosmopolis—a "city of the world" in the Greek sense—made up of people from many states, many countries. People in this community, no matter what their origins, have accepted the community as their home, and in doing so, have accepted a certain responsibility to their fellow citizens.

Sandia employees accepted a part of this responsibility a few years ago in founding the Employees' Contribution Plan. Through this means, they provide valuable assistance to those who need their help. ECP makes it possible for responsible Sandians to help build a better community.

Participation in ECP is an indication of the individual's responsibility to his fellow men. "No man is an island, entire of itself," the English poet John Donne wrote. "Any man's death diminishes me, because I am involved in mankind. Therefore, never send to know for whom the bell tolls. It tolls for thee."

In an important sense, we are all involved in mankind — in the welfare, not only of our home town, but also of all the people who inhabit it. For us at Sandia, an effective way of carrying out part of our responsibility for the well-being of our community and its citizens is through a fair-share contribution to the Employees' Contribution Plan.

You are asked to do so little for those who need so much.

ECP Drive Kickoff Monday

Monday, Sept. 28, the 1964 Employees' Contribution Plan Fund Drive will begin at Sandia Laboratory. During the Drive, employees will have the opportunity to support 36 health and service agencies under ECP.

One or two individuals have been selected from the organization of each director at Sandia to conduct meetings at which a brief film will be shown and solicitation cards distributed. Employees will be notified

of the time and location of meetings. Employees who wish to become members of ECP or those ECP members who wish to review their present contribution, may do so at these meetings. No person to person solicitation will be made.

"We feel that, because so many Sandia people now understand and support ECP, we can conduct the annual ECP Fund Drive simply and economically," R. W. DeVore, Chairman of the 1964 ECP Committee, commented. "Thus, we're emphasizing these meetings as the place where the ECP message will be carried to the individual employees."

Members of Sandia's large staff and department managers have already attended similar meetings. For other employees who are not able to attend regularly scheduled meetings, special make-up meetings will be arranged as necessary.

CAMPAIGN KICKOFF—R. W. DeVore, ECP committee chairman, displays a target for Sandia Laboratory employees. The drive starts Monday and there are two weeks in which to make the goal. Mr. DeVore says we need 90 per cent participation and 75 per cent Fair Share to win this award.

LET'S WIN THIS AWARD!

UNITED FUND AWARD
for Outstanding Citizenship
PRESENTED TO

Pledge YOUR FAIR SHARE TO THE E.C.P.



Editorial Comment

Dialogues on Democracy

"Dialogues on Democracy," an LP album combining some of the sounds of American political practices with expert opinions on political theory, has been produced by Western Electric's Public Affairs organization.

The album, which was offered to Western Electric employees, was enthusiastically received and thousands of them were purchased. The non-partisan album was conceived as an "experience in living history," having special significance this election year.

The albums will be available about Oct. 7 to Sandia Corporation employees during the noon hour at the Coronado Club or during the noon hour and for 30 minutes after work at Employee Services Division, Bldg. 610. At Livermore Laboratory the albums will be available about Oct. 12 from the Classification and Public Information Division office, Rm. 142, Bldg. 912, during the noon hour and for 30 minutes after work. The package of three 12-in. 33 RPM records is priced at cost—\$1.25.

"Dialogues on Democracy" offers a brief appraisal on some of the issues and problems Americans have encountered and must continue to face as a people and a nation. Conventions and campaigns of years past come to life again in recorded sounds of the moment. Issues and theories are discussed by three men of outstanding reputation in political philosophy.

Campaigns and elections from 1892-1960, narrated by Richard D. Heffner, a former professor of history, contains the authentic voices of great Americans from Cleveland to Kennedy. Campaign songs, convention sounds, and great debates recall the drama of the 20th Century elections. We hear the voices of American leaders saying, "... the only thing we have to fear is fear itself." "... you have summoned me ... to lead a great crusade ..." "... the torch has been passed to a new generation of Americans ..."

The section dealing with presidential power presents a conversation between Mr. Heffner and Richard E. Neustadt, Professor of Government at Columbia University. Discussed here is the question: "How much power does the President really have?" What contributions did Washington make to the office? Lincoln? Roosevelt? Eisenhower? Other Presidents? Mr. Neustadt has served as a top advisor to presidents from Truman through Johnson. He discusses the American presidency—its power and its development.

The dialogue on "The Meaning of Freedom" features Sidney Hook and treats the question, "Is democracy superior to communism?" Mr. Hook, who is one of America's leading political philosophers, examines the meaning of our democracy—and opposing systems. Mr. Hook is head of the Philosophy Department at New York University's Graduate School of Arts and Science.

This album is dedicated to the oldest, most vigorous political democracy in the world—our own. It will be an exciting aid to students, discussion groups. In fact, it will be an aid to every thinking citizen.

Take Note . . .

Fred Carleton of Sandia's Clinical Psychology Division has been named regional editor of **The Industrial Psychologist**, the quarterly news journal of Division 14 (Industrial Psychology) of the American Psychological Association.

He will serve as editor for the Rocky Mountain Region of the APA, comprising Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming.

A mountain lion, which possibly will be ranked among the North American records, was recently taken near the Pecos Wilderness by Dwayne Bennett. The animal measured about seven ft. and weighed about 150 lbs.

Mr. Bennett spent seven days in the area and traveled almost 200 miles on horseback for this trophy. The hunt was donated to the Wildlife and Conservation Assn. by O. I. Fletcher and Mr. Bennett was the lucky winner.

AEC/ALO Information Division Appoints New Information Assistant

Miss Marjorie Allen has been promoted to Information Assistant in the Information Division at the Atomic Energy Commission's Albuquerque Operations Office.

Miss Allen has been Administrative Assistant in the information office since March 1958. She has been associated with the nation's atomic energy program at Los Alamos, at the Commission's Nevada Test Site, and at Albuquerque since 1945. Prior to her AEC work, she was employed with the New Mexico State Department of Public Welfare and with the World War II Air Depot Training Station on what is now Sandia Base.

A native of Covington, Tenn., Miss Allen is a graduate of Amarillo (Tex.) College and attended West Texas State University, Canyon, Tex., and University of New Mexico, Albuquerque.

Landscaping Efforts Earn First Honors For Chuck and Edna Gross

It's a lazy man's yard when it comes to maintenance, but there is nothing lazy about the effort J. E. "Chuck" and Edna Rae Gross have put into landscaping and planting their prize-winning lot.

Chuck, who is supervisor of Advanced Electronics Systems Division, and his wife will take a week-end trip to Las Vegas, Nev., in October as their prize as sweepstakes winner of the Tierra Bonita Landscape Contest, sponsored by Albuquerque Board of Realtors and the Landscape Nurserymen's Association.

The Council of Albuquerque Garden Clubs judges were particularly impressed with the vistas of the yard from the various rooms of the house, and the integrated feeling of outdoors-indoors that prevails.

Six years ago the front yard was landscaped and planted, and a small fountain and pond in the backyard were installed by a local professional landscaping firm. But the Gross horizon has changed considerably since then. Four years ago, Chuck decided the large lawn in back lacked character and his water lilies needed more room. The result was the addition of a large concrete pad and red brick barbecue pit and another, larger pool with deep holes particularly suitable for hardy lilies. An attractive feature is a tiny cast-concrete footbridge over the larger pond.

Around the edge of the lot are perennials, bushes, fruit trees, some large trees, and—for ground cover—succulents, sedum, and strawberry plants. Golden bamboo, which is green throughout the year, is used to a large extent. Around Eastertime, a Chinese magnolia, which has 50 to 60 purple and white flowers but no leaves until later, makes a spectacular show. There are about 65 rose bushes scattered through both front and back yards.

Off to one side of the backyard is a secluded area: a planting of vines and low-growing perennials meant to be enjoyed from the master bedroom.

The backyard lawn is of African Bermuda, which will take hard use. The front lawn is bluegrass. The front landscaping includes dwarf (one ft. high) bamboo, golden bamboo, barberry, juniper, other evergreens, a Japanese maple, and several European sycamores. Because of the predominant number of evergreens, the front yard doesn't change much in appearance from season to season.

The runnerup for the sweepstakes award was another Sandian, Robert W. Higgins, and other Sandia winners included Stanley Spray, Bennie A. Montoya, Robert W. Crain, C. J. Klecotka, Henry A. Mullin, Jr., John F. Smatana, and Danforth Clement.



PRIZE-WINNING YARD is proudly shown by Chuck and Edna Rae Gross. Two-year-old Jeff isn't much gardening help, but he is content to sail boats in the several lily ponds.



Peggy Brown (2132)

Take A Memo, Please

Safety rules are like traffic rules: meant to be followed for your own protection and that of others.

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LAB NEWS
SEPTEMBER 25, 1964

SANDIA CORPORATION LAB NEWS



ALBUQUERQUE, NEW MEXICO • LIVERMORE, CALIFORNIA

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There's Quite A Story to Tell About Your Paycheck

Your paycheck might be important to you but other people care about it too. As a matter of fact, they are very particular about your paycheck. They make sure it gets to you on time, that it's for the correct amount, and that your deductions are correct.

If your check goes to a local bank, you don't see your actual paycheck, but you do receive your pay record statement. This gives you the full story of your current pay plus your accumulated totals for retirement, year's taxes, etc.

Although produced by computer—most of the time routinely—your paycheck represents the best effort for accuracy that is possible.

The effort starts in each organization with the preparation of your time card. Usually, Division secretaries mark the time cards with the record of your hours worked and your time absent. Your immediate supervisor checks the time card and signs it. This becomes the record from which your pay is computed.

The cards are sent to Payroll and Disbursements Auditing Division where payroll clerks mark each card with the proper code numbers. For accounting purposes, these codes represent time worked at regular pay, overtime worked, shift premium, sickness absence, vacation, or payment in lieu of vacation, etc.

After initial processing by the payroll clerks, the time cards then go to Keypunch Section of Data Center and Operations Department where computer input cards are punched.

Not all cards come in at the same time during the day they are due, so processing of the cards is handled in blocks of 100 or so.



TIME CARDS are prepared by Division secretaries such as Lydia Goodell of Communication Services Division. The cards are the record from which your paycheck is computed.

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PAYROLL CLERKS of Payroll and Disbursements Auditing Division mark the time cards with proper codes for the keypunch operation. Mary Geilenfeldt, left, and Alice Vancill check the shift premium considerations on a group of time cards.

As each block is processed by Keypunch operators, it is taken across the hall in Bldg. 880 to Ernestina Romero, control clerk in Administrative Programs Division. Ernestina's job is to prepare processing control information for the IBM 7090 computer operations. This includes checking cards for proper processing, running a preliminary check on each block to see that the cards balance with the totals prepared by Payroll and Disbursements Auditing Division, and writing the process sheets for the 7090 computer operators.

Jim Rhodes of Administrative Programs Division has responsibility for the payroll computer program and system operation. As a programmer, Jim keeps the 7090 payroll program up to date and able to handle whatever individual exceptions to routine processing that are needed.

The complete payroll records for each employee are already on tape. The computer takes the master tape record and current time card earnings and computes each individual's pay, taxes, deductions, etc. More than 8000 individual pay records can be processed in about four hours. Output from the computer is in the form of magnetic tape which goes into an auxiliary computer printer, the IBM 1401. This machine, controlled by the 7090 output, then prints the checks, the bank deposit lists, and other control data. Blank checks go through the printer in a continuous stream. Each check is numbered and a record of it is automatically produced by the printer.

Now the checks and the bank deposit lists along with the control data produced by the computer go back to Payroll and Disbursements Auditing Division. The payroll clerks take a look at the control data and the individual checks and lists. They know from the information compiled from the time cards what the payroll totals should be for various categories of employees. The control data gives them an actual figure for comparison.

The payroll clerks also check a sampling of individual pay records and paychecks for accuracy to see if the physical details of the checks are correct.

After this inspection, the payroll checks and bank lists are sent to Cash and Paymaster Section for signature and distribution. Jim Birchfiel, supervisor of the Section, must sign each paycheck and bank deposit listing, but it's too big a physical job. The checks are sent through a machine which prints Jim's signature on each check. The Section also verifies the total payroll amount against the control and accounting data produced by the computer.

The checks are mechanically inserted into envelopes and delivered by the Paymasters to Department secretaries or authorized individuals within each organization who then distribute the envelopes to employees.

All paychecks are prepared at Sandia Laboratory for employees located at Livermore Laboratory, Tonopah Test Range, or sites. The checks are airmailed to their banks or sent to authorized paymasters at their locations for delivery.

In the meantime, the new time cards for the next pay period have been produced by the computer during the payroll printing process. These are sent to Division secretaries by Payroll and Disbursements Auditing Division and the cycle begins again.

For you, then, the next step is the bank.



CONTROL CLERK Ernestina Romero checks the payroll process sheets with payroll programmer Jim Rhodes. Jim is responsible for keeping the payroll program used by the IBM 7090 computer up to date.



KEYPUNCH OPERATORS Penne Bales, foreground, and Mary Swain prepare computer input cards from the information on time cards.



JOHN CAVANAUGH, supervisor of Weekly Payroll Section, sorts paychecks, pay records, and control data for assignment to payroll clerks for accuracy checks.



TONY SILVA of Data Center and Operations Department prepares an IBM 1401 computer printer to run paychecks. Printing operation is controlled by the output tapes from the 7090 computer.



SIGNATURE of Jim Birchfiel, supervisor of Cash and Paymaster Section, appears on all Sandia Corporation paychecks. Jim does not sign each check; his signature is printed by machine, but he verifies payroll totals.

END OF THE LINE—Tom Spindle of Mail Services Section receives his paycheck.



Engineer-In-Training Review Offered By UNM For Non-Certified Engineers

Sandia Laboratory engineers who are not certified as Professional Engineers in New Mexico might be interested in a review course offered by the University of New Mexico and the Albuquerque Chapter of the New Mexico Society of Professional Engineers.

"Engineers-in-Training Review" will start Oct. 26 and will consist of 33 meetings on Monday and Wednesday evenings from 7 until 9 p.m. The class will meet in Rm. 103 of the Civil Engineering Bldg. on the UNM campus.

Included in the course will be a review of mathematics and the fundamentals of

engineering including engineering physics, statics, strength of materials, dynamics, thermodynamics, fluid mechanics, engineering economics, electricity, and chemistry. Instruction will be by UNM professors of engineering and professional engineers in private industry.

The course is designed as preparation for the Engineer-in-Training examination which is a prerequisite to the Professional Engineers examination. Tuition is \$50. Enrollment will be limited to 35 students.

To register, contact M. H. McMichael, Assistant Director, Division of Extension, University of New Mexico, telephone 243-8611, ext. 208.

Beckley To Teach Business Course For Chabot College



Terry Beckley, SCLL Personnel Representative, will teach Business Administrative courses for the Livermore branch of Chabot College. Terry's first assignment, Elements of Supervision, is a two-unit course offered in the evening at Livermore High School.

A graduate of Lewis and Clark College in Portland, Ore., Terry received his MS degree in business administration with a major in marketing management from Arizona State University. He joined Sandia Corporation in Albuquerque as a Management System Analyst in July 1960, then transferred to Livermore Laboratory in August 1963.

Terry taught on a substitute basis at Arizona State University, where he was a graduate assistant in marketing. He will teach with a temporary credential from Chabot College until the State of California awards him credentials for the junior college level and for trade and technical vocational programs.

Lecture Series on Aero-Thermal Systems To Be Presented

Six lectures on "Aero-Thermal Systems" will be held at the University of New Mexico, starting Oct. 1.

The first lecture will be "Research Management" by Alan Y. Pope, manager of Sandia's Aero- and Thermodynamics Department. He will discuss the requirements, methods of approach, and facilities for aerodynamics projects at Sandia Laboratory.

Subsequent meetings will be on Oct. 29, Nov. 12, Dec. 3, Dec. 17, and Jan. 7. All lectures are free and will be presented at 4 p.m. in Room 2 of the Mechanical Engineering Building. Complete programs are available from Arthur Hill, tel. 264-5957.

AWS Installs Officers

C. A. Corbin, supervisor of Welding Section, was installed last week as the new chairman of the Albuquerque Chapter of the American Welding Society. S. C. Waldorf of the Section was elected delegate-at-large and appointed chairman of the publicity committee. G. C. Beatrice of Design Definition Division C, retiring president, will serve on the District Nine nominating committee for AWS.

Sandia Laboratory Tech Artist Earns State Fair Purchase Award

An oil painting by George Marks of Technical Art Division took the purchase award for the 1964 New Mexico State Fair art exhibit. The painting, depicting a rodeo scene where cowboys match coins to determine the roping order, measures 22x42 in. and took George three months of evening and weekend work to complete.

"ODD MAN OUT," an oil painting by George Marks of Technical Art Division, won the \$500 Purchase Award at the 1964 New Mexico State Fair art exhibit. The painting will be on display at the Fair through Sunday and will become a part of the permanent State Fair art exhibit.

The scene was painted from sketches George made at the Bernalillo County Sheriff's Posse Arena during the group's informal Sunday afternoon rodeo sessions. Although George paints landscapes and portraits, western scenes with horses are his favorite subjects.

George has been a technical artist at Sandia Laboratory for 12 years. He came here after attending the University of Iowa where he earned his Bachelor of Fine Arts degree in 1950.

George's painting was selected from 425 entered in the competition. It will be on display during the remainder of the State Fair schedule and will be included in the permanent State Fair Art Exhibit.



TOTAL CONCENTRATION and complete control plus constant practice earned Ray Mosteller, left, and Hank Cranston the rank of Lifetime Master in pistol competition from the National Rifle Association. Ray is in the Nevada Test Site Test Support Division and Hank is a member of Design Definition Division.

Two Marksmen Earn Top Honors in National Rifle Association

Ray Mosteller and Hank Cranston recently earned Lifetime Master classification in pistol competition from the National Rifle Association.

The rank is achieved by maintaining an average of 91 per cent in competitions where at least 360 rounds are fired.

After maintaining the average, the men applied to the National Rifle Association for the Lifetime Master classification. Once awarded, the rank is irrevocable.

"This has both advantages and disadvantages," Ray says. "Naturally, we are proud of the honor, but from now on, we can compete only in the Master classification. In a state tournament, for instance, a marksman might be hot and perform way over his average. A master would have to be up about 97 or 98 per cent to beat this. It gets tough."

Both men are enthusiastic competitors. Hank is a past president of the Sandia Gun Club, which sponsors tournaments regularly. He has participated in state tournaments and in national competitions. Last year he was captain of the New Mexico team that won first sharpshooter honors at Camp Perry, Ohio.

"Physical and mental control are the keys to accuracy," Hank says, "plus constant practice." Hank estimates that he fires 10,000 practice rounds annually to maintain his skill.

Ray's father was a Lifetime Master and taught him the fine points of pistol shooting early. Ray competed in New York tournaments in the late 1940's, but

did not have a pistol in his hand for 10 years after joining the U. S. Navy in 1949.

Last year, he joined the Sandia Gun Club and brought his average up to the point of Master classification.

"On an outdoor range, the 10-ring is three and three-eighths in. in diameter," Ray says. "It's 50 yards away. It takes complete concentration to hit it consistently. A .45 has a good strong recoil. In rapid fire competition, you have to fire five rounds in ten seconds. You must concentrate to maintain control."

The sport of pistol competition does contain hazards, but getting hit by a bullet is not one of them.

"The national safety record in this area is remarkable," Hank says. "Our regulations are fully enforced and people do not get shot. There are two other things to worry about, however. One is damage to your ears. Ordinarily, periodic shooting is no problem, but when you do it regularly, there is a possibility of losing your hearing ability in the upper frequencies. All serious competition shooters wear ear protectors."

The other hazard is tendon damage in the arm and hand from the constant shock of the .45's recoil. Whenever the men notice a slight soreness developing, they stop firing for several days.

The Sandia Gun Club welcomes new members and provides instruction, facilities, and loan of equipment. Anyone interested is invited to join the club.

Retiring . . .

Thomas Bone will retire Sept. 30 after 14 years at Sandia. He is a machinist in the Bldg. 892 branch shop.

Mr. Bone left his home in Scotland 42 years ago, and lived in Canada for three years before settling in Detroit. His wife is from Ireland and they met at a Scottish picnic—they still like to go on picnics. The Bones visited Scotland last year, the first time Mr. Bone had been back.

They intend to remain in Albuquerque at 2739 Kathryn SE, but hope to take a trip to San Francisco. "We love the mountains and like to ramble through them looking for rocks, driftwood, and wildflowers," Mr. Bone said.



Mr. Bone Mr. Lew

After 10 years at Sandia Laboratory, Milton J. Lew will retire Sept. 30. He is a machinist in the Machine Shop Division.

He'll retain close ties with Sandia, however. Both of his sons work for Sandia Corporation. "Johnny" (M. J. Lew Jr.) works in the Manufacturing Development organization and Bill is in Purchasing. His daughter also lives in Albuquerque.

Mr. and Mrs. Lew will continue to live at 502 Vassar Dr. SE, but they plan to travel to Rhode Island this fall to visit Mr. Lew's sister. A trip to San Francisco is also on their "must" list.

"Lots of grandchildren" will keep the Lews busy.

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Welcome Newcomers

Sept. 1 - 18

Albuquerque	
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Nancy Jo Funderburg	4622
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Jere G. Harlan	1311
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Norman B. Loble	4254
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AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

OFFICE OF THE PRESIDENT
 815 SIXTEENTH STREET, N.W.
 WASHINGTON 8, D. C. NATIONAL 8-3870



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 WASHINGTON 8, D. C. NATIONAL 8-3870

July 29, 1964

Mr. Charles H. Brower
 Chairman of the Board
 Batten, Barton, Durstine & Osborn
 383 Madison Avenue
 New York, New York

Dear Mr. Brower:

We in the AFL-CIO are deeply committed to the three basic principles represented by the United Community Campaigns of America.

We believe citizens should join together in supporting voluntary social agencies, which are an essential element in the overall effort to meet human needs. We believe united giving -- that is, a single campaign for all worthy endeavors -- is the equitable and effective way to rally that support. And we believe the policies of the agencies thus supported should be determined by those who support them.

Therefore we enthusiastically endorse the 1964 efforts of the United Community Campaigns. As you know, many union members play leading roles as policy-makers as well as fund-raisers for the 34,000 health, recreation and welfare agencies which benefit from these campaigns. I have no doubt that union members will continue to fulfill their major role as givers, too.

Sincerely yours,
Paul J. Cruz
 President

We are in complete accord with Mr. Meany's statement. We ask the cooperation of our respective union represented employees with the Employees' Contribution Plan campaign which begins Sept. 28.

Leland L. Pierce

L. L. Pierce, President
 Atomic Projects and
 Production Workers,
 Metal Trades Council,
 AFL-CIO

Robert L. Stewart

R. L. Stewart, President
 International Guards
 Union of America,
 Local 27

Paul J. Cruz

P. J. Cruz, President
 Office Employees
 International Union
 Local 251, AFL-CIO



THESE are union presidents and committee representatives serving during the preparations for the 1964 ECP Fund Drive. Seated (l to r): Mrs. Janice M. Sharp, Atomic Projects and Production Workers, Metal Trades Council, AFL-CIO, and representative on ECP Committee; Mrs. Betty F. McKinstry, Office Employees International Union, and ECP Committee; R. L. Stewart, President of International Guards Union of America, Local 27; and R. W. DeVore, Chairman of ECP Committee. Standing: Leland L. Pierce, President, Metal Trades Council; R. N. Reed, Campaign Coordinator for ECP Committee; J. M. Wiesen, Deputy Chairman, ECP Committee; M. A. Martegane, Guards Union Representative, and ECP Committee; and P. J. Cruz, President of Office Employees International Union Local 251, AFL-CIO.



MEMBERS of the 1964 Employees Contribution Plan Committee include (seated, l to r) R. W. DeVore, chairman; J. M. Wiesen, deputy chairman; Mrs. J. M. Sharp, committee member; Mrs. B. F. McKinstry, committee member; R. I. Ewing, committee member; R. H. Schultze, committee member (1963 chairman); R. D. Golding, chairman, allocations sub-committee; J. A. Brewster, assistant coordinator; F. A. Leckman, committee member; M. D. Tucker, committee treasurer; R. N. Reed, ECP coordinator; R. H. Austin, secretary, ECP Committee; J. Danlovic, training department representative. Not pictured: M. J. Sektan, chairman of solicitations sub-committee; C. W. Allen, committee member.

Highlands U. Tech Institute Grads Hired by Sandia

Bernard Kayate and John Leavenworth are not unique among the 37 new Technical Institute graduates who joined Sandia Corporation this past summer. Similar to all Staff Aides-Technical recruited from campuses by Sandia's Personnel organization, they were top men in their class.

The thing that is unusual is they are the first recruited by Sandia from Highlands University in Las Vegas, N. Mex., the first state educational institution to offer an Associate of Science degree in electronics.

The program was established there in 1959. Sandia Laboratory's Technical Training and Education Division encouraged the development of the school and provided advice on establishing the curriculum and laboratory.

Bernard and John came to Sandia after two years of study in electronics, mathematics, physics, and engineering drawing plus regular University requirements for courses in English and humanities.

Bernard is assigned to Applied Science Division, Physical Research Department. John is working in Electron Tubes and

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Switch Division, Electronic Components Department.

Sandia Corporation employs a total of 1,429 Staff Aides-Technical at Sandia and Livermore Laboratories.



NEW STAFF AIDES—Bernard Kayate, left, and John Leavenworth are the first graduates of the School of Applied Sciences at Highlands University to join Sandia Laboratory. Highlands is the first state educational institution to offer an electronics technology program.



George H. Dixon
 4542
 Sept. 26, 1949

Malcolm J. Snyder
 4135
 Sept. 26, 1949

Luke J. Vortman
 5412
 Sept. 26, 1949

Norman L. Smith
 4622
 Sept. 27, 1949



Louis R. Chavez
 4221
 Sept. 28, 1949



Charles Rettinger
 4252
 Sept. 29, 1949

Service Awards

15 Years



Robert S. Reynolds
 7433
 Sept. 30, 1949



Harry W. Clay
 4573
 Oct. 3, 1949



Robert R. Sowell
 1110
 Oct. 3, 1949



Adelina E. Lucero
 4135
 Oct. 5, 1949



D. R. Salazar, Jr.
 2643
 Oct. 5, 1949

Service Awards

10 Years

Sept. 26 - Oct. 9
 Vernon E. Kerr 4543, W. D. Stoppokette 1424, Robert E. Pedersen 2511, George L. French 4412, Carhel D. Henry 4614, Sherry L. Smith 7256, Robert D. House 7432, Lyle Diamond 2525, Larry E. Horner 1521, B. R. Lorenzen 4543, James R. Collier 2122, Calvin L. Jackson 3242, Darrell A. Joyner 4233, Kathryn H. Wright 5000, George R. Peterson 7253, Harry P. Wheeler 7322, Doris L. Galloway 3427, Gloria M. Gonzales 4131, Maxine E. Gatlin 3152, Norman L. Zirwas 4611, Howard H. Wicke 5421.

Sandia Speakers

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

D. M. Mattox of Films and Interfaces Division, "Interface Formation and Adhesion in the Metallic System," Gordon Research Conference on Adhesion, Sept. 4, New Hampton, N. H.

Rosa Bodenhamer of Administrative Programs Division, "Computers—Basic Concepts and Implications in Our Society," Santa Fe Chapter of the National Secretaries Association, Sept. 4.

B. O. Allen of Reliability Section, "Training for Design Review," 1964 ASQC Quality Fair, Oct. 15-17, Dallas, Tex.

W. W. Westman of Reliability and Engineering Practices Division, "Design Practices for Reliability," Joplin-Springfield Chapter of the American Society for Quality Control, Oct. 13, Joplin, Mo.

J. A. DeVargas of Data Center and Operations Department, "Procedures for Protection of Information Recorded on Magnetic Tape and/or Cards Within Sandia's Computing Organization," SHARE conference (7090 computer users conference), Aug. 20, Philadelphia, Pa.

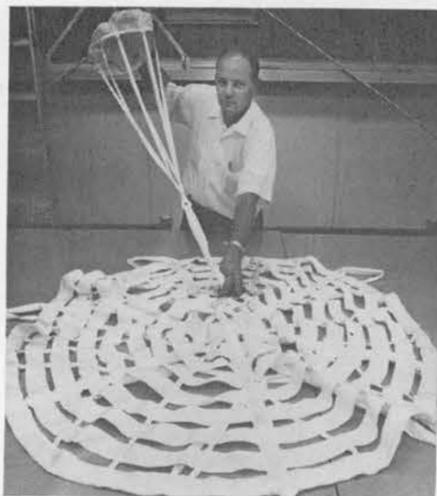
Stoughton Bell of Systems Analysis Division II, "A Partial Ordering for an Illustrative Class of Simple Weapons Systems," 10th Annual Meeting of the Western Section of the Operations Research Society of America (co-sponsored by the Operations Research Society of Japan), Sept. 14-18, Honolulu, Hawaii.

Ski Club to Socialize Tomorrow Night While Waiting for Snow

Tomorrow night the Coronado Ski Club will party in the La Cana Room of the Coronado Club, beginning at 6:30. Free to members of the Ski Club, the party will also welcome members of the Coronado Club who wish to join the Ski Club.

On hand for the festivities will be the new club officers—Jim deMontmollin, manager of Advanced Systems Studies Department II, president; Larry Karkela of Test Support Department, treasurer; and Bernadine Willingham of Secretarial Services Division, secretary.

"The Coronado Ski Club is now beginning its fourth year," President deMontmollin says. "We have planned an active program for the coming season, including monthly meetings with ski films or other entertainment, group lessons at Sandia Peak, weekend trips to other New Mexico or Colorado resorts, group discounts at resorts, and parties. New members are welcome."



INVENTOR of parachute deployment control assembly, Harold E. Widdows of Sandia's Aerospace Recovery Systems Section, displays small pilot parachute used to assist in deployment of larger chute. His invention provides a means of reducing damage to the parachute under high-speed deployment.

Patent Issued AEC In Name of Sandia's Harold E. Widdows

A patent for a parachute deployment control assembly has been assigned to the Atomic Energy Commission in the name of Harold E. Widdows, who is a member of Sandia's Aerospace Recovery Systems Section.

The invention relates to a parachute canopy deployment control assembly for reducing damage to the parachute under high-speed deployment.

According to a description of this invention, the line compartment lacings are cut at the start of deployment and the canopy compartment remains laced until the line stretch which occurs just prior to unlocking the pack locking flaps. The lacings for the canopy compartment are cut when the suspension lines are substantially fully extended by lanyards connected to the suspension lines and attached to a set of canopy compartment lace cutting knives.

To provide good deployment control, canopy tie loops are stitched on all of the radial ribbons on the outside of the canopy. The canopy tie material is run through these loops and tied to the deployment bag tie loops. One-fourth of the canopy ties is tied to a tie loop of each pack leaf.

The patent, number 3,145,956, was issued Aug. 25.

Supervisory Appointments



EVERETT H. BECKNER to supervisor of Electro Physics Research Division 5142.

He has been at Sandia since April 1961 in Plasma Physics and Chemical Kinetics Division doing research in the field

of plasma physics.

Immediately prior, Everett was attending Rice University where he received his MA and PhD degrees in physics. He previously was awarded a BS degree in physics from Baylor University.

He is a member of the American Physical Society.



ROBERT W. ROBERTS to supervisor of Apparatus Development Division 2422.

Bob was assigned to Weapon Systems Test Equipment Development Department as a project engineer when he came to Sandia in February 1953. He

was promoted to section supervisor in 1954 and transferred to a section in Apparatus Development Division in 1960.

Immediately prior he had worked for Bell Telephone Laboratories in New York City for six years in the Switching Development Department. Bob was working on automatic call recording equipment for Direct Distance Dialing.

While with BTL, he also was on the electrical engineering staff of New York City University.

During World War II, he served as a Naval aircraft carrier pilot.

He holds a BS degree in electrical engineering from Colorado University and has almost completed requirements for a MS degree in EE from the University of New Mexico.

Bob is a member of Tau Beta Pi and Eta Kappa Nu, honorary societies; a senior member of the Institute of Electrical and Electronics Engineering; a registered professional engineer in New Mexico; and has served on a joint ASA-IEEE national subcommittee on digital logic.



OTMAR M. STUETZER to manager of Technical Physics Research Department 5140.

He had been at Sandia for a year and a half, serving as supervisor of Component Physics Division 5136.

Previously, Otmar was with General Mills' former Electronics Division in Minneapolis for eight years.

He was in research at Wright-Patterson AFB in Ohio for 10 years and was chief of the Advanced Development Branch at the time he left.

Prior to 1946, he was mainly with research institutes operated by the German Air Force.

Both undergraduate and graduate studies were at the University and the Institute of Technology in Munich (Germany) and were in the fields of physics and engineering. He holds the equivalent of a Master's degree and two PhD degrees.



ORVAL E. JONES to supervisor of Dynamic Stress Research Division 5133.

He has been doing research on the response of solids to shock loading conditions during three years at Sandia in the same organization.

Before coming here, Orval was attending California Institute of Technology under a National Science Foundation fellowship. He has a BS degree in mechanical engineering from Colorado State University, and MS and PhD degrees from California Institute of Technology.

He is a member of the American Society of Mechanical Engineers, Acoustical Society of America, Pi Kappa Phi, and Sigma Xi, honorary societies.

Ceramic Society Members Hear Four Sandia Papers

Four technical papers, based on work being done at Sandia Laboratory, were presented during the Electronics Division Meeting of the American Ceramic Society, held in Philadelphia, Pa., Sept. 16-18.

Papers presented included:

"Metallizing Ceramics Using a Gas Discharge" by D. M. Mattox of Films and Interfaces Division.

"A Factorial Experiment of the Hot-Pressing Parameters for Lead Zirconate-Lead Titanate Ceramics" by G. H. Haertling of Materials Research Division. He was also a participant in the Electric and Piezoelectric Workshop.

"Manganese Glass for Metallizing Ceramics" by R. M. Fullrath of the University of California (a Sandia summer employee) and E. L. Hollar of Films and Interfaces Division. Mr. Hollar made the presentation.

"Effects of Pressure, Temperature, and Electric Field on Ferroelectric Phase Stability of Lead Hafnate-Titanate" by C. A. Hall and R. L. Cook, both of Ceramics Section. Mr. Hall made the presentation.

AEC Laboratory To Be Renamed First of Year

The Atomic Energy Commission has announced that its research facility at Richland, Wash., is to be renamed the Pacific Northwest Laboratory. The installation, part of the AEC's Hanford Plant, formerly was called Hanford Laboratories.

The new designation will be effective when the Batelle Memorial Institute of Columbus, Ohio, becomes the Commission's operating contractor, about Jan. 1, 1965.

Director of Computing Tells 'Why' Data Processing

In the interest of increasing Sandia employees' awareness and understanding of the Company's computing and data-processing activities, the Lab News brought a series of questions about the subject to W. C. Scrivner, Sandia's Director of Computing. The following presents his answers to these questions.

Q. There's been a great deal of interest throughout the country during the last 20 years in computers and their place in our technology. Could you tell us . . . what are some of the reasons for the recent increase in computing and other data processing activities at Sandia?

A. Although present-day computers are complex, expensive, and even mysterious to some people, they're only tools to help people do a better job. We generally find that, as the job gets more complex, the gain in the use of computers becomes greater. The large increase that we see in scientific computing is an indication that the depth and breadth of scientific inquiry is growing.

Q. Is the increase in these activities liable to end in the foreseeable future, or might it continue indefinitely?

A. The large electronic digital computer is a fairly recent tool which scientists and engineers have learned many ways to use, but they're discovering yet other ways that computed answers can lead to new scientific insight. The period of rapid change in computing hardware, programming systems, and techniques of application is expected to extend through the next several years.

Q. Will this period of rapid change be reflected extensively at Sandia?

A. I think that some changes seem reasonable to predict.

Q. Well, what about changes, for example, in Sandia's technical and scientific force. How will the advancing computer technology affect the scientist or engineer at Sandia?

A. As an answer to that question, let me begin with a quotation from a book by R. W. Hamming, *Numerical Methods for Scientists and Engineers*: "If we believe that the purpose of computing is insight, not numbers, then it follows that the man who is to get the insight must understand computing. If he does not understand what is being done, he is very unlikely to derive much value from the computation. . . ."

"Experience indicates that it is generally easier and better to convert an expert in a given field into a partial expert in computing than it is to try to make a computing expert in the given field. But if we are to require this, then it falls on the computing experts to make every effort to reduce the burdens of learning and using the computer. Arbitrary rules, special jargon, meaningless forms, changes in the methods and form, delays in access to the machine, all should be reduced to a minimum and carefully monitored to reduce them further when the next machine offers new opportunities to lift the burden of the nonessentials of computing from the outsider." Now . . . in reference to Sandia, most of the programming has been done by full-time programmers in the computing groups. In the future, much more often the preparation of a speci-

fic problem for computer processing will be done by the individuals who need the answers.

Q. In other words, by the scientists and technologists themselves?

A. Yes . . . Changes such as Dr. Hamming suggested . . . experts in many fields should become partial experts in computing, so that this tool can be used by them at maximum efficiency.

Q. Are there other changes that may take place at Sandia as a result of the changes in computer technology?

A. Yes . . . The total job cycle, for example, will be shortened as more and more equipment at various locations throughout the Laboratory is connected into the computers.

Toastmistresses to Give Program on 'The Art Of Story Telling'

The Tierra del Sol Toastmistress Club will present a program on "The Art of Story Telling" Thursday, Oct. 1, 7:45 p.m. in the Coronado Club Staff Room. Anyone interested in speech improvement is invited to attend. For more information please call Dottie Hickman, tel. 298-3804.

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LAB NEWS

SEPTEMBER 25, 1964

Ex-Air Crewmen Report Stresses As Assist to Sandia Lab Study

Which condition is most likely to panic a pilot—an engine failure at takeoff or at high altitude; failure of the landing gear to retract or loss of radio contact?

These conditions, and many others, are the concern of L. W. Rook, an engineering psychologist in the Reliability Department.

"In the past, we have had frequent inquiries from design engineers wanting to know the expected human performance in operating a particular design under stressful conditions, such as in an aircraft under fire. Human performance under ideal conditions is not deemed an adequate indication of performance under stress. Not much is known about the effect of real life stresses on performance; it's hard to get people to admit performance degradation. The best we could give the engineers was an educated guess," Mr. Rook explained.

Last April, the Reliability Department inserted in the Sandia Corporation Management News Briefs an item seeking former crew members on multi-engine, propeller-driven aircraft to provide judgments on the seriousness of various kinds of aircraft emergencies for a study related to Sandia Corporation interests. Mr. Rook received his first call within three hours after the News Briefs were distributed, and obtained a total of 37 responses, including several from Livermore Laboratory.

Stress was defined as causing such anxiety symptoms as tightening of stomach muscles, excessive sweating, dryness in the mouth, pounding heart, or, as Mr. Rook put it, "those conditions which get you in the guts."

Thirty-two specific emergency incidents, covering the range from slightly to extremely stressful, were paired in different combinations. The volunteers were asked to read each pair of emergencies and indicate which condition they found most stressful. The answers were punched on IBM cards and analyzed to determine the consensus of the order of seriousness.

This consensus gives an average pilot response. The Sandian taking the test who

noted that loss of an engine in B-50's was such a common occurrence that pilot became rather blasé about it was offset by pilots of other aircraft less prone to this particular malfunction.

The most stressful condition was found to be "fire in cabin or bomb bay during take-off," followed by "fire in cabin or bomb bay at altitude," and "engine loss on takeoff." The least stressful condition was "failure of single radio system," followed by "landing gear fails to retract," and "loss of vision with ground."

The results will be used as a scale to predict stress in new situations. In using the scale, Mr. Rook will call upon expert pilots, such as those in the Strategic Air Command, to place new situations relative to those already scaled. Since the amount of behavior degradation of SAC air crews has been observed in all of the scaled emergencies, the position of new situations relative to the old ones provides an indication of the expected behavior degradation.

University Dames Club Invites Sandia Women to Tea

Kappa Chapter of University Dames will hold a Golden Autumn Tea Sept. 26 at 2 p.m. in the Hospitality Room of the First National Bank Bldg., San Mateo and Central.

The organization's purpose is to acquaint wives of university students and married women students with campus activities. Meetings are held every other Thursday in the UNM Student Union Bldg. and feature guest speakers.

For further information call Barbara Rothwell at 243-7532 or Gwen Schreiner at 298-0625.



Jim Leonard Shoots New Low Record In SEGA Tournament

Jim Leonard of Aerospace Design Project Division II set a new record for a Sandia Employees Golf Assn. tourney last week on the Los Altos course. Jim shot a 68, best score yet recorded in a SEGA tournament, for the low gross crown.

Harvey Morse of Project Division, Manufacturing Systems Engineering Department, took low net honors with a handicap score of 59.

Ken Lloyed of Engineering Standards and Procedures Division was tournament director.

Hospital Seeks Anatomical Chart Loaned in 1962

Who has the anatomical chart borrowed from Presbyterian Hospital in June 1962?

The chart is published by Denoyer-Gepert, is on fabric-backed paper 43"x76", and rolls up into a four-ft. long case.

It can be returned through Sandia's Public Relations office, 3142, Bldg. 800, Rm. 107, or call tel. 264-6133.

TWENTY-NINE new teachers from the Albuquerque Public School System visited Sandia Laboratory Aug. 25 during Business Education Day, sponsored by the Albuquerque Chamber of Commerce and the Albuquerque Public School System. The group was welcomed to Sandia Laboratory by C. W. Campbell, Vice President-Administration, at a luncheon at the Coronado Club, after which they were briefed on technical aspects of their visit by R. C. Maydew, of Experimental Aerodynamics Division; and E. G. Thuman, of Administrative Programs Division. Then, the teachers visited Sandia's Plasma Laboratory, Wind Tunnel Facility, and Computer Facility. Above, M. D. Bennett, supervisor of Sandia's Aerophysics Section, explains equipment in the Plasma Laboratory to the group.

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LAB NEWS

SEPTEMBER 25, 1964

SHOPPING CENTER

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.
A maximum of 125 ads will be accepted for each issue.

- RULES**
1. Limit: 20 per issue
 2. One ad word 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
 8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE

- WEAVER K8 telescope sight w/mounts, \$30. Neuhauer, 298-5275.
- LIONEL ELECTRIC train "0" gauge, extra track, accessories; Porter Cable belt sander and router; bulletin board. Courtney, 299-4506.
- FREE—Persian Kittens, 8 weeks old, ready to take home. Lynes, 268-0144.
- TRAILER, Santa Fe, 12', sleeps four, electric brakes, built-in stove, oven, icebox, electric lights and butane. Scott, AX-9-7893.
- HO TRAIN including 2 engines, 9 cars, 7 RC switches; Porter student research microscope, power to 750x. McCallum, 268-1158.
- ALUMINUM-faced insulation batts: 320 sq. ft. of full thick (7 1/2"/sq. ft.) and 500 sq. ft. of economy thick (4 1/2"/sq. ft.); 60 amp meter base, weather head, switch box, \$10. Judd, 299-6536.
- 4 TIRES 9.00x14, whitewalls, recaps, \$25. Salazar, AL 5-1301.
- '59 PLYMOUTH, 9-pass. sport suburban station wagon, 48,000 miles, new tires, PS, auto. trans., NADA price \$855. Martin, AX 8-2064.
- NORTHWEST Pat Hurley Park area—3-bdr., den, fireplace, AC, built-in kitchen, dishwasher, disposal, carpeting, double garage, \$1500 below FHA. Johnson, 242-8758.
- '55 FORD 4-dr. sedan, stick shift, overdrive, R&H. Cobb, 299-1995.
- '63 FLEETWOOD trailer, 10x55', 2 bedroom, washer included. Machin, 345-0027.
- GARAGE DOOR (wooden) with hardware, \$25. Martinez, 344-5840.
- TRAVEL trailer, 15', sleeps four, electric brakes, spare tire. Crass, 299-1418.
- GARAGE DOOR, aluminum with hardware, \$30; bench seat, 1 hp motor, 3 extra blades, \$75. Pino, AX 9-6544.
- '62 VOLKSWAGEN sedan, deluxe model with lots of extras. Johnson, 299-0006.
- '64 FORD 9-pass. Country Squire, 390, factory air, R&H, PB, PS, other extras, 10,000 miles, below NADA. Chandler, 256-6415.
- TENT—ideal for real hunting camp, 16 man squad tent, best reasonable offer will be accepted. Ashmore, AM 8-8304.
- CUSHMAN motor scooter, 1958, two engines, three seats, many extras, \$50 or trade for outboard motor. Tassia, 255-0195.
- CADRE MODEL 500 transistorized citizens band radio, operates on 12v DC or 110v AC, price includes mike and antenna, \$80. Grey, 299-7349 after 5:30.

SHOPPING CENTER

- 30-06 SPRINGFIELD rifle, completely customized, Monte Carlo stock has glass bedded, 3 to 7 power scope, padded case, see to appreciate. Little, 255-7854.
- BUNNY FLUTE, factory reconditioned last year, case, \$75. Kennedy, 298-2226 after 5.
- CHOICE LOT IN subdivision on the Rio Puerco, near Sipapu ski area at Tres Ritos, 130 miles from Albuquerque. Scranton, 299-5720.
- PROPANE TANK, 250 gal., \$125. Brown, 898-1322.
- 3-BDR Roberson, 1 1/2 bath, electric kitchen, DR, fireplace, landscaped, screened patio, workshop, make offer. Todd, 2012 Muriel NE, 299-4095 evenings.
- FREE KITTENS, male and female, 8 weeks old. Burks, 268-5613.
- ONE PAIR of Hollywood twin beds, white tufted headboards. Smith, 1400 Georgia NE, 255-4204.
- '63 CORVAIR 500, \$1380, \$100 below NADA. Seelbach, 299-5489.
- '61 VOLKSWAGEN sedan, spotless, \$1075. Jones, 298-4891.
- '60 BONNEVILLE convertible, factory air and power. Paboucek, 298-7235 evenings and Sundays.
- ANTIQUA metal baby bed (needs refinishing), \$5; black wool coat, size 12. Bechtel, 268-7409.
- '53 CHEVROLET 4-dr., R&H, PG, \$100; 26" boy's bicycle, \$20; backseat platform for '56 Chevrolet 4-dr., \$10. Vath, 299-1448.
- ARCHERY hunting bow, Bear brand, 35 lb. glass and maple laminated recurve. Miller, 255-1324.
- REMINGTON portable typewriter with case, \$27.50. Schafer, 299-4634 after 5.
- '63 JAWA 20hp motorcycle, make offer; trumpet, \$90; accordion, \$25; boy's and girl's 26" bikes, \$12 each. McFall, AX 8-1552.
- '50 CHEVROLET power glide engine and transmission, \$30. Dalin, AL 6-9501.
- '62 CONVERTIBLE Chevrolet Impala, all white, auto. trans., power steering. Chandler, 298-5069.
- '56 PONTIAC 2-dr., HT, R&H, hydro, original owner; fireplace set. Hanen, 268-9749.
- 3-BDR. HOME, den/fireplace, double garage, 2 baths, disposal, patio, carpet, drapes, 1/2 acre near Corrales. Miller, 898-1617.
- '63 MONZA-SPYDER coupe, all extras, 16,000 miles, \$1800. Johnson, 255-6801 after 5:30.
- BUNK BEDS, two, maple, with Sealy mattresses, \$40. Harper, 298-0146 after 5.
- BOY'S English bicycle, \$5. Cashion, 242-3345.
- COUCH, beige vinyl cover, removable back, suitable for den, new, \$30. Bowers, 268-5226 after 5.
- WHITEWALL Tires, four 8.00x14, \$18. Arave, 2813 La Veta NE, 268-7772.
- KAY CLASSICAL guitar with case, used six months, \$30; boy's Schwinn 24" bike, \$15. Bailey, 256-2360.
- '63 FORD 500XL vinyl top, seatback, 300hp, air, AT, PS, PB, September NADA wholesale, warranty until April 1965. Kuidis, Bernalillo 867-2580 or 264-2861.
- 2 1/2 x 3 1/4 Enlarger/lens, \$15; 12 cu. ft. refrigerator, \$80; 4 speaker system, \$45; Refrigerator ebony clarinet, new \$450, sell \$75. Scott, 256-1554.
- VALANCES, two wooden, one 63 1/2" long, \$1; one 95" long, \$2. Arning, 256-9229.
- COMBINATION GE refrigerator-freezer, 11 cu. ft., 150 lb. freezer, white, pink interior, \$175. Welch, 256-3422 after 5 or weekends.

SHOPPING CENTER

- '57 VOLVO PV444, rebuilt engine, \$375. Wilson, 298-0049.
- TWO 6.70x15 General M-S tires; two wheel trailer, sell or trade for one wheel luggage type trailer. Boyd, 299-4968.
- BEDROOM set, 3-piece, Simmons mattress and box springs, double bed, large plate glass mirror, silver gray finish, \$100. Hayes, 265-4385.
- GUITAR, Harmony electric w/amp and National Steel guitar, both new; Encyclopedia Americana, complete 1964 set, take over payments. Simon, 265-0967.
- '57 PONTIAC parts including hard-to-find windshield, also free kittens. Katum, 877-0997.
- SCREEN door, \$4; girl's ice skates, size 8, used once, \$7.50. Chaves, 255-6155.
- '62 LINCOLN Continental, all power, low mileage. Cummings, CH 7-8437.
- ROTH cornet with case, perfect for school band, make offer. Giddings, 298-6221.
- MODEL A roadster, body fine for hot rod, \$20; combination hi-fi radio-recorder player, minor repair needed, \$20. Shaw, 299-5557.
- '64 SAAB 850GT, less than 2500 miles, fully equipped, \$2500, no trades. Class, 298-6062.
- '61 FALCON wagon, R&H, luggage carrier, extra snow tires, recently overhauled, \$800 or will trade down. Berger, 298-4234.
- 2-BDR/DEN home, SE, carpet, drapes, AC, 220v, washer rough-in, walled, landscaped, patio, sprinklers, near four schools, bases, 804 Madeira Dr. SE. Hempen, 268-7989.
- KENMORE automatic washer, \$20. Williams, 299-9150.
- FENDERS "Jaguar" guitar w/deluxe case and professional quality amplifier. Glover, 298-7302.
- '63 OLDSMOBILE station wagon, 8-pass., AC, top rack, power seat, search-tune radio, many other extras. Vivian, 299-1785.
- GE ELECTRIC stove, 40", white, \$75. Bachand, 299-5167.
- BEDROOM SET, 3 pc. blond (bookcase bed, dresser, w/large mirror, 4-drawer chest). Lundergan, 255-2974 after 5.
- '63 TRIUMPH TR-3 red convertible, R&H, new w/w tires, wire wheels, electric OD, white top, \$1675. Goodman, 299-4700.
- BELL & HOWELL Robomatic 35mm slide projector w/timer, 36 slide trays and 2 storage cases for trays, \$65. Goodwin, 256-2216.
- 3-ROOM cabin and garage, approx. 1 acre of land in Manzano Mts. Highway South 10. Bluet, 282-3686.
- '63 TRIUMPH TR-4, R&H, wire wheels, tonneau, low mileage, under blue book. Tessier, 299-7493.
- '50 CADILLAC 4-dr. sedan, new tires, best offer over \$150. Arrington, 256-2973.
- '51 CHEVROLET station wagon, recently overhauled, plywood floor behind front seat, used as camper, make offer. Henry, 1933 Truman NE.
- TENT HEATER, alcohol type, \$5. Henneke, 298-4232.
- COSCO high chair, red, \$8. Hereford, AX 8-1052.
- '62 FORD Country sedan station wagon, V-8, R&H, PS, PB, chrome luggage rack, check book value, make offer. Gholson, AX 9-2663.
- MOTORCYCLE, 1960 Matchless, recently overhauled, \$150. Kuhn, AX 9-1898 after 5:30.
- '62 OLDSMOBILE F-85, 4-dr., Hydramatic, PS, R&H, factory air, tinted windows, ww tires, white, \$1750. Gardner, 308 Charleston NE, No. 1, 255-3212.

SHOPPING CENTER

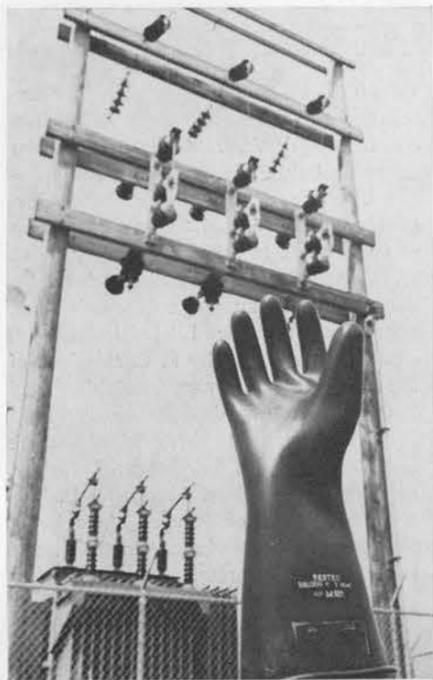
- '61 VOLKSWAGEN, R&H, sun roof, w/w, leatherette, one owner, \$900. Burns, CH 2-2407 evenings or weekends.
- ROTOTILLER, heavy duty, \$50; pair of disc brakes; 1956 Chevrolet parts incl. complete front end; spray gun. Vilella, 299-6261.
- NEW SHOP manual for 1961-62 Chevrolet Corvair, complete information for passenger and commercial vehicles. Waldorf, 242-8303.
- BUILDING BLOCK, fireplace liner, Tally, 299-0762.
- Ponderosa Pines, South Highway 10, Willey, 299-0762.
- BOY'S CLOTHES: lined tweed charcoal colored carcoat, size 14, \$18; charcoal tweed jacket, size 14, \$4; grey carcoat, size 10, \$5. Duvall, 299-8744.
- \$95 PER MONTH, assume GI, 3-bdr., central heating and cooling, fully landscaped, walled yard, built-ins, \$14,000, terms. Bailey, 299-1275.
- 25 GAL. AQUARIUM outfit; power mower; push mower; 22 automatic rifle; twin mattress and springs. Cotter, 298-3820.
- '63 CHEVROLET 9-pass. Bel-Air station wagon, AC, PS, 24,000 miles, ww tires, \$2490 book value, sell for \$2275. Morgan, 299-2850.
- '64 FORD tudor hardtop, 427 engine, 4-speed transmission, 2-4 carbs, 16,000 miles. Arrijo, 298-2428.
- SAXOPHONE, alto, Pan American, with case and music stand. Pitti, 256-1629.
- ROTARY MOWER, gas powered, 18", motor needs complete overhaul, \$5. Martinez, 299-1918.
- SNARE DRUM, stand, practice block. Sharp, 299-3745.
- 21" RCA table model TV, rabbit ears included, \$30; outdoor antenna, \$3. Yingst, AM 8-2896 after 5.
- HAM STATION—HQ110, DX-40, VF-1, all accessories, \$150. Bodhaine, 298-1566.
- 400 DOWN, 3-bdr, 1 1/2 baths, utility room, central heat and AC, newly carpeted, drapes throughout, \$12,500. Montoya, 5304 Arvilla NE, DI 4-8416.
- '55 FORD Tudor, V-8, auto. trans., R&H, new seat covers, \$275. Butler, 255-8503.
- 10 CU. FT. Westinghouse refrigerator, ice cube freezer compartment only, ideal for recreation room, must see to appreciate, \$20. Vandevlede, AL 5-8174.
- '59 FORD 4-dr. Galaxie, book price \$940, avu. wholesale, \$640, will sell for \$650. Morgan, 256-7994.
- TRIUMPH motorcycle, new rear tire, not running as is, \$40. Double chest of drawers. Pritchard, 268-9618.
- 6 YEAR OLD crib mattress, make offer. Newman, 298-2323.
- GIRL'S SHOE roller skates, white, size 8, \$8; camp stove, 2-burner, \$6. Heath, AL 5-5418.
- VIOLIN with case, bow, extra strings. Huddle, 9708 Robin NE, 298-3471.
- BELOW APPRAISAL, 1108 Dakota SE, brick, pitched roof, garage, 3-bdr., large den, fireplace, 1 1/2 baths, carpets, drapes, sprinklers. De Haan, 344-4805.
- TYPEWRITER, L. C. Smith Secretarial Upright, elite type, dust cover, \$30. Gregory, 268-2022.
- LAWRENCE Gunslinger II medium (35-39) belt and holster for Ruper .44 Magnum Super Blackhawk, \$16. Alexander, 242-4655.
- DINING TABLE, blond Swedish modern, 2 leaves, custom pads. Wade, 299-2232.

SHOPPING CENTER

- '58 FORD V-8 auto., heater; 1957 Ford Ranchero, R&H, standard; 21" TV console, Admiral, Otero, 256-6597.
- '60 CHRYSLER Saratoga, 4-dr, HT, PS, PB, AT. Corli, 255-5683.
- '62 VOLKSWAGEN sedan, whitewalls, leatherette upholstery, low mileage, one owner, turquoise. Wilson, 299-1721.
- GE REFRIGERATOR, 11 cu. ft., used four years. Renken, 256-6459.
- SCOTT STEREO amplifier, Md. 2226, 24 watts/channel, less than six months since purchase, \$135; Westinghouse automatic washer, \$40. McIntire, 298-6145.
- SEARS GASOLINE power mower, \$50; redwood picnic table w/2 benches, \$12; children's gym set, \$10, or best offers. Barefoot, 298-4122.
- '58 OLDSMOBILE, white 2-dr. HT, completely powered, \$525. Martin, 2913 Washington NE, 255-8900.
- '57 CHEVROLET BEL-AIR 4-dr, loaded, dual mufflers, 4-barrel carb, auto., PB, PS, \$725 or make offer. Collis, 420 Carlisle SE, AL 5-0470.
- SAME 3-BDR, den, 1 1/2 bath, etc. home as in last issue, except price is lower. Come see—10805 Claremont NE. Van Deusen, AX 9-4328.
- WANTED**
- GRAPE or cider press in working or repairable condition. Brion, AX 8-1761.
- INSULATED dog house for small dog. Cahill, 264-2389 after 5.
- CAMPING type trailer to sleep six persons. Nogle, 299-3865.
- WINDSHIELD for motorcycle, any size or color. Ristine, 256-2708.
- UMBRELLA TENT, 9'x12'. Newfield, 255-9743.
- TO KEEP small child, 2-4 years, in my NE Heights home Mondays thru Fridays. Ashbaugh, 299-0338.
- SECOND hand flute in good condition. Pierson, 282-3229.
- TWO RIDERS to join carpool from Menaul and Morris NE area, park north of Bldg. 880. McCoch, 298-5960.
- TWO MEMBERS to complete five-member carpool from vicinity 12th St. & Candelaria. Drive one day a week. Windsor, 344-6557.
- FOR RENT**
- MOUNTAIN APT. with stables for horses, new, close-in on US 66 200 yards east of North Highway 10. Calek, 282-3152.
- 1 & 2-BDR. luxury apts., furnished and unfurnished, pool, utilities paid, \$125-150. Miller, AL 5-6392.
- 2-BDR unfurnished apt., stove, refrigerator, water and garbage paid, near Sandia on Trumbull SE, \$70 mo. Vilella, 268-7045, 299-6261.
- WOMAN to share home, own bedroom and bath, kitchen privileges, garage. The Spindle, 298-3017 after 5.
- LOST AND FOUND**
- LOST—Lady's Timex watch; glasses and case; silver earring; safety glasses; raincoat in plastic case; house key on ring; black enamel earring. LOST AND FOUND, tel. 264-2757.
- FOUND—Key; six keys; gold drop earring; bible. LOST AND FOUND, tel. 264-2757.
- LOST—9-week-old male brindle boxer, Sept. 19, vicinity of Lomas and San Mateo. Spindle, CH 3-1983.

Lineman's Gloves Tested Monthly In Special Safety Department Lab

Handling "hot lines" carrying 10,000 volts is a specialty. There are a few authorized employees who do this—and they do it with respect. Most of them are electricians in Plant Systems Division working with power lines or Staff Aides in Research or Development organizations fabricating capacitor banks or working with high voltage test equipment.



LINEMAN'S GLOVE — The difference between safety and injury when handling 10,000 volts.

These people rely on insulated tools and "lineman's gloves." These rubber gloves, used in conjunction with their outer leather protective gloves, are essential when working with hot lines; they make the difference between safety and injury.

To make sure that the lineman's gloves provided by Sandia are the very best and meet safety requirements, Safety Engineering Department continuously tests the gloves.

The manufacturer tests the gloves and guarantees them to protect up to 10,000 volts. However, before they are used, Marshall W. Tippy of the Safety organization tests them up to 15,000 volts, using special equipment in the Safety Laboratory in Bldg. 857.

"We have never had to reject a pair of new gloves out of the 242 pairs purchased in the past 11 years," Marshall says. "Gloves in use are tested once a month. We have pulled out of use 42 pairs which have been found deficient during these monthly tests. These deficiencies are the result of wear, puncture, oxidation due to excessive exposure, etc."

Gloves in storage or used infrequently are tested every six months. These tests assure users that when they need to handle a hot line, they can do so safely.

The gloves are furnished with a leather protective outer glove not designed for insulation but for protection of the inner glove from punctures and abrasions. Both the inner and outer glove should always be worn.

Fifth VE Workshop Begins Sept. 28 at Sandia Corporation

The Fifth Value Engineering Education Workshop will begin at Sandia this coming Monday, Sept. 28. Two weeks of training sessions will comprise the 44-hour workshop, during which project teams will apply VE techniques to Sandia hardware.

At the end of each Value Engineering workshop, the project teams present the results of their VE studies. Workshop participants' supervisors are invited to attend the next VE projects reports session, to be held at 8 a.m. in Bldg. 817, Oct. 9.

Take Note . . .

Merritt Hummer had three Sandia witnesses when he scored a hole-in-one on the UNM golf course, Sept. 5. He used an eight iron on the 138-yard, No. 2 hole. Other members of his foursome were Ken Lloyd, John Puhara, and Gerry Shinkle.

Mrs. B. R. Allen, supervisor of Technical Libraries Division, has been selected to represent Carleton College, Northfield, Minn., at the founding ceremony of St. John's College in Santa Fe, Oct. 10. Mrs. Allen received her Bachelor's degree from Carleton.

D. L. Field is one of several persons interviewed by a writer from *Steel Magazine* for an article entitled "How We Will Control Quality Tomorrow," slated to appear in the Sept. 28 issue. Mr. Field is with Sandia's Quality Assurance Reports Section.

A firearms training program for the 12 to 18 year age group is being offered by the New Mexico Junior Riflemen, affiliated with the National Rifle Association.

Courses being offered under the program include NRA Home Safety, NRA Hunter Safety, and NRA Marksmanship Qualification. There are no fees for the courses, although parents of participants are required to provide or pay for ammunition. The courses will be taught by NRA certified instructors.

The New Mexico Junior Riflemen are sponsored by the Zia Rifle and Pistol Club, and work closely with local groups of the Boy Scouts of America in offering training for the Scout Firearm Merit Badge.

Those seeking additional information should contact Carl W. Franz, home tel. 299-7773.

The annual 4200 Development Shops golf tournament will be held Oct. 17 at Los Altos golf course. A trophy and gift certificate will be given the winner; gift certificates will be awarded the low net team; and other prizes will be presented.

Application blanks for 4200 employees may be obtained from Mike Zownir, Art Kraft, or Stan Urevitch.



TECHNICAL ARTISTS Leo Ortiz and Gordon Snidow (first and second on left), members of Sandia Laboratory Technical Art Division, display recently-earned awards for work done in connection with their work at Sandia. H. W. Maglidt (standing), Manager of the Graphic Arts Department, and M. K. Linn (seated right), Director of Technical Information and Publications, admire the accomplishment.

\$139,002 Has Been Given by Employees From ECP Funds

A total of \$139,002 has been contributed by members of the Employees' Contribution Plan to the United Community Fund and seven other agencies so far this year. As the August checks—totaling \$14,551—were mailed last week, the following distribution had been made:

United	Aug.	Year to Date
Community Fund	\$11,859	\$112,623
American Cancer Society	727	6,987
Bernalillo County Heart Association	596	5,778
Natl. Arthritis and Rheumatism Foundation	189	1,814
N. M. Society for Crippled Children and Adults ..	538	5,131
National Multiple Sclerosis Society	189	1,814
Cerebral Palsy Assn. of Bernalillo County	101	969
Muscular Dystrophy Assn. of America	203	1,944
Reserve Fund	145	1,380
	\$14,551	\$112,623

Sandia Technical Artists Earn Five Honors in Competition

Two members of the Technical Arts Division at Sandia Laboratory have received awards for work done in connection with regular assignments at Sandia.

Leo Ortiz has earned a first place in the Annual Exhibit of the National Association of Industrial Artists in Washington, D. C., for a cover illustration. He also has earned a second award for continuous tone rendering in color made by the Society of Technical Writers and Publishers Technical Art Show.

Gordon Snidow has earned a first award in the STWP International Exhibit of Technical Art for his visual aids entry. He also has been awarded first honors for a cover illustration by the National Association of Industrial Artists and an honorable mention from the American Society for Industrial Security for work done on a Sandia security poster.

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LAB NEWS

SEPTEMBER 25, 1964

Sandia Authors

Current or forthcoming articles by Sandia authors in technical journals include the following:

P. B. Bailey of Applied Mathematics Division, "Exact Quantization Rules for the One Dimensional Schrodinger Equation with Turning Points," September issue, *Journal of Mathematical Physics*.

D. H. Anderson of Applied Research Division and G. A. Samara (on military leave), "Pressure Dependence on the Co⁵⁹ Nuclear Magnetic Resonance in Hexagonal Cobalt," October issue, *Journal of Applied Physics*.

K. J. Craswell of Statistical Research Division, D. B. Owen (Sandia consultant), and D. L. Hanson (formerly of Sandia), "Nonparametric Upper Confidence Bounds for Pr(Y is smaller than X) and Tests and Confidence Limits for Pr(Y is smaller than X) When X and Y Are Normal," September issue, *Journal of the American Statistical Association*.

R. E. Hampy, D. K. Holck, and N. J. Pollard, all of Solid State and Thin Film Devices Division, "A Laboratory Technique for Making Multiple Microphotographs," July issue, *Review of Scientific Instruments*.

D. L. Hester, D. D. Glower, and L. J. Overton, all of Applied Nuclear Science Division, "Use of Ferroelectrics for Gamma-Ray Dosimetry," *Proceedings of the IEEE* for the recent Special Technical Conference on Nuclear Radiation Effects.

Paul Waltman of Applied Mathematics Division, "On the Asymptotic Behavior of Solutions of a Nonlinear Equation," October issue, *Proceedings of the American Mathematical Society*; "The Equations of Growth," March issue, *Bulletin of Mathematical Biophysics*; "A Bifurcation Theorem," August issue, *Proceedings of the American Mathematical Society*.

F. L. Vook of Crystal Lattice Defects Division, "Change in Thermal Conductiv-

ity upon Low Temperature Electron Irradiation: GaAs," and "Change in Thermal Conductivity upon Low Temperature Electron Irradiation: InSb," both Sept. 15 issue, *Physical Review*.

L. H. Koopmans of Statistical Research Division, and D. L. Hanson (formerly of Sandia), "Tolerance Limits for the Class of Distributions with Increasing Hazard Rates," December issue, *Annals of Mathematical Statistics*.

M. M. Karnowsky of Metallurgy Division and J. L. Colp of Aerospace Nuclear Safety Division II, "The Development of a Miniature Tensile Test Specimen for Plastic Materials," July issue, *American Society for Testing Materials*.

M. M. Karnowsky of Metallurgy Division and W. B. Estill of Analytical Methods Division, "A Scratch Test for Measuring Adherence of Thin Films to Oxide Substrates," October issue, *Review of Scientific Instruments*.

C. W. Harrison, Jr., of Advanced Electronics Systems Division, "The Admittance of Bare Circular Loop Antennas in a Dispersive Medium," July issue, *IEEE Transactions on Antennas and Propagation*; "Physical Limitations on the Measurement of Transient Fields in Air and in Dispersive Media Using Electric and Magnetic Probes," September issue, *IEEE Transactions on Antennas and Propagation*.

C. J. McGarr, Director of Service Operations, R. C. Clifton of General Stores Division, and J. L. Hollenbeck of Instrument Service Section, "A Numerical Classification System for Instruments and Equipment," September-October issue, *Systems and Procedures Journal*.

L. H. Koopmans of Statistical Research Division, "On the Multivariate Analysis of Weakly Stationary Stochastic Processes," December issue, *Annals of Mathematical Statistics*.

Sandia's

Safety

Scoreboard

Sandia Laboratory:

40 DAYS

1,400,000 MAN HOURS

WITHOUT A

DISABLING INJURY

Livermore Laboratory:

35 DAYS

181,000 MAN HOURS

WITHOUT A

DISABLING INJURY