

Sandia's Gasbuggy Instruments Ready

A dry run conducted last week at the Project Gasbuggy site 50 air miles from Farmington indicates that all the Sandia blast and earth motion measurement instrumentation is ready for a nuclear experiment scheduled for Nov. 21.

Canisters of Sandia instrumentation have been lowered and "grouted" into their deep underground positions, and surface instruments have been installed. The remote trailer and all recording instrumentation have been checked out.

A 20-kiloton nuclear device will be detonated in a "tight" sandstone gas reservoir at a depth of 4340 feet. Sandia in-

struments will measure the free-field earth motion and surface movement produced by the detonation.

Project Gasbuggy is an experiment to stimulate natural gas production. The nuclear explosion will create a chamber deep below the surface. The roof of the chamber is expected to fall-in forming a "chimney" of broken rock above the chamber. Gas will flow into this large area through the fractures which will extend in all directions.

The gas industry has long used various techniques to fracture the sandstone reservoirs such as conventional explosives and

hydraulic pressure. The U.S. Bureau of Mines, one of the sponsoring agencies for Project Gasbuggy, has estimated that a nuclear fracturing technique could add 317 trillion cubic feet of natural gas to the nation's proved reserve, more than doubling the present supply. Nuclear fracturing could find widespread applications in many "tight" sandstone reservoirs in the Rocky Mountain Region.

Project Gasbuggy, which will determine the feasibility of using nuclear explosives for this purpose, is a joint effort of the Atomic Energy Commission, the Bureau
(Continued on Page Four)



HEAVY DUTY CABLES—16,000 feet of it—run from remote recording trailer and down the drill hole to the buried Sandia seismic instruments. The Gasbuggy site is in the Carson National Forest, 50 air miles from Farmington.



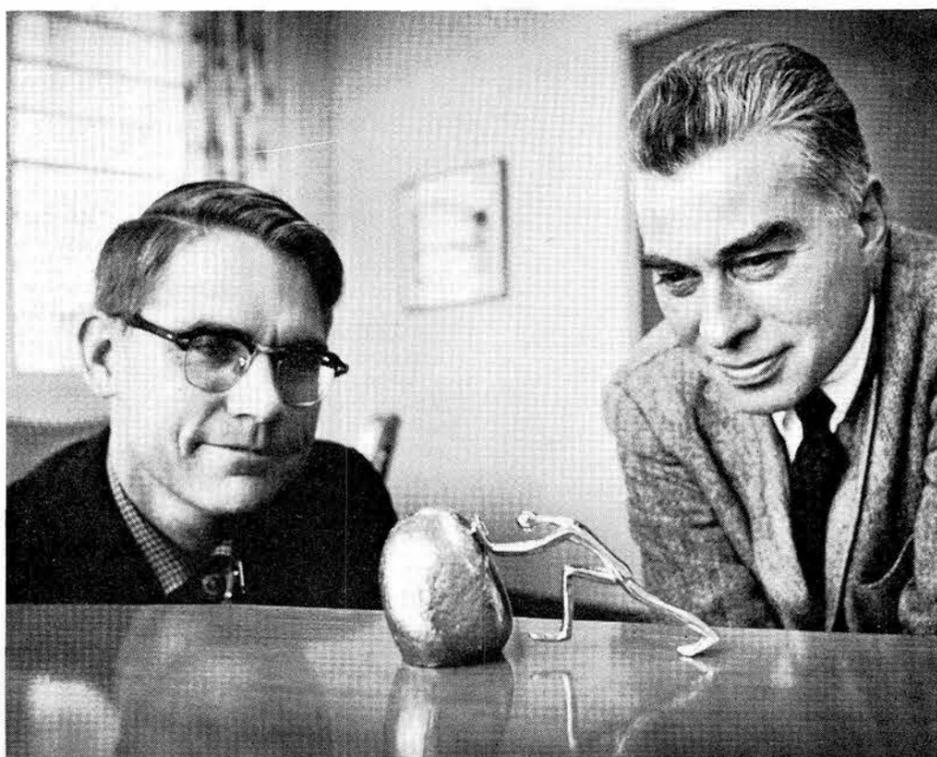
SANDIA LAB NEWS

VOL. 19, NO. 22, NOVEMBER 3, 1967

SANDIA LABORATORIES

ALBUQUERQUE, NEW MEXICO; LIVERMORE, CALIFORNIA

OPERATED BY SANDIA CORPORATION FOR THE U. S. ATOMIC ENERGY COMMISSION



WESTERN ELECTRIC WIT is appreciated by Don Wilkes (1322), rolamite inventor, and John Hornbeck (right). This Paul Albert Award (for Paul Albert Gorman, WE President) was presented to President Hornbeck at a recent WE management conference. The tongue-in-cheek award, recognizing the development of rolamite, might depict man moving a mountain, man before the invention of the lever, or a mite of rolling.

Headlines Across the Country

National Press, Magazines Respond to Rolamite

In headlines across the country, rolamite continues to roll. Since Sandia Laboratory's Public Information Division 3431 announced the invention of the almost frictionless device, the story has appeared in most newspapers in the U.S., in two major newsmagazines and has been carried by foreign wire services.

Inventor of the rolamite, Don Wilkes (1322), has been swamped by more than 600 requests for additional information. Most of these have been forwarded to the Sandia Office of Industrial Cooperation operated by Technical Information Division III 3413.

Don's saving the letter from a little old lady in Colorado who wanted to sell the inventor a piece of Rocky Mountain real estate. One letter came addressed to the "Sandia AEC Facility, Rolamite Gismo Corner."

Of the major nationally-circulated newspapers, WALL STREET JOURNAL, NEW YORK TIMES and NATIONAL OBSERVER gave prominence to the rolamite development. Newspapers in Chicago, Houston, Seattle and Cleveland played the story big on page one.

NEWSWEEK and BUSINESS WEEK carried the announcement in shorter versions. All of the articles emphasized

the basic nature of the rolamite and its possible widespread applications in industry.

Cartoonist Bill Mauldin used the rolamite for a political cartoon which ran in numerous papers last week. "Rocky" and "Reagan" were drawn as the rollers and GOP elephant's trunk provided the moving band between the rollers. The caption was, "It's called 'Rolamite.' Two Guys Can Revolve in Opposite Directions While Moving the Same Way."

Locally, the ALBUQUERQUE JOURNAL ran the rolamite story on page one. The three local TV stations, who photographed a special demonstration of rolamite by Mr. Wilkes, gave the invention prominence in evening news programs.

Reporters from a number of major publications — such as POPULAR MECHANICS, STEEL, MACHINE DESIGN, PRODUCT ENGINEERING — have contacted Sandia's Public Information Division for additional information on rolamite.

Special articles on rolamite are now being prepared for several technical publications.

A display of some of the clippings from the nation's press is on exhibit in the lobby of Bldg. 802.

ECP Total is \$279,957; Marks New 'Maturity' for Sandia Employees

Final total of \$279,957 pledged by Sandians to the current Employees Contribution Plan is the highest contribution received since the beginning of the ECP in 1957. It marks an increase of seven percent over last year's total.

"Two things are significant in this achievement," Bill Stevens (5530), chairman of the ECP committee, says. "First, it is a significant amount of money representing a source of pride for all Sandians who contributed. Second, the campaign was the simplest ever conducted at the Laboratory. This represents a new maturity for the plan."

In the past, the ECP campaign has been marked by a heavy distribution of literature and posters and by personal solicitation of employees by other employees working for the drive.

This year's campaign was conducted "low-key" with minimum literature and no personal solicitation. Letters from the committee carried the ECP message and made the appeal for contributions.

"You might say," Bill says, "that the original objectives of ECP have almost been met. The idea in the beginning was to reduce the effort and the administrative overhead of conducting the campaign. If enough employees made a fair share contribution (one hour's pay per month) through payroll deduction, there would be

no need for a campaign other than an annual reaffirmation. We are getting there."

Statistics of the current ECP reveal that 2789 employees are now making a fair share contribution through payroll deduction. Another 3137 are members of the plan with a minimum of \$1 per month contribution. Another 188 employees made a cash contribution to ECP. In all, 6114 employees or 86 percent contributed.

Average gift of those who contributed was \$45.79, up nine percent over last year's average of \$42.

"This is a clear notice of employee acceptance," Bill says. "Sandians are informed on the work of the 29 local United Community Fund agencies and the eight other health and welfare agencies which are part of our ECP. By now, our employees understand the need and respond. Actually, most of us appreciate a quick and efficient appeal which produces significant results."

The employee committee, which administers ECP, is made up of representatives of most directorates of the Laboratory plus union representatives and members with professional skills such as computer programming and accounting.

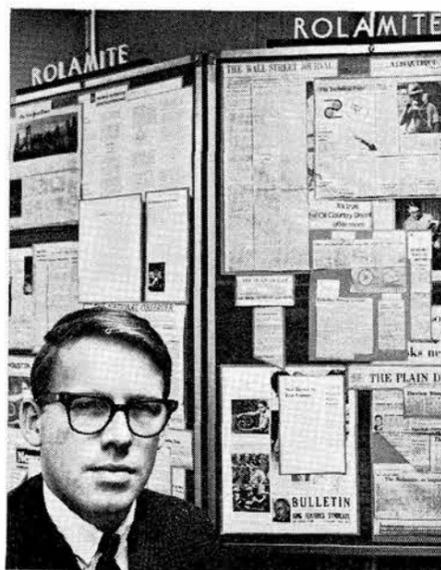
New employees are given the opportunity to join ECP when they sign into the Laboratory. The contributions of newcomers who join make up for the losses from ECP members who terminate employment or retire at Sandia. The level of participation in ECP has almost stabilized in the past few years, Bill says.

"As the campaign started," Bill says, "the committee was anxious. Suppose the employees did not respond? Suppose we lost ground? Frankly, we worried about it. Fortunately, the results were all that even the most optimistic of us hoped for. The committee will continue to conduct a drive; we will strive to achieve the goal—everyone making a fair share contribution by payroll deduction. We are very pleased with the results this year. For the committee and for the agencies which use the money to help those who need it, our thanks."

W. G. Funk Elected Chairman Of Human Resources Council

The Albuquerque Human Resources Council has elected W. G. Funk, manager of Employment Department 3250, to serve as chairman for a two-year term. Judson Ford, AEC/ALO, was elected a member of the council's board of directors at the same meeting.

The council is a voluntary, non-profit organization of employers in the Albuquerque area. These employers support nondiscriminatory practices in hiring, training, promotion, and compensation of their employees.



ROLAMITE ARTICLES from newspapers and magazines across the nation are featured on a display in the lobby of Bldg. 802. Nigel Hey of Sandia's Public Information Division 3431 prepared the original news release on the invention of the rolamite, a major development in the field of mechanical design.

Modern Meaning of Design Concept Is Topic For Eighth Annual ASME Symposium Here

"The Concept of Design" is the thought-provoking title of the 8th Annual Technical Symposium co-sponsored by the New Mexico Section, American Society of Mechanical Engineers, and the University of New Mexico College of Engineering. Sessions will be held Nov. 17 and 18 at the UNM Student Union Building.

As Program Chairman John A. Anderson (1514) explains, "The objectives of this symposium are to set forth the modern meaning of the design discipline, to present current computer aids available to the designer and to give practical applications of the design process with design aids for both education and industry."

To meet these objectives, knowledgeable and articulate authorities have been selected from across the country. Information presented at the symposium will serve as a broad basis for understanding the creative processes required by this "new" meaning of design.

Ralph S. Wilson (2220) is general chairman and Elmer N. Leslie, Jr., (1322) is administrative chairman for this symposium. John Postlethwaite (1512) is the chairman of the New Mexico section. Other Sandians assisting with arrangements are D. R. Schafer (7214), H. E. Schildknecht (1324), L. H. Stradford (1525), A. M. Hill (3134), A. L. Thornton (2542), J. E. Deveney (9314) and Anthony Parisi (7214).

Registration is expected to reach 250 with both members and non-members in attendance.

Man vs. Machine

Keynote speaker for the first session on design process will be Robert W. Mann, Department of Mechanical Engineering, Massachusetts Institute of Technology, who will speak on "Design: Art or Science?" He will define the design process, the meaning and needs of the modern design discipline, the artistic or scientific implications of design, and methods of stimulating creativity in the education and practice of design.

Mr. Mann is the exponent of a new symbiosis between man and machine. He contends that much of the work associated with various creative activities could be more efficiently and expeditiously relegated to machine processing, and at the same time man's role as operator or pilot of complex machines of transport, construction, distribution, etc., could be made more efficient and "natural."

Robert H. McKim, who will speak on "Visual Thinking and the Design Process," is an associate professor at Stanford University in charge of the Product Design Program, which combines engineering, art, human factors and design. With the aid of slides he will illustrate the growth of creative visual thinking and will discuss a progression method which any individual can attempt. He was chief designer of the USA Pavilions at Poznan, Poland, and Salonika, Greece, 1957 International Trade Fairs, and has been a design engineer for Lawrence Radiation Laboratory (Project Sherwood) and California Research and Development Corporation (linear accelerators).

Team Involvement in Design

"Engineership—A Philosophy of Design" will be the topic of a talk by Lee Harrisberger, head of the School of Mechanical Engineering, Oklahoma State University. He has been involved in experimentation and development of a team project approach to authentic involvement in engineering design. As Mr. Harrisberger explains: "Engineering plays two fundamental roles: it adapts scientific discovery to solving our current problems and, more exciting, it invents products and services that we didn't know we needed. . . . The design engineer finds himself increasingly immersed in the real life community, and his project activity subjects him to a variety of concerns that are unrelated to the traditional technical and analytical problems of engineering design."

The Friday afternoon session on design aids will feature talks by a General Electric Company team on "Conversational Mode Computation in Design" and by Paul Shannon, professor of engineering at Dartmouth College, on "Education in Design and Analysis with Conversational Computers."

The GE consultants, Russell H. Lyddane and Norman W. Harvey, are both with the Engineering Administrative Consulting Service in Schenectady, N.Y. "Computer time sharing," they explain, "promises to be a prime tool for engineering problem-solving and some predict that it will become as much a part of engineering as the slide rule is today." This new mode



FINAL ARRANGEMENTS for forthcoming ASME symposium on "The Concept of Design" are readied by (l to r) John A. Anderson (1514), program chairman; Elmer N. Leslie, Jr. (1322), administrative chairman; and Ralph S. Wilson (2220), general chairman. The seminar will be Nov. 17-18 at the UNM Student Union.

gives the engineer the advantages of simplicity, responsiveness, economy, reliability and power. Their paper will include a description of a typical time sharing system, its operation and a number of engineering applications—part design, harmonic analysis, circuit analysis and non-linear dynamic systems.

Mr. Shannon will discuss the man-machine interaction possible with a time-shared conversational computing system which can reduce the time from problem statement to solution by 10-100 times. At Dartmouth, he recalls, "the effect of the time-shared computer . . . has been to produce an educational environment where the numeric answer to a problem becomes secondary to problem formulation and where computer capability has drastically increased the scope of problems which the student and staff may handle." His principal fields of interest are system simulation and design via digital computers, information theory and thermodynamics, and dynamic behavior of multiparticle systems.

The Friday night banquet speaker will be C. S. Perry, vice president, information systems subdivision, missile and space systems division, Douglas Aircraft Company, who will discuss "Design for the Future." His department is responsible for efficient use of computers, as both a technical and management tool, through centralized control. During more than 20 years with Douglas Aircraft, Mr. Perry has made major contributions to the design of the Nike series of anti-aircraft missiles, the Genie and Sparrow air-to-air missiles, the Honest John surface-to-surface rocket and the Thor intermediate range ballistic missile, and has provided technical leadership in development of an unusually complex airborne computer system (Skybolt System).

The third session—which gets underway

Promotions

Johnny L. Hartley (2411) to Staff Member Technical
Sherwood F. Duliery (1122) to Staff Associate Technical
Robert A. Jeffrey (7215) to Staff Associate Technical
John A. Smith (2212) to Staff Associate Drafting
Richard L. Clarkson (8252) to Staff Associate Drafting
James E. Tichenor (1317) to Staff Assistant Technical
Bruce T. Reich (3121) to Staff Assistant Technical
John T. Sandoval (9413) to Staff Assistant Administrative
Sylvester C. Tafaya (3462) to Reproduction Equipment Operator
Cassimero Baker (4233) to Helper
Frank C. Cabasier (4254) to Grinder
Rillie Rogers (4511) to Pipe Fitter
Fidelino Carrillo (4231) to Technician
Jesse Watts (8245) to Shipping Clerk
David J. Asburg (3415) to Mail Clerk
Marybelle Romero (4211) to Typist Clerk
Ruby C. Cochrell (3126) to Secretarial Stenographer
Patricia Christolm (3421) to Library Assistant
Hazlet J. Frimonds (3421) to Library Assistant
Carmel J. Chavez (9411) to Data Processing Clerk
Milton George, Jr. (2232) to Reproduction Service Clerk
M. Alice Jarrell (3421) to Library Assistant
Dorothy J. Scott (2432) to Record Clerk
Tom O. Cordova (9411) to Tabulating Equipment Operator
Thomas Richardson (9411) to Tabulating Equipment Operator
Ralph O. Pena (4516) to Property Clerk
Betty B. Sherrad (4135) to Accounting Clerk
Mary T. McKamey (8232) to Secretarial Typist
Betty D. Cummins (1620) to Secretary
Ernest Sanchez (3462) to Reproduction Equipment Operator

Saturday morning—will deal with design application. Col. Charles Schilling, head of the Department of Military Art and Engineering at the U.S. Military Academy, will speak on "The Real World Problem and the Remote Computer." He will discuss a design problem used in an undergraduate engineering design course, the procedures used to integrate the computer within the particular problem, and the aspects of design learned as a result of that activity.

The only Sandian participating in the formal program will be C. R. Martell (9427) whose subject is "Computer Graphics." He refers to computer graphics as one of the recent developments which will make the task of communicating with the computer much easier for man. Mr. Martell will describe and discuss computer aided design and automated design systems made possible by the advent of computer graphics, time-sharing computers and mass storage devices. Part of his presentation will be a movie showing the use of a light pen with a computer.

The summation will be presented by Allen Rosenstein, Department of Mechanical Engineering, UCLA. In previous talks he has defined engineering design as "neither a science nor an art . . . design is a formal, logical man-created discipline with a general methodology that is very akin to that of mathematics." The great challenge for engineers, he says, is to "assume responsibility for the engineering tasks of unprecedented magnitude that the profession is just beginning to recognize." These tasks include such things as mass transportation, mass housing, mass communication, air pollution, food production, etc.

Events Calendar

- Nov. 5—Tour of proposed North Sandia Wilderness Area. N. M. Mountain Club, leader Milo Conrad, tel. 298-2989.
- Nov. 5—Climb up Cabezon Peak, volcanic plug in Rio Puerco valley. N. M. Mountain Club, leader Don Mattox, tel. 296-4149.
- Nov. 8—Andy Williams with Henry Mancini Orchestra, University Arena, 8:15 p.m.
- Nov. 10-12, 17-19, 24-26—An experimental theatrical happening, Old Town Studio, 1208 Rio Grande NW. For reservations tel. 242-4602.
- Nov. 11—Football, UNM vs. Wyoming, UNM Stadium, 1:30 p.m.
- Nov. 12—St. James Day fiesta and harvest dance, Tesuque and Jemez Pueblos.
- Nov. 14—Don Cossack Chorus, Civic Auditorium, 8 p.m.
- Nov. 16-17—Christmas Idea Show, sponsored by Council of Albuquerque Garden Clubs, Civic Auditorium, 10 a.m.-9 p.m.
- Nov. 17—Tom Ewell in "The Impossible Years," UNM Concert Hall.

Laboratory - University Relations Strengthened With New Program

Joint Staff-Faculty Appointments, a new approach to strengthen ties between research laboratories and universities, has already attracted five Sandians and one professor.

Howard R. Shelton, supervisor of University Relations Division 3134 which administers the new program, explains that a similar approach is used by Oak Ridge Laboratory and the University of Tennessee for an exchange which has been underway for five years.

"The program," Mr. Shelton says, "is designed to implement the desire of President Johnson and the Atomic Energy Commission that closer cooperation be achieved between the government laboratories and universities throughout the country. It is felt that the resources in these laboratories can benefit the universities' research and education processes. The laboratories, in turn, can greatly profit from closer association with the universities."

Sandians devoting part of their time to professorial duties at the University of New Mexico are D. R. Morrison (5256), mathematics; B. T. Kenna (1121), chemistry; and J. D. Williams (1433), electrical engineering. M. M. Sluyter (9321) tentatively will join the program during spring semester in the mechanical engineering department.

Charles Stein (1131) is teaching metallurgy and D. K. Brice (5211), physics, at New Mexico Institute of Mining and Technology. A NMIM&T metallurgist, Alan Miller, whose specialty is ceramics, is devoting part of his time to Sandia and is assigned to Materials Research Division 5154.

In most instances these first appointees were requested by name by the university.

"The academic tie-in is important for many doctorate-level employees at Sandia," Mr. Shelton explains, "because it gives them the satisfaction of teaching and advising graduate students yet they can continue to contribute in a research or scientific field." The universities benefit because the Sandia men have unique specialties and backgrounds which could eventually tend to broaden the school's curriculum in specific fields.

Death



William B. S. Moore, a retired Sandia Laboratory employee, died Oct. 6 in Anaheim, Calif., after a long illness. He was 76.

He retired from Sandia in August 1961 after working as a senior draftsman since May 1954.

Survivors include his widow, a son and daughter.

Sympathy

To P. W. Romero (4613) for the death of his mother in Albuquerque, Oct. 16.

To H. C. Psillas (2541) for the death of his wife in Oklahoma City, Oct. 22.

To Johnnie E. Johnson (9000) for the death of her daughter-in-law in Belen, Oct. 29.

SANDIA LAB NEWS



SANDIA LABORATORIES
ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

Operated for the United States Atomic Energy Commission by Sandia Corporation

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LIVERMORE NEWS

VOL. 19, NO. 22

SANDIA LAB NEWS

NOVEMBER 3, 1967

M. D. Meyer Takes Class G Trophy With Triumph in Laguna Seca Race

Marshall D. Meyer (8141) won a third place trophy in the final regional (all of Northern California) race of the year held at the Laguna Seca track near Monterey, Calif., on Oct. 14.

Marshall, driving a 1966 Triumph Spitfire, ran in Class G for production model vehicles. This event included 32 cars, 13 in his class. The 21-lap event covered about 40 miles around the hilly track; the average speed was in excess of 75 miles per hour.

The race-sponsoring Sports Cars Racing Association of Monterey Peninsula announced the largest crowds in the track's history—a record weekend attendance of more than 65,000.

Marshall's third-place finish also earned him four points to make a total of 25 this season—and first in his class for regional points standing. Five previous races included one at Laguna Seca, two at Cotati, one at Crows Landing and one at Lake Tahoe.

Marshall says that the production category is divided into eight classes — A through H. "Class G means I was ranked next to the lowest in potential speed," he explained.

"The word 'production' refers to commercial sports cars—those you can buy from dealers," adds Marshall. "Only certain modifications can be made under

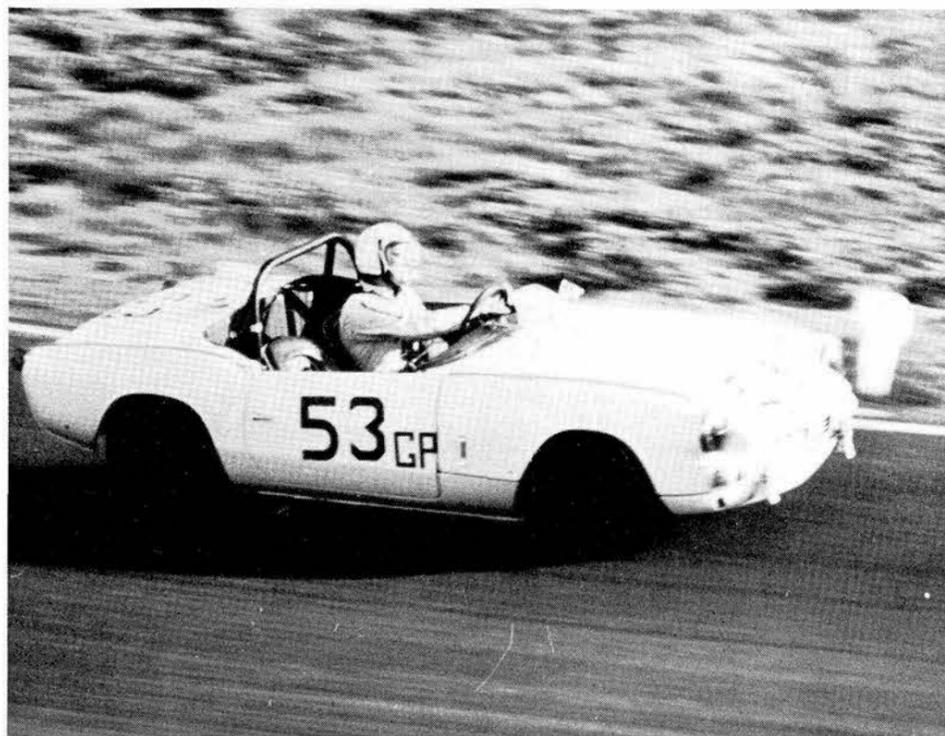
standards set by the Sports Car Club of America. You could easily spend \$1500 on the engine, but if you do the work yourself, this would probably run about \$500."

Major modifications to the engine of Marshall's Spitfire included polishing and balancing the rods and crankshaft, installing a racing cam, porting the head, raising the compression, smoothing the interior of the carburetors and intake manifold, and installing an electric fuel pump and an oil cooler.

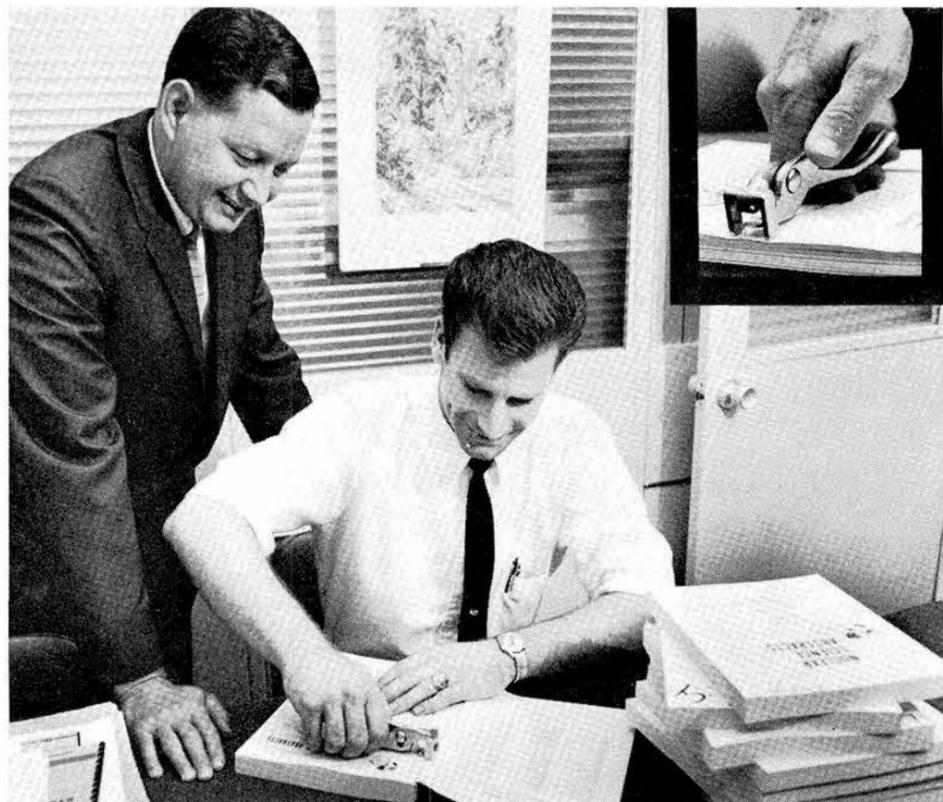
"In addition, I'm also using heavier springs and shock absorbers, wider wheels and racing tires, close ratio transmission and a limited slip differential," he says.

Although this is only Marshall's second year of racing, he has not escaped without mishap. About two months ago at the Crows Landing track, an axle of his car broke and a wheel came off, causing the car to flip over and slide for about 100 feet down the track. Luckily, he escaped with only a scraped helmet.

It's quite possible I may quit racing in the near future because of the time and expense involved, but I'm sure I'll always be an avid racing enthusiast," says Marshall. "I enjoy watching races even more now because I have a greater appreciation for competitive driving and what is going on. To me it has to be one of the better sports around."



DRIVING HIS 1966 TRIUMPH SPITFIRE Marshall D. Meyer (8141) takes a third place trophy and first in his class for points standing at the second and final regional race of the year at the Laguna Seca track near Monterey, Calif. Marshall ran in Class G for production model vehicles.



INVENTOR of a heavy duty staple-remover, B. F. Hefley (left), watches T. J. (Tim) Cody (both of Library Division 8232) extract staples easily from a thickly-bound report. The new tool—designed to remove staples from documents one-quarter inch to one and one-half inches thick—was made from a standard pair of slip-joint pliers by welding a "U"-shaped piece of metal to one jaw and a flat wedged-shaped piece to the other (see inset). The tool offers more effective and safer means to remove staples in preparing documents for microfilming or reference binding.

Take Note

C. H. DeSelm (8200) was chairman of the Configuration Management and Control Division session and R. A. Baroody (8160) chaired the Pitfalls in Reliability Programming Division session at the 17th Annual American Society of Mechanical Engineers (ASME) Joint Professional Divisions Conference in Palo Alto, Oct. 26. The conference was sponsored by the San Francisco and Santa Clara Valley Sections of ASME.

* * *

Winners in the 1967 National Model Airplane Championships held in Los Angeles recently included Don Yearout (8164) and Walt Ghio (8252-4). Don took four trophies by placing first and third in control-line events and 11th and 12th in free-flight events. Walt won two second place trophies in free flight events.

* * *

The Sandia Twilight Golf League ended recently after 18 weeks of play by 118 Sandians at the Las Positas Golf Course. The 12-team league competed in match and medal play each Wednesday evening. Members of the winning team were Johnny Allen (8243), Al Derby (8243), Walt Dzigan (8212), Wes Hodges (8241), Dick Kenyon (8211), Mike Lettrich (8243), Jim Minger (8241) and Bill Ryan (8212).

* * *

The final tournament in the 1966-67 Sandia Employee Golf Club season—the "Livermore Laboratory Annual"—was played at the Las Positas Golf Course in Livermore on Oct. 14.

Played on a straight handicap basis with participants divided into three flights, trophy winners of the tourney included: Walt Dzigan (8212) and Dave Timmer (8166) in the first flight (handicaps of 17 or less) with scores of 68 and 70, Mike Stephenson (8158) and Ollie Rohrback (8252) in the second flight (handicaps of 18 to 27) with scores of 72 and 75, and Roger Page and Frank Petrini (8223) in the third flight (handicaps of over 27) with scores of 67 and 69.

* * *

Annamae Miskel (8215) was awarded two first-place golf trophies recently for her play in the women's Castlette league of the Castlewood Country Club. She won the fourth flight Castlettes trophy with a net low score of 32 and the Castlette's EC trophy with a net low score of 26.

* * *

The Jets team, managed by Tabo Hisaoka (8252), won the 1967 Slow Pitch Softball League at Livermore Laboratory. Members of the championship team include Don Bohrer (8137), Sam Crawford (8252), Larry Dorety (8148), Harold Hunt (8222), Ken Marx (LOA), Ray Leri (8233), John McDowell (8252), Lano Paler (8253), Bob Rinne (5510), Bob Schaefer (8158), Louie Tallerico (8152), and Jerry Wackerly (8243). Carl Wackerly (8213) won the league batting championship trophy with a high batting average of .504. Ray Leri and Doyle Baker (8127) tied for league leadership in homeruns.

The San Francisco Bay Area Engineering Council, which acts as a coordinating body in student affairs, is seeking the help of practicing engineers in the local area.

Through the Council, over 20 engineering societies including ASME, IEEE and SCPE, are planning more effective assistance to local schools. Jack Savage (LRL) serves as the Council's chairman in charge of Career Counseling for the Greater Bay Area, and Roy Renner (also LRL) is the Area co-chairman representing Livermore, Granada and Amador High Schools in the Livermore Valley.

If you are interested in participating in such a program on a volunteer basis, contact Roy at LRL ext. 7616 for further information.

Retiring



"Most of our close friends who are retired tell us that they don't have enough time for everything they'd like to do. My wife and I feel this will also be true for us," says Murr H. Graham who retires the end of this

month from Livermore Laboratory.

A model and instrument maker in Machine Shop Section 8223-1, Murr joined Sandia as a machinist over nine years ago when SCLL was located across East Avenue in LRL's buildings. At that time the machine shop personnel totaled three.

Murr says that after the first of the year he and his wife plan to move their mobile home farther north in California where they will be away from the Bay Area congestion. Then, in their camper and travel trailer they will head for the desert and the warmer climate of Arizona for the winter.

"We love to travel, see new scenery, take slides and hunt for rocks as we go," says Murr. "We're both real rock hounds, but it's partly an excuse to get out of doors," he commented. Trips with their camper have taken them thousands of miles throughout the western states.

Both have been rock hounds for the past 12 years and are active in the East Bay Mineral Society (Murr is a past president and has held several other offices). In addition to monthly meetings, they go on frequent field trips and participate in the annual mineral show.

While Murr is primarily interested in collecting rocks and fossils, his wife finds more enjoyment in polishing rocks and stones and making them into jewelry. They are presently attending a geology class under the San Leandro High School Adult Education Program.

Murr collects old bottles. He says he plans to add to his 500- to 700-bottle collection when he retires. He also has several additional projects in mind if time permits. For example, he hopes to make a set of goblets and bowls out of stone.

Free Film Series At Chabot College

The 1967-68 Chabot College Film Series, sponsored by the Associated Students of Chabot College and the College's Community Services Office, is now underway.

Eight films remain in the series: "Gervaise" (France), Dec. 6; "Moment of Truth" (Italy), Jan. 4; "Umberto D" (Italy), Feb. 7; "The Trail" (United States), Mar. 12; "Oklahoma" (United States), Apr. 3; "Woman in the Dunes" (Japan), Apr. 17; "La Viaccia" (Italy), May 1; and "The Seventh Seal" (Sweden), May 22.

The films, open to the public without charge, will be shown in the new 1500-seat Chabot College-Community Auditorium on the campus at 25555 Hesperian Blvd., Hayward, at 7:30 p.m.

Welcome . . . Newcomers

Sept. 14 - Oct. 16

Indiana	Henry C. Monteith, LaFayette	8114
Missouri	David R. Eubanks, Florissant	8254
Washington	T. Jerome Weber, Seattle	8158

Congratulations

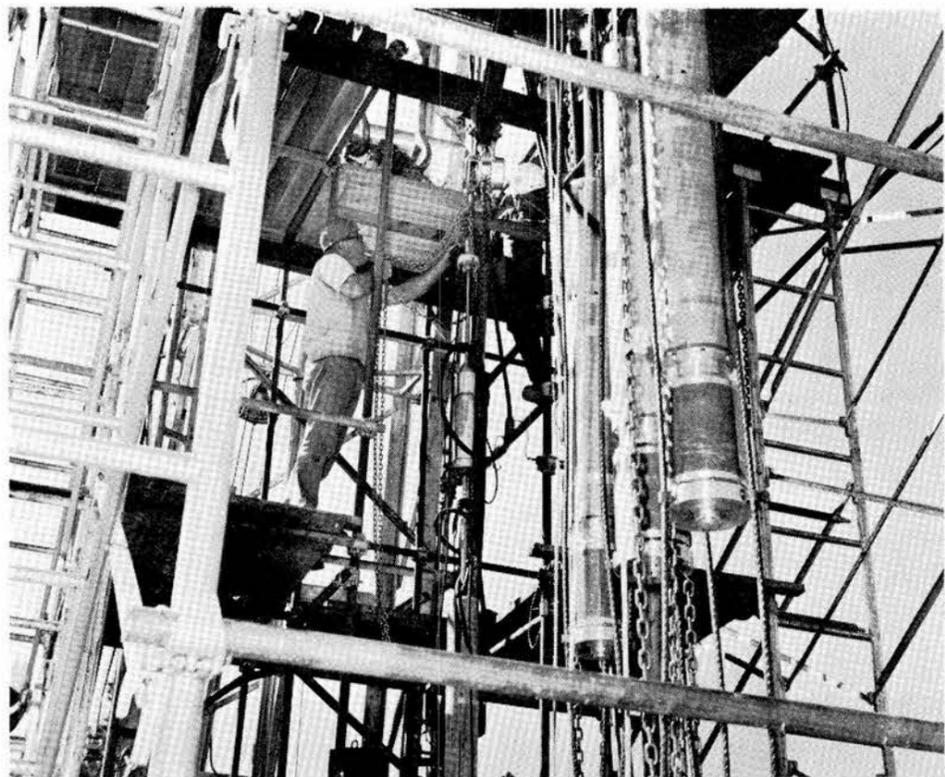
Mr. and Mrs. Tom Fukunaga (8161), a daughter, Lisa Etsuko, Oct. 18.

Mr. and Mrs. Roy Pearson (8127), a daughter, Kristine Ann, Oct. 15.

Mr. and Mrs. Duane Sillanpaa (8127), a daughter, Christine Jan, Oct. 20.

Sympathy

To Ferdinand Thome (8243) for the death of his father in Wichita, Kans. Oct. 6.



D. B. LIST (7123), assistant project engineer for Sandia's earth motion instrumentation, checks the four canisters prior to lowering them into the hole. When at proper depth, motors inside the canisters precisely positioned the internal seismic and accelerometer instruments directly in line with the nuclear device.

Continued from Page One

Gasbuggy Nuclear Test

of Mines and the El Paso Natural Gas Company. Lawrence Radiation Laboratory is responsible for developing and executing the technical program in cooperation with the other agencies.

Sandia is performing the earth motion studies and is providing arming and firing design and support for the project.

Four canisters of Sandia instrumentation, each containing instruments which will provide acceleration, velocity and earth displacement information created by the explosion, were placed in a drill hole about 1500 feet east of the one for the nuclear device. Instruments were placed at depths of 4600 feet, 4100 feet, 3600 feet and 3250 feet. The instruments were positioned by an azimuth drive motor inside the canister to "look" directly toward the explosion.

After the instruments were placed, the hole was "grouted" with a mixture of cement and special sand which equals the density of the surrounding geological formation. Shock waves traveling through the earth will move through the grout without disturbance.

The same kind of measuring instruments were placed in each of the five surface stations which extend from ground zero out to 8400 feet.

The instruments are part of a standard

Sandia package which has been in use at the Nevada Test Site for a number of years.

Instrumentation Fielding Division I 7123 under B. C. Benjamin is responsible for the earth motion studies. W. R. Perret of Underground Physics Division 7111 is scientific director.

R. K. Petersen's A&F Field Support Division 7132 has also been active at the site. Dick reports that the arming and firing cylinder, which will contain the nuclear device, is ready. After LRL installs the device, the cylinder will be lowered into position and will perform the functions necessary for detonation. EG&G will provide the timing signals required for the cylinder.

Another group of Sandians from Livermore, headed by R. A. Baroody, manager of Product Engineering Department 8160, is supporting a Lawrence Radiation Laboratory project in connection with Gasbuggy. Frank Murar (8135) and others from Livermore were at the Gasbuggy site last week wrapping up preparations for the project.

The detonation is now tentatively scheduled for 11 a.m. Tuesday, Nov. 21. An "open" experiment, Gasbuggy is expected to attract news media, government and industry observers from around the world.

Some Soils Melted

SNAP Safety Analysis Prompts Burial Tests and Soil Research

Present design criteria require intact re-entry of some Systems for Nuclear Auxiliary Power (SNAP) isotopic fuel capsules. Successful re-entry of the fuel capsules through the earth's atmosphere and ensuing impact with the earth's surface created the need for a wide variety of data on soils and for corrosion rates of fuel containers.

Design Analysis Division 9312 is concerned, among other things, with the response of the isotopic generator fuel capsules to the environments which may be encountered, including impact, soil penetration and the chemical and thermal interaction between fuel capsules and soils. This information is necessary in the safety analysis of specific power supplies as well as for general SNAP safety studies.

Impact burial of the fuel container in soil after re-entry is one of the unresolved problems of aerospace isotopic fuel systems, reports S. L. Jeffers, supervisor of Division 9312. Since the unimpacted condition of a buried fuel capsule cannot be assured definitely, the conditions under which the metal container fails is a basic safety consideration. Uncontained fuel is much more hazardous than contained fuel.

An isotopic generator, which uses radioactive decay to generate heat that is converted to electricity, continues to produce large quantities of heat after impact. Because soil is a good insulator, the temperature of the fuel capsule will continue to rise until equilibrium is reached. This may result in the capsule and/or the soil melting. At the same time, normal corrosion rates will be increased because of the elevated temperatures. Unfortunately there is little scientific data available on the chemical and thermal interaction between fuel capsules and soils at elevated temperature. To further complicate the acquisition of such data, there are thousands of types of soils.

Failure of the isotopic fuel container can be the result of structural weakening caused by impact; internal pressure build-up; interaction of the fuel, soil and metal container; melting of the container; or a combination of these factors. Probable high temperatures of the isotopic capsule under burial conditions can be a major contributing factor to each of the failure modes.

Recent Tests

To determine the temperatures attained when a SNAP-27 fuel capsule is buried in representative soils, tests of a radioactively inert capsule were recently conducted in Sandia's Technical Area III. SNAP-27 is a plutonium-238 fueled isotopic power unit which will deliver 50 watts to power the Apollo Lunar Surface Experiments Package that will be placed on the moon by astronauts in early Apollo flights.

The tests were designed to (1) determine the temperatures at which the metal fuel container melts or otherwise fails; (2) verify the validity of analytical techniques for predicting the maximum capsule temperatures from known soil thermal properties; and (3) to observe any gross soil reactions, such as melting, flowing or other physical changes.

Burial tests were conducted on three full-scale SNAP-27 capsules that were electrically heated to simulate operating conditions. Three types of soil, one for each capsule, were selected to represent the extreme conditions that could be experienced by the capsule under burial conditions. Soils selected were Bentonite for its low thermal conductivity characteristics; Ottawa sand for its high thermal conductivity; and a mixture of one-third by volume each of Ottawa sand, Bentonite and crushed feldspar for its low melt point characteristics.

Each of the three soils were placed in a 125-cubic-foot excavation. During the fill operations, soil samples were taken to determine such physical properties as density and moisture content.

The capsules were placed 33 inches beneath the surface to simulate impact burial conditions. The platinum resistance heaters within the capsules were energized to 1500 watts, the normal SNAP-27 operating level. Surface and underground instrumentation recorded temperatures from the centerline of the capsule out about four feet.

The metal containers attained temperatures in excess of 2550°F. and were operated until the heaters failed. One lasted about 48 hours, another 78 hours and the third about 210 hours.

Soils Melted

In one experiment, the Bentonite surrounding the container melted and sintered, creating a two-and-a-half-inch thick mass that enveloped the container. The cylindrical container melted around its longitudinal midpoint. The capsule in the Ottawa sand remained intact, but

there was some oxidation of the metal capsule. In the third experiment, a football-shaped mass about eight inches in diameter had formed around the capsule buried in the mixture (Bentonite, Ottawa sand and feldspar). A small thin portion of the capsule melted.

The capsules were x-rayed in the soil mass for an undisturbed damage analysis. The units were then sent to General Electric Company, the SNAP-27 prime contractor, for post-mortem analysis. Data obtained from the tests are being used by General Electric and Sandia in the safety analysis of the SNAP-27. It will also contribute to the general pool of knowledge on burial of isotopic fuel capsules.

Research Contracts

In addition to the recent tests, Sandia has contracts with the National Bureau of Standards in Washington, D.C., and the Eric Wang Civil Engineering Facility operated by the University of New Mexico for additional research on soils.

The fusion-of-soils research project being conducted by UNM personnel is to provide methods for predicting the temperature ranges under which various soils

will melt, for predicting reaction levels and for analyzing the composition of representative soils. The UNM contract also provides for the selection of nine soils that would be somewhat representative of the world.

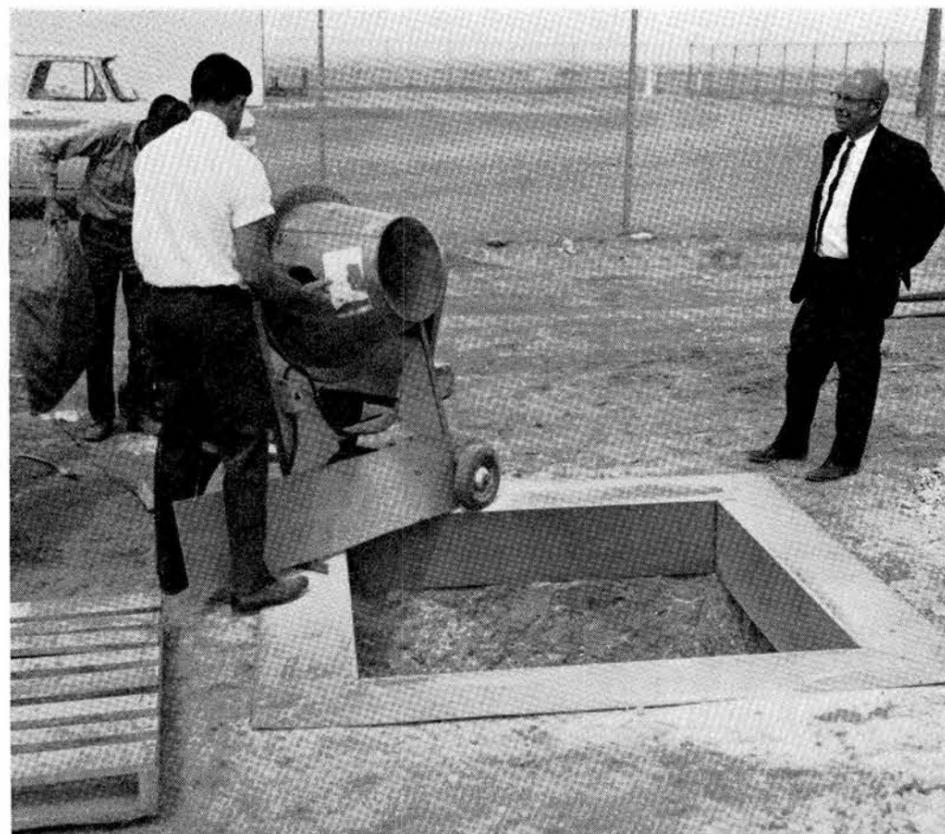
Under the second contract, the National Bureau of Standards is conducting differential thermal analyses on nine different representative soils. Using this and other information, research personnel are determining the effective thermal conductance of the soils from room temperature up to just below the soil melt point (with maximum test temperatures of about 3192°F.) in laboratory tests.

With data from burial tests and the research projects, Division 9312 plans to acquire sufficient information on soils and their interaction with isotopic fuel capsules so that they can predict what will happen to the fuel capsules under a variety of burial conditions.

F. L. Baker (9312) was project engineer for the SNAP-27 burial test and D. A. Rice (7322) conducted the tests. J. B. Boyd (9312) is project engineer for capsule containment material studies.

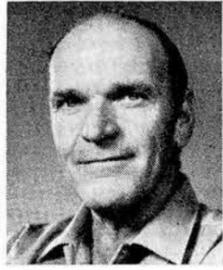


FUEL CONTAINER tested in a mixture of Bentonite, Ottawa sand and feldspar melted near the top. Half of the sintered soil mass which completely surrounded the container has been removed to show the condition of the container. The mass was created by the soil melting and sintering under high temperatures.



PREPARING A MIXTURE of Ottawa sand, Bentonite and feldspar for recent burial tests of SNAP-27 inert fuel capsules are D. A. Rice (7322), left, and F. L. Baker (9312). The soil mixture, inert fuel container and instrumentation were placed in foreground excavation.

Service Awards



C. L. Becker
4574



W. R. Drake
7343



Luciano Gurule
3462



E. A. Salazar
1113

15 Years



Hazel Boyden
2122



Nena Brannan
1621



E. M. Giesecker
2525



Willella Golden
9411



R. J. Kindley
1544



R. M. Lacey
1144



Pauline Laforest
4234



C. S. Lane
2431



Emily Makal
4136



Deluvina Montoya
3428



G. L. Morter
9221



R. D. Robinett
7215



C. E. Roehrig
9413



K. A. Sarason
1544

Speakers

W. J. O'Sullivan (5151), "Studies of the Fermi Surfaces of Metals Under Hydrostatic Pressure," Colorado State University Physics Department Colloquium, Oct. 20, Ft. Collins, and University of Colorado, Oct. 23, Boulder.

T. J. Tucker (5133), "Exploding Wire Detonators: The Threshold Burst Current Dependence Upon Detonator and Environmental Parameters," Fourth Conference on Exploding Wires, Oct. 20-22, Boston, Mass.

D. C. Williams (5234), "Two-Neutron Configurations in the Even Calcium Isotopes as Observed in the (t,p) Reaction," Division of Nuclear Physics, American Physical Society, Oct. 23-25, Madison, Wisc.

H. L. Rarrick (3312), "Review of Sandia 'Symposium on Instrumentation, Experience, and Problems in Health Physics Tritium Control'," American Public Health Association, Oct. 25, Miami.

L. S. Nelson (5234), "Experiments with Supercooled Droplets of Refractory Materials," 30th annual meeting of the Meteorological Society, Oct. 25-27, Moffett Field, Calif.

Emma Hollingsworth (3126-6), "Orientation of New Stenosis and Secretaries into

20 Years

Anti-Flash Device Granted Patent

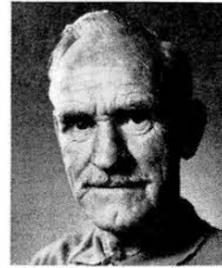
A patent for a device to protect the eyes of personnel subjected to instantaneous and intense light emission (as in a nuclear explosion) has been assigned to the Atomic Energy Commission in the names of M. T. Abegg and W. B. Leslie (both 1341).

The system was developed for the U.S. Naval Bureau of Weapons, and goggles making use of the patent have been produced for the U.S. Navy to protect fliers' eyes.

In operation, a light sensor detects an intense light flash and, in turn, activates an electronic trigger which releases a reservoir of graphite in fluid suspension into a narrow space between the two lens plates of the goggles. The opaque fluid covers the lens in less than 200 microseconds from the initial signal, thereby protecting the eyes from visible and near visible electromagnetic radiation.

The invention may also be used as a fast shutter device for cameras, permitting photographic recording of an initial portion of a flash-producing event yet protecting the film when higher intensities are reached.

Retiring



Vincent S. Gallagher of Janitor Service Section 4574-4, retired from Sandia Oct. 31. He joined the Company in December 1959 and for the past three and a half years has been assigned to high surface cleaning in Area V. This careful cleaning of ceiling surfaces, beams and light fixtures prevents buildup of contamination in the SER and SPR facilities.

Mr. and Mrs. Gallagher will continue to live in Albuquerque at 724 Cagua SE. They have five children and 12 grandchildren. Vince says he has made no definite plans except to take a vacation and visit friends and relatives in Illinois.

Welcome . . . Newcomers

Oct. 16-27

Albuquerque	
John C. Abeyta	2554
Gabriel Garcia	4574
Delmar J. Kinetobe	2211
John D. Parker	4574
Robert W. Yokley	4251
North Carolina	
William F. Chambers, Durham	1122

* Denotes rehired.



Sandi Chrisman (2125)

Take a Memo, Please

In preparation for winter, be sure garden tools are stored in a safe manner and insecticides are locked away, out of the reach of curious children.

PAGE FIVE

NOVEMBER 3, 1967

SANDIA LAB NEWS

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 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
8. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

FOR SALE

CARS & TRUCKS

- '64 CHEV. Impala Supersport, factory air, AT, PS, PB, console, tinted glass, new tires. Ebaugh, 298-2170 after 5.
- '62 PONTIAC Tempest, 2-dr. coupe, AT, bucket seats, \$600. Stirbis, 299-5363.
- '66 CAPRICE, loaded, ivory w/beige vinyl top, \$2800. Hay, 242-8663.
- '54 JEEP pickup, 4-wd, w/tow bar, motor completely overhauled. Johnson, 299-5852 after 6.
- '55 FORD V8 sedan, \$200. Houghton, 299-3386.
- '60 CHEVY Biscayne, standard, 6-cyl., 2-dr., R&H, \$395. Chaves, 255-6155 after 6.
- '67 FORD Mustang, red, custom interior, 4-spd. trans. Otero, 256-6597.
- '60 DODGE Phoenix 4-dr., 3 new tires, brakes recently overhauled, \$285 or best offer. Baca, 247-4841.
- '66 FORD Country Sedan, 8-pass. wagon, PS, PB, factory air, etc., 21,000 miles. Morgan, 299-2850.
- '61 RAMBLER Classic, AC, OD, R&H. Scheerer, 298-2550 after 6.
- '64 VOLKSWAGEN CAMPER, 150cc engine, fold-down bed, closet, table, ice box, water tank, side tent. Holt, 299-5943.
- '67 CHEV. Bel Air station wagon, 8000 miles, AT, AC, PB, PS, 327 engine, etc. Hart, 299-8832.
- '61 GMC 1-ton pickup, V6, 4-spd., 9' bed, 8-ply tires. Workman, 298-8312.

REAL ESTATE

SELL OR LEASE: 3-bdr., den, Robertson, DR, 1 1/2 baths, utility, carpet, drapes, landscaping, sprinklers, water conditioner, built-ins, new roof. Busby, 3200 Blume NE, 299-6450.

2.5 ACRES. South Valley, Valencia County, electricity, natural gas, \$1000 down, balance \$53/mo., or car for equity. Asturias, 299-4173.

3-BDR., 1 1/4 bath, den, fp, dbl. garage, \$19,450, \$2200 equity or terms, 516 Hillview Ct. NE. Watkins, 298-3667.

3-BDR. adobe, 7 acres cultivated land, clear title, 6 miles north Belen. Gabalidon, 864-8889.

TWO R-1 lots corner James & Altez NE, total \$3200. Flowers, 282-3458.

10 ACRE PARCEL, \$100 acre, 5 miles west Coors Road, title insurance. Klamerus, 299-5235.

3-BDR., 1 1/4 bath, lg. electric kitchen, built-ins, carpet, drapes, covered patio, 2 blks. S Highland high school, 649 Monroe SE. Perea, 268-2287.

MODERN ADOBE, 3-bdrs., brick floors, beamed ceilings, 2-car heated garage, radiant heat, 2 fireplaces. Buss, 298-1589.

MOSSMAN 3-bdr., den, 1 1/4 baths, AC hw floors, carpet, dbl. garage, covered patio, sprinklers, \$19,675 FHA or \$6350 to 5 1/4% loan. Allen, 256-3234.

MOUNTAIN ACREAGE, 12 miles from Wyoming & Central, terms. Hoagland, 282-3825.

MISCELLANEOUS

VIOLIN w/case, \$45. Gregory, 299-2461.

SHOTGUN, Browning 12 ga. automatic, w/ventilated rib & Cutts choke, w/case, \$135. Putz, 298-7009.

SINGER portable, w/collapsible wooden table, \$35; 1960 Maytag washer, \$20. Bowen, 242-7339.

VIEW LEX 35mm projector, semi-auto., 500 watt plus trays. Miller, 298-6507.

WINCHESTER .30-.30, \$60 or trade for .30-.30 lever action w/side ejection. Kerley, 299-0281.

FOREIGN CAR GUIDE, featuring Volkswagen, complete from first '56 issue-'61, professionally bound into four volumes, \$24. Morgan, 299-2850.

KODAK Retina 2A camera, flashgun, filters, \$50; Walther PP auto. pistol, .22 cal., \$65. Parks, 296-2261.

BUFFET, reclining chair; carpeting & padding, 10'x12'; pictures: ladies clothing, size 14 & 16; waffle iron; misc. McHill, 904 Girard NE, 255-4530.

NEW GOLF CLUBS, men's, w/bag, \$50; 5-gal. aquarium w/reflector, pump, \$5; 2 trombone stone-lined mutes, \$5. Conrad, 299-5316.

AMPLIFIER, Scott 260 solid state integrated, new \$259.95, take \$185 or best offer. Boyes, 255-7170 after 5.

ROPER gas range, 2 yrs. old; '67 Amana freezer, 15 cu. ft., never used, cost \$290, sell \$240; both appliances coppertone. Benson, 265-4188.

GROVES 40-lb. bow, 12 matched arrows, quiver, accessories, \$50. Guttman, 299-7031.

ELECTRIC range, Hotpoint, full size, best offer takes. Kohl, 268-3754.

RUGS, Sunburst (Horizon), two 32"x56"; one 64"x101", beige, \$50. Graf, 268-5291.

DUAL WALL gas heater, 60,000 BTU w/thermostat, \$35. Bentz, 299-3448.

15,000 BTU refrigerated air conditioner, used 2 mos., cost \$250, best offer or trade for twin beds, dining set, freezer, electric stove. Cummings, 298-7804 after 3:30.

HO TRAIN: 4 engines, 35 freights & passengers, 2 transformers, misc. parts, track & board, make offer. Butler, 898-2025.

'64 DUCATI Bronco motorcycle, 125cc, \$215. Ronan, 299-9168.

BOY'S 26" bike, \$8; girl's 16" bike \$8; Gibson hollow body electric guitar, \$50. Rufsvold, 268-5970.

SOLAR enlarger w/trays, chemicals, cutting board, & easel, \$50; Webster portable phonograph, works but needs work, \$5. Anastasio, 299-7012.

DINETTE set, woodgrain, 42x60 table, 2 12" leaves, 6 full-back chairs. Loeppeke, 299-7338.

FOUR Hereford calves (2 bulls, 2 heifers), & 1 mother cow, sell any one or all. Causey, 299-0089.

HOOVER portable stainless steel oven-broiler, thermostatically controlled, cost \$25, sell for \$13. Hill, 243-3493.

NAVY UNIFORMS; 40-lb. York practice bow; light meter; golf cart; men's clothing; canteen; baby items; slide rule. Stuart, 265-7315.

GO-KART, Simplex heavy-duty frame, Wesbend 2-cycle engine, centrifugal clutch, \$100; royal blue acrylic carpet, 1 yr. old, 13'x17', \$150. Chandler, 296-3323.

COUCH, brown tweed, 82" including arms, converts to dbl. bed, \$50. Allen, 242-3267.

POODLE PUPPIES, small standard, 7 wks old, black, AKC registered. Bohlman, 242-5450.

'67 427 cu. in. Ford cylinder heads, complete; '67 Ford power steering assembly; '67 Hurst floor-shift, 4 speed, Mustang & Cougar. Reif, 265-7264.

30-06 SPRINGFIELD, national match rifle re-barreled for USMC by Sedgley Corp. 1943, 801-000 series. Miglionico, 296-1812.

BICYCLE, English 26" w/generator & lights, \$18; blond step tables, oak, 2 for \$8. Bell, 299-4643.

WESTINGHOUSE auto. washer, \$20. Ashworth, 296-2855.

REFRIGERATOR, 12 cu. ft., \$25. Puccini, 255-0568.

.22 RIFLE, single shot, saddle gun, \$15. McKinley, 268-4779.

CAMERA, Yashica Model A, twin lens reflex w/ carrying case, shutter speed to 1/300 sec. F3.5 lens, \$20. Weidman, 299-8093.

COLDSPOT freezer, \$95; Caloric gas range, \$25; Coldspot refrigerator, \$35. Vandi, 255-0685.

BRAND NEW, never used, spinning reel, Johnson Century model 100B, retail \$19.95, sell for \$10. Nichols, 247-2564.

STEREO speaker enclosures, solid walnut, bass reflex, 25" h 31" w 18" d, deep, red grill; \$100 for the pair. Browning, 299-6384.

SCOTT stereomaster 348 FM tuner-amplifier, Ampex model 915 speaker enclosures, Ampex model 960 stereo tape recorder; Garrard Lab 80 turntable. Johnson, 296-3301 after 6.

VACUUM CLEANER, canister type, Hoover, model 86, \$20; GE combination TV-stereo-AM-FM, walnut cabinet, \$100. Mohberg, 256-6985.

DARK BROWN FUR STOLE, freshly cleaned and glazed. Jordan, 299-4004.

3-PIECE white naugahyde sectional, \$85. Allen, 255-4370 after 4:30.

TWO 10x16.5 Goodyear 6-ply camper tires & rims, will fit Chevrolet pickup. Montoya, 298-6094 after 5.

6" JOINER, Craftsman, on stand. Keyser, 256-1285.

HI-STANDARD auto. pistol, Supermatic Tournament model, 5 1/2" barrel; Mossberg Spotshot scope. Hanson, 298-0637.

SECTIONAL, 2-piece, brown, \$35. Hawn, 299-7835.

NC-300 & 2M converter, Apache 150w, mike & relay Mosley TA-33 Jr. beam & rotator, \$250. Davis, 345-1143.

GIRL'S bike, 24" Schwinn, \$10. Magnuson, 6025 Bellamah NE, 268-5955.

SIX-YEAR crib w/mattress and springs, \$15; high chair & misc. baby items. Amole, 299-1788.

LIMED OAK BUNK BEDS, \$30; child's bureau, \$10. Chemistruck, 299-7563.

14 OR 16" GE refrigerator, \$50; baby bathinette, \$8. Browne, 344-9675.

ROLL TOP DESKS w/swivel chairs, lg. child's size, lt. colored finish, two at \$20 ea. Lyles, 268-0144.

BDRM. SUITE, walnut; music stand; girl's white figure skates, size 4 1/2. Walston, 268-0628.

TOY POODLES, Silver, 2 mos., AKC registered, very small. Shipley, 298-2433.

SIDEKICK brand "Tote-Gote", 4 hp motor, cost \$325, take \$100. Keiner, 9401 Morrow NE, 299-7311.

1/4 INTEREST in 1960 Bellanca 260, recent major. Mecklenburg, 344-6793.

NEW PASCO globets, sherberts; IEEE Proceedings; electric tooth brush; man's winter coat, \$44; copper mugs; girl's 1-2 yr. clothing. Johnson, 298-7356.

TARPAULIN, 12'x14' cut size, brown canvas, extra heavy, used 1 yr., \$13. Sims, 255-6967.

HO TRAINS and autos, layout on 56"x76" board includes mountains, switches, crossing, etc., all for \$40. Driver, 299-2063.

BICYCLE, boy's 24" Schwinn, \$15. Woodward, 299-5876.

WANTED

ROTTEN HAY for mulch; 2 VW wheels; small cider press. Maak, 282-3482.

BANJO, 4-string, tenor, long neck; girl's bicycle, small. Young, 255-9022.

16" BICYCLE, w or w/o training wheels; child's swing set. Peckum, 256-3363.

RIDER to share in car pool from vicinity Eubank between Comanche & Candelaria to gates 6, 7 or 9. Schroll, 299-9142.

"BOOKS OF THE WESTERN WORLD," Hayes, 299-1200.

SHOP manual for 1961 Falcon. Rhyne, 299-4813.

MATURE LADY, excellent references, desires baby sitting in SE. your home, days or evenings. Cotter, 247-1845.

CAR POOL rider from vicinity of Juan Tabo and Copper NE or Mankin Foothill Estates to 860/880 parking lot. Bartlett, 299-4861.

CAR POOL member, vicinity Dakota & Comanche NE, park between gates 6&7. Mikkelsen, 268-1485.

RENT 3-bdr. & den or 4 bdr., home in Sandia School area before 15th. Duvall, 299-8744.

FOR RENT

3-BDR., unfurnished, available after Dec. 10. Schmitt, 296-3267.

ROBERSON 3-bdr., 1 1/4 bath, den, dbl. garage, built-in kitchen, utilities paid, pitched roof, sprinklers, NE location, 6 mo. lease. Marsh, 298-0416.

2-BDR. HOUSE w/elec. stove & refrig., lg. walled yard, NE heights, 513 San Pablo NE. VanderLaan, 255-3093 or 256-9080.

LOST AND FOUND

LOST—Sandia Base library book, 1-strand pearls, silver Indian earring, smoking pipe, knitting needle, gold & blue earring w/pearl. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—Papermate pen, key ring w/keys, key, brown towel. LOST AND FOUND, tel. 264-2757, Bldg. 610.

Coronado Club Activities

Holiday Fashion Show Tomorrow; Club Renovation Starts Nov. 10

A holiday fashion show—glittering and glamorous—will highlight tomorrow night's party at the Coronado Club. Norma Manson of Sears will describe fashions modeled by Sandia Laboratory and Sandia Base employees.

Social hour starts at 6 p.m., dinner of stuffed Cornish game hen will be served at 7, the fashion show begins at 8:30, and dancing to Phil Graham's orchestra starts at 9.

Admission for members is \$3, guests \$3.50.

Social Hours

Tonight Tommy Kelly will make the happy music while the Coronado Club chuckwagon beef buffet is served. The buffet costs \$1.75 for adults, \$1.50 for kids.

Next week, social hour moves to Thursday night since the Club will be closed on Nov. 10 for Veterans Day. The event will be held in the main lounge. Pat Reich and piano will entertain.

Club Closes

With the exception of the lobby and downstairs rooms, the Coronado Club will close from Nov. 10 through Nov. 30. During the shutdown, the kitchen will be remodeled, a permanent snack bar will be added to the patio area, and various floor areas will undergo renovation. The Club will reopen for lunch service and all other activities on Thursday, Nov. 30.

Football Bus

Busses from the Coronado Club to the stadium will leave at 1 p.m. Saturday, Nov. 11 for the Lobo-Wyoming game.

Holiday Schedules

A number of "choice" dates are still available for use of Coronado Club facilities for holiday organizational parties, the Board reports. Under a new system started this year, the ballroom can be divided into a number of areas for private buffets yet all groups can share the cost of a single orchestra.

The ballroom is available under this arrangement Friday, Dec. 8; Friday, Dec. 22; and Saturday, Dec. 23.

The El Dorado Room is available for groups on three Fridays and four Saturdays during December. Other downstairs rooms at the Club are also available for smaller private parties.

For further information, contact the Club office, tel. 264-4561.

New Director

Dennis Shanfeldt (5151), known to most Club members through his chairmanship of game night activities for the past year, has been elected to membership on the Board of Directors. He replaces Jim Stoever (5142) who resigned recently.

Sandia Safety Signals

Eye Injuries

The National Society for the Prevention of Blindness Inc., reports that pointed objects, falls and hard blows cause nearly 80 percent of eye injuries among children. Teach youngsters safe play.

Quick Headlight Check

To be sure your car headlights are working, whenever you drive into your garage, turn on the low beams and make sure both headlights shine a pattern on the back of the garage wall. Then switch to high beam and make sure that both or all four headlights throw separate light spots on the wall.

Alcohol and Driving

In approximately half of the traffic accident deaths, the victims had evidence of alcohol in the blood. A one-ounce shot is approximately equal to one 12-oz. can of four percent beer. Only time can eliminate alcohol from the blood stream. Coffee, cold showers, or exercise does not speed up the sobering process.



MODELS for tomorrow night's Holiday Fashion Show at the Coronado Club include Norma Manson of Sears (foreground) and from left, Judy Eslinger (9323), Hazlet Edmonds (3421) and Rosemary Lopez (JTF-2). The event includes a social hour, Cornish game hen dinner and dancing to Phil Graham's orchestra.

Fashion Expert to Speak At Nov. 14 Sanado Meet



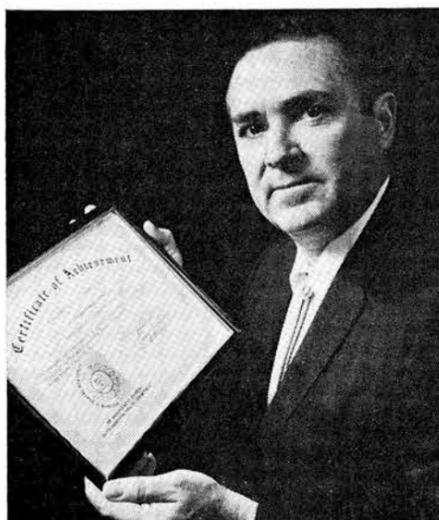
Hotel.

Genevieve Dariaux of the couture house of Nina Ricci will be the featured speaker at a luncheon meeting of the Sandia Woman's Club on Nov. 14. The meeting starts at 12:30 in the Heritage Room of the Western Skies

In addition to her affiliation with the Nina Ricci organization, Mme. Dariaux is associated with the New York designer Arnold Scassi. She is the author of "Elegance," "Entertaining with Elegance" and "The Man in Your Life."

Special guests for the meeting will be the Sandia Woman's Club officers and honorary members.

Reservations should be made with Mrs. V. G. Nelson, 801 Van Buren Place SE, by noon Friday, Nov. 10.



ALBUQUERQUE'S Environmental Health Department has lauded Sandia's Environmental Health Department 3310 and its manager W. H. Kingsley for "cooperation and achievement in air pollution control toward cleaner air for the city and Bernalillo County." The award was made during National Cleaner Air Week.



Y-INDIAN GUIDE WEEK was proclaimed recently by Governor David F. Cargo. He presents the proclamation to Wayne Sebrell (1542), Longhouse Chief. Top row, from left, are Art Key (9427), R. L. Posey (former Sandian) and Jim May (9226). To the right of the Governor is John Zimmerman (1514). The group is conducting a membership drive.

Sandia Y-Indian Guides Looking For Father-Son New Members

More than 200 Sandians and their sons are members of the Y-Indian Guides organization which is currently conducting a membership drive. Wayne Sebrell (1542) heads the organization with the title of Longhouse Chief.

The Guides are divided into 33 tribes of 14 father-son teams. The tribes meet twice a month in members' homes for such activities as designing and making authentic Indian costumes and drums. Membership is open to boys between the ages of six and nine.

The Guides usher at all UNM home football games. They also ready the YMCA Camp Shaver facilities in the Jemez

Mountains for a summer of camping and close up the camp prior to winter.

Every two months, all the tribes gather for a special event. The annual Pinewood Derby, an exhibit of wooden model cars built to certain specifications, is scheduled this month. Each spring, a kite derby is held and the annual Pow-Wow. Throughout the year other activities are scheduled.

More than 400 Y-Indian Guides prepared exhibits for the State Fair this year. Entries ranged from individual to tribal projects, and they collected prizes in many different categories.

Additional information is available from Mr. Sebrell, tel. 299-8791.

Take Note

Leigh Hendricks (9424) was elected national secretary-treasurer of Users of Automatic Information Display Equipment at the organization's annual meeting in Washington, D.C., recently. Leigh, who has been a member of UAIDE for five years, presented technical papers on color development for the S-C 4020, a computer-recorder, at both the 1966 and 1967 meetings.

John Grillo of Sandia's Industrial Hygiene Division 3311 appeared Oct. 26 with a panel of experts discussing air pollution in Albuquerque. The discussion was broadcast by radio station KUNM.

A print of the CBS News Special "The Passionate State of Mind" can be borrowed from either Walt Dodd, tel. 264-1578 or Margaret Cardwell (both 3252), tel. 264-5730.

The 50-minute black and white movie is in the format of a discussion between broadcaster Eric Sevareid and Eric Hoffer, San Francisco longshoreman, author, philosopher. The latter expresses original views on a variety of topics during the interview.

The film will be shown in Sandia's Theater Bldg. 815 during the noon hour on Nov. 17, 22 and 24.

Annual meeting of the Memorial Association of Central New Mexico will be held Monday, Nov. 6, at 7:30 p.m. in the hospitality room of the First National Bank, East Central Branch. N. J. DeLollis (1133) is president of the Association.

Program for the meeting will include election of board members, a film entitled "The Great American Funeral" and a panel discussion of various aspects of funeral arrangements, including donations to the UNM Medical School and to the Eye Bank.

W. D. Gutscher (8211) emerged as singles champion of the recent Sandia Laboratory-hosted interbase invitational table tennis tournament. Runnerup was Jim Clark (7322).

Mr. Gutscher teamed with C. L. Casens (7253) to take the doubles crown. In second place were Mr. Clark and Charles Simpson (7336), who was the singles consolation-bracket singles winner.

The tournament was played Oct. 21 with 48 participants from the Laboratory, Sandia Base and Kirtland Air Force Base.



SCHOLARSHIP CHECK for study at the University of New Mexico is presented Ramesh Ganerwal, senior from India, by W. A. Sherman (2122), ASQC section chairman.

W. A. Sherman (2122), chairman of the Albuquerque Section of the American Society for Quality Control, recently awarded the group's annual scholarship to Ramesh Ganerwal, a mechanical engineering senior at the University of New Mexico. A similar scholarship was presented by ASQC to Daryl Paul Jones at New Mexico State University.

The scholarships are a way of promoting interest in quality control among college students. Mr. Ganerwal, who is from India, plans to specialize in quality control.

The university nominates three candidates for the scholarship, and the ASQC section makes the final selection.

Some 40 Sandians will host their immediate supervisors at the annual Bosses' Night meeting of the Albuquerque Chapter, National Association of Accountants, on Nov. 16. Speaker of the evening will be E. H. Caplan, head of the UNM Department of Managerial Control, who will discuss "Accounting Education—Friend or Foe of Management?" The meeting will be held at the Fez Club, 809 Copper, NW, starting with a social hour at 6 p.m.

Employees taking evening classes no longer need to worry about carrying "brown bags." The Exchange cafeteria, Main and F Streets, is now open from 5-9 p.m.