

# 1969 U.S. Savings Bond Campaign Starting May 15

## SANDIA LAB NEWS



VOL. 21, NO. 10, MAY 9, 1969



**DOWN UNDER** was the destination of this group of Sandians who left KAFB Monday en route to Australia via Honolulu and the Fiji Islands. The heavily instrumented NC135 aircraft carried a crew who are studying airglow effects. Measurements and recordings were to be taken en route to Australia and on nightly flights from Sydney. The craft is flying on north-south routes while staging from Sydney to enable the crew to study airglow effects from positions conjugate to northern hemisphere sunrises. The major measuring instrument is a scanning photometer which measures intensity of spectro lines in airglow. Members of the group scheduled for the trip are, from left: Merton Robertson (5422), Marlin Frettem, Henry Ward, Gordon Worthen, and Robert Martin (all 9252). Seated with a map of the area they were to fly over is Carl Smith (also 9252).

### Unique Solutions to Engineering Problems

## Micro-Welding Is Big in Sandia Shops

It's still called welding for want of a better term, but much of what goes on in the metals joining laboratory in Bldg. 841 is something else — to most of us, at least. Using the techniques and facilities developed in recent years the Welding and Joining Section 4221-5, headed by Chester Corbin, has available a variety of possible solutions to the problems presented in engineering design and fabrication.

Projects assigned to the lab have included welding lengthwise three-inch tubes of rhenium 1.2 mils thick and .020 inches in diameter; welding copper to stainless steel for a thermocouple; attaching thermocouple wires to aluminum foil (the standard kitchen variety); fastening 1-mil bridge wires onto tiny posts already imbedded in plastic; and making 130 welds on miniaturized generators.

In conventional welding, a rod of bonding or filler material is heated to melting point where the two surfaces are joined by the heat of the torch, forming a bead or seam. Such filler material is not used in micro-welding. Instead, the metals may be fused directly to each other, through carefully controlled application of energy. In such operations the time and temperature factors become critical, lest the fragile material be destroyed or deformed, or the characteristics of the material be altered.

Herb Howe and Claude Waldorf must determine which of the available instruments or processes will best perform a given task. They often must design holding

(Continued on Page Four)



**TAKE A PIECE OF METAL** (in this case, rhenium) roughly the width and thickness of the opening tab on a pack of gum. The problem is how to roll the strip into a three-inch tube and weld the lengthwise seam.

The 1969 U.S. Savings Bond campaign starts at Sandia and Livermore Laboratories May 15. Letters to all employees will urge increased participation in Savings Bond program through payroll deduction. A "bond a month" for all employees is the goal.

Herb Pitts (3231), chairman of the bond drive committee, urges all employees to consider the advantages of buying bonds.

"If you are currently purchasing a bond a month, then you know of the advantages of buying bonds — tax breaks when used for the education of your children, tax breaks when saved until retirement, and no state or local taxes at all on the interest earned. These are important advantages.

"There is one other major reason to save bonds," Herb says, "and this may

### Sandian and AEC Man On Purchasing Study Group

The recently-issued interim report of the Governor's Advisory Task Force on Purchasing represented considerable effort by Noel Keyes, AEC/ALO, and Jay Hughes, supervisor of Procurement Computer Systems Division 4331.

Noel is chairman of the task force and Jay is vice chairman. Jay is also the chairman of the organization and administration committee, and heads two of his own subcommittees on computers and data processing, and management reports.

Upon receipt of the 60-page interim report, Governor Cargo wrote Jay: "I would like to take this opportunity to thank you for the many hours of work you have put into this study up to this point without remuneration, and to encourage you in your efforts to conclude this study. It is most gratifying to know that there are so many people dedicated to the concept of sound and efficient management in government that you are willing to spend your own time to achieve this idea."

The task force was set up a year ago with the areas of interest including public purchasing policies and practices, administration of the state purchasing agent's office, and legal framework within which the purchasing system operates.



Jay Hughes

be the most important of all — savings bonds become permanent savings. The committee talked with a number of Sandians, who reinforced our own experience, that other kinds of savings tend to be cashed in and used for new cars, appliances and the like while the savings bonds are retained. In many cases, savings bonds are the only permanent kind of savings that a family has."

Herb reports that the campaign will be conducted entirely by mail, except that organizational representatives will personally contact those employees who do not return their payroll deduction cards. Those employees currently participating at bond-a-month level will not receive cards.

Currently 80 percent of Sandia employees are buying bonds regularly through payroll deduction, saving a total of \$110,000 each month.

Throughout the campaign, posters and displays at both Laboratories will urge Sandians to enroll in the payroll deduction program for bonds. Other savings bond literature will be distributed during the campaign.

Members of the savings bond committee include Robert Lynes (9413), James Wentz (1222), Kelly Davis (2451), George Kupper (3114), Malcolm Snyder (4211), James Renken (5231), Frank Martin (6021), Robert Workhoven (7322), Henry Welch (4514), Tony Chaves (4615), Marty Martegane (3420), and John Cavanaugh (4131). Emanuel Alford (8245) heads the bond effort at Livermore Laboratories.

### Cultures of New Mexico Subject of Upcoming Noontime Lecture Series

A series of five lectures on contemporary culture of New Mexico will be offered as part of the out-of-hours program beginning Friday, May 16.

The information series about New Mexico cultures will provide better understanding between peoples from different heritages. Included will be lectures on the physical environment of the state, Spanish-speaking peoples, Indian peoples, Anglos, and the arts in New Mexico.

The 40-minute noontime lectures will be conducted on successive Fridays in Bldg. 815 starting at 12:10 p.m. Enrollment will be handled through a Sandia Bulletin to be issued in the next few days.

Persons primarily responsible for the series are Frederick Norwood (1721), Aquiles Trujillo (2626), Bill Garcia (3222), Gary Montague (3132), and Earl Wilson (3132). Lorella Salazar (3433) served in an advisory capacity. Additional assistance was received from Albert Vogel, chairman of the Department of Educational Foundations at UNM, the UNM Fine Arts Museum, and Ruth Armstrong of the Chamber of Commerce.

Lecture topics, speakers and dates are:  
May 16—The Environment of New Mexico as an Influence in Cultural Development, Florence Ellis, professor of anthropology, UNM.

May 23—The Contemporary Spanish-Speaking Peoples in New Mexico, John Archibeque, associate professor of Spanish, UNM.

June 6—The Contemporary Indian Peoples of New Mexico, John Rainer, executive director, New Mexico Commission of Indian Affairs.

June 13—A Contemporary Anglo in New Mexico, Tom Wiley, associate professor of educational administration, UNM.

June 20—Art in New Mexico, Robert Ewing, director of the Museum of New Mexico, Santa Fe.

### House, Apartment Rentals Needed for Summer Hires

Furnished houses and apartments will be needed by summer hires, and employees knowing of such rentals are asked to list them with Employee Services Division 3123.

The temporary employees will begin arriving in early June and in most instances they will remain at Sandia until mid-September. The group is primarily university faculty members and graduate students. There will be a few technical institute faculty members from within New Mexico. Many will bring their families with them.

To list housing, please call Eva Thompson at 264-2757 or O. J. Foster at 264-7775.

**Editorial Comment**

# Tune Up to Tune Out Smog

In recent issues the LAB NEWS has pointed out the existence of a growing smog problem in Albuquerque. We have also stressed the need for strong public support of anti-pollution measures. Now we suggest an immediate action which would be a small but essential step toward preserving our clean air resources: Have your car's motor tuned.

May is "Tune Up for Cleaner Air Month." The joint proclamation, issued by Gov. David Cargo and the City Commission of Albuquerque, is aimed at encouraging car owners to get a tune up which would reduce the emission of such automotive pollutants as carbon monoxide, hydrocarbons, and oxides of nitrogen. About 92 percent of the 210,320 tons of pollutants pumped into our air each year consists of those noxious gases and comes from automotive sources.

The Petroleum Industry Committee, the American Automobile Association, and the city's garages and service station operators are cooperating in the month-long effort to keep our air clean.

Not only will a tune up help in the battle against pollution but you'll save money through better gas mileage and your car will run better.



RECENT VISITOR to Sandia was W. Keith Lowry, manager, Technical Information Libraries for Bell Telephone Laboratories. Discussing the operation of technical libraries were (l to r) Arlin Pepmueller (acting 3420), Bertha Allen (3421), Mr. Lowry, and Max Linn, Director of Information 3400.

## Standards Institute To Meet in City

Sandia will host a meeting of a committee of the USA Standards Institute on May 20-21.

The two-day meeting of the temperature and humidity work group of committee B89 (Dimensional Metrology) will be concerned with setting standards for describing and testing the environmental factors of temperature, humidity, cleanliness, illumination and acoustics in environment controlled rooms. In addition, the work group will determine whether the control of these environmental factors is adequate for the calibration of measuring equipment as well as for the manufacture of environment control devices.

Joe Moody (7451) and Jack Wilson (8333) are members of the committee work group. Other Sandians who are members of the parent committee are Jay Chamberlin (7451) and Edward Roth (5434).

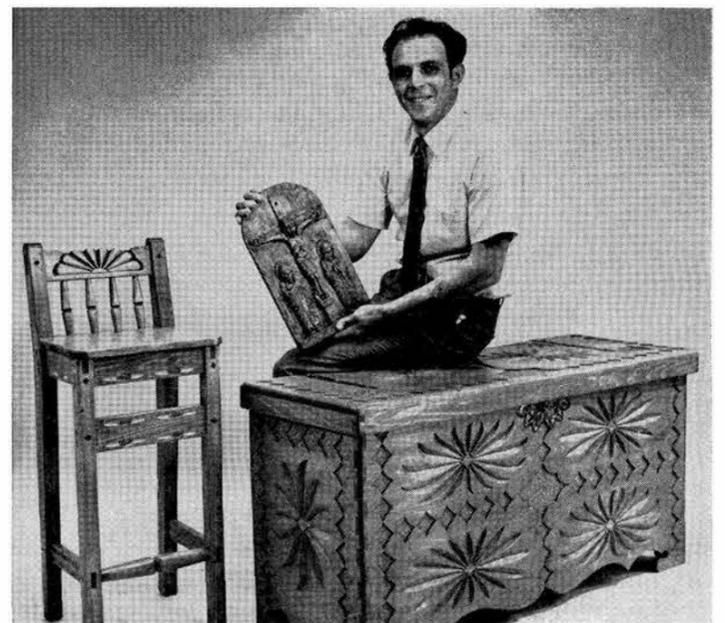
Work sessions of the meeting will be held at the Western Skies Motor Hotel. The group will be shown three Sandia-produced movies.

The USA Standards Institute replaced the American Standards Association (ASA) in 1966. Its purpose is to establish national standards for materials, devices, products and testing methods for American industry.

A similar meeting of the Institute was hosted by Sandia in 1968.



TWO PIECES of sculpture, reminiscent of early New Mexican bultos, were created by Al Santistevan (4574). Small carvings such as these



occupy a small amount of his time—most of his effort goes into making and carving furniture items including this chest and chair.

### New Mexico Tradition

# Al Santistevan Keeps Colonial Art Alive

Hand carved furniture and statues are New Mexican native arts which date back to Spanish colonial days — if not before. Alfonso Santistevan (4574) is one of the craftsmen who is continuing this type of decoration.

A native of Taos, that area's influence is readily identified in the rope-like carving on the front posts of Al's home in Belen. Inside, he did all the finish work on the structure plus making (and carving) many of the pieces of furniture. Al

learned to make furniture during vocational training at Taos High School.

His home has a carved front door, hand carved mahogany panel doors in the kitchen, and elaborate double doors opening into a tiny nook fitted with table, two chairs and holders for glasses of various sizes. Furniture items — all deeply carved with elaborate designs — include bed headboards, a chest of drawers, coffee tables, chairs, a storage chest, and a wardrobe ("trastero").

Al drafts his own designs, does the drawings, and also makes the decorative metal hardware. In most instances, the furniture and other items are made without nails, depending for stability entirely upon closely-fitted joints. He also concocts his own stains.

When he gets bored with work on a particular piece of furniture, Al turns to sculpture, his "pick up work." Two examples are shown in the accompanying photographs.

## Learning Disabilities Meet Topic

The Albuquerque Council for Learning Disabilities, a volunteer association of parents, doctors and educators interested in the education of neurologically impaired children, will meet at the Western Skies Motor Hotel May 10 for a learning disabilities conference.

Noble Johnson, supervisor of Community Relations Division 3433, is chairman pro tem of the council.

Three authorities in the field will lecture and discuss classroom techniques and problems associated with learning disabilities. Sam Kirk, professor of special education at the University of Arizona and chairman of a national advisory board on

children with learning disabilities, will be the keynote speaker. Other lecturers are Jean McCarthy of the department of special education at the University of Chicago, and J. Gerald Minskoff, coordinator of a learning disabilities unit of the Bureau of Education for the Handicapped, HEW.

The conference, aimed at stimulating interest in children with learning disabilities, is made possible through the cooperation of the Easter Seal Fund and the Albuquerque Public Schools. Parents of children with learning problems, educators, or any interested persons are invited to attend. Registration fee is \$1 and the keynote luncheon is \$3. Registration begins at 8:30 a.m.

**Variable Annuity  
Unit Value**

For May 1969	<b>\$1.738</b>
April 1969 Value	<b>\$1.687</b>
1968 Average Value	<b>\$1.647</b>

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Anti Matter

DICK WILSON © 1968

## Supervisory Appointments



C. W. (BILL) ROBINSON to supervisor of Analytical Mechanics Division 8336, effective May 1.

Bill joined Sandia Laboratories at Livermore in June 1964, and has been assigned in the applied mechanics organization the entire time. His work has primarily involved structural analysis of reentry vehicles and development of analytical methods.

He received his BS and MS degrees in civil engineering in 1959 and 1962 respectively, both from Colorado University. While working on his MS, he was employed by Martin-Marietta Corporation in Denver in structural analysis and experimental research. From 1962-64 Bill took advanced courses at Columbia University and received a professional degree in engineering mechanics.

He is a member of the American Society of Mechanical Engineers and honorary societies Tau Beta Pi, Chi Epsilon, Sigma Tau, and Phi Theta Kappa.

Bill and his wife Jo reside at 7500 Sedgefield Avenue, San Ramon, with their two-and-a-half-year-old son.



TED GOLD to supervisor of Systems Research Division I 8324, effective May 1.

Ted joined Sandia Laboratories at Albuquerque in July 1961 as an engineer in the preliminary systems design organization.

In August 1963, he transferred to Livermore's preliminary systems design organization. Most recently he has been working in applied systems research where he has been involved in advanced weapons systems studies.

Ted received a BS in electrical engineering from Rensselaer Polytechnic Institute in 1961. After joining Sandia, he earned an MS in electrical engineering from the University of New Mexico through the TDP Program. He is currently doing advanced work at the University of California's Department of Applied Science at Davis/Livermore.

He is a member of honorary societies Eta Kappa Nu and Tau Beta Pi.

Ted and his wife Sydell, a former Sandian, have two children, a boy and a girl. The Golds live at 2211 Tice Valley Blvd., Walnut Creek.

### 'Pre-Retirement Planning' For May 20 Colloquium

"The Importance of Pre-Retirement Planning for the Young Professional" is the subject of Dr. Harold Geist, speaker for the May 20 Colloquium at Sandia Laboratories Livermore. He is currently a clinical psychologist in private practice in Berkeley, as well as a professor of psychology at San Francisco State College.

Dr. Geist has written "The Psychological Aspects of Retirement," "The Psychological Aspects of Diabetes," "The Psychological Aspects of Rheumatoid Arthritis," and "The Etiology of Idiopathic Epilepsy."

Tickets will be required for admission. W. J. Henderson (8214) is host.

### Congratulations

Mr. and Mrs. George Hirota (8252), a daughter, Kathy Shizuko, April 10.

Mr. and Mrs. Keith Oatney (8322), a son, Mark David, April 17.

Mr. and Mrs. Larry Borello (8252), a son, James Lawrence, May 1.

Judy Slagel (8322) and Jerry Wackerly (8161) married in Reno, Nev., April 25.

### Sympathy

To Jessie Burns (8183) for the death of his brother in Albuquerque, March 28.

To Harvey Pouliot (8137) for the death of his father in Minnesota, April 24.

**SANDIA FROG JOCKEYS**—From left, Don Gallagher, Lupe Martin, Jerry Wackerly, and Paul Dominguez (all Division 8161) warm up frogs "Thunderbird Pete" and "Sandia Sam" for the Celebrated Jumping Frog Jubilee at Angels Camp, Calif., May 17 and 18. The contest, immortalized by Mark Twain's 100-year-old story, "The Celebrated Jumping Frog of Calaveras County," is held annually in conjunction with the Calaveras County Fair. Over \$2000 in prize money will be at stake, including \$1100 for breaking the world's record set in 1966 by a frog who jumped a total of 19 feet and three inches in the three leaps each frog is allowed.



CHARLES HOYLE to supervisor of Applied Mechanics Division 8337, effective May 1.

Chuck joined Sandia Laboratories at Livermore in August 1959, and has worked in the applied mechanics organization the entire time. He has been primarily involved in structural analysis for various project groups.

He received a BS in mechanical engineering from the University of California/Berkeley in 1957. While at Sandia, he earned his MS, also from the UC/Berkeley in mechanical engineering, under the EAP Program and has done additional graduate work.

During the Korean conflict, Chuck served as a pilot with the U. S. Air Force for four years.

He is a member of the Society for Experimental Stress Analysis, and served as chairman of its Northern California Section for the year 1968-69. He also is a member of the American Institute of Aeronautics and Astronautics, and honorary society Tau Beta Pi.

Chuck and his wife Pat and their three children, two boys and a girl, live at 2362 Sandpiper Way, Pleasanton.

# LIVERMORE NEWS

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MAY 9, 1969



ORVAL WALLEN (8243) adjusts one of the medical braces he made in his spare time for the patient of a local doctor. The braces, of spring steel with handsewn padding and supports, help restore muscle deterioration or straighten deformities.

## Livermore Employee Makes Medical Braces in Spare Time

In the way of constructive leisure-time activities, that of Orval Wallen (8243) would be hard to beat. Orval spends much of his spare time designing and fabricating medical braces.

"I have been receiving requests from local doctors asking me to design and fabricate braces or exercising devices for their patients," Orval says. "It appears that some commercial braces are not fitted to personal measurements and custom-made braces are hard to acquire locally."

The braces Orval makes by hand are fitted directly to the patient, but all of his work is done strictly under a doctor's supervision.

Generally, the braces are used to help alleviate muscle deterioration as the result of an injury, or from arthritis or other physical impairment. They can also be used to straighten deformities.

Orval says his interest in developing medical braces began a few years ago when a Livermore doctor asked him if he could make a brace for a young girl who had received a severe wrist injury which caused the loss of the use of the fingers. "Previously while living in New Mexico, I had made several medical instruments for a couple of dentists for use in their orthodontic work," Orval says, "but never

had I been involved with corrective or therapeutic equipment. So, I considered this quite a challenge.

"I first took measurements and then I designed and fabricated the brace," he continues. "After various consultations and fittings, the attending doctor approved the brace and the patient was instructed in its use. Almost complete recovery was achieved. In fact, she has progressed so well that she is considering becoming a professional pianist."

Since then Orval has been making braces for other doctor's patients. His designs basically are taken from pictures of equipment the doctors have used previously or found in medical books. From these pictures, Orval originates a design to fit the particular situation, and submits a fabrication to the doctor for approval.

He has found that in many cases restoring muscle deterioration in the arm involves placing the wrist in the dorsi flex (35° cocked up) position. This position is achieved by a spring device which will either relieve the muscular tension or stretch the muscles. Supports may be added to exercise the fingers and over an extended period of time straighten them from the closed position to the open position.

One of the most difficult things he has encountered in fitting a brace is applying pressure to correspond with the normal joint movement. It is important that the adjustment is correct, since the desired result must be achieved with a minimum amount of discomfort to the patient.

Basically, the braces are made of spring steel. However, Orval has had problems in finding the type that he needs in the Bay Area, so he usually ends up getting coil sections and then straightening them. The metal is soldered with silver and the padding and supports are handsewn.

He feels his work is a real challenge. Through designing and fabricating braces by hand from basic materials he is able to help people regain normal movement of injured or deformed areas of their bodies.

"It appears I'll be continuing my work for some time in the future," Orval adds. "I now have a request from a dentist for a device to be used at various universities when teaching dental students how teeth may be straightened through orthodontic work. The device will consist of a set of false teeth that can be manipulated into odd positions and then brought back to the correct position through the application of pressure by an actuating mechanism."

## Take Note

Gordon Bjork, supervisor of Drawing Reproduction Section 8253-2, presented a technical paper, "An Integrated Engineering Drawing Control System," at the National Microfilming Association Symposium in Boston, Mass., May 5-6.

Don Wagner, supervisor of Personnel, Compensation, and Labor Relations Division 8212, was recently appointed to the Personnel Commission of the Livermore Area Recreation and Park District for a four-year term.

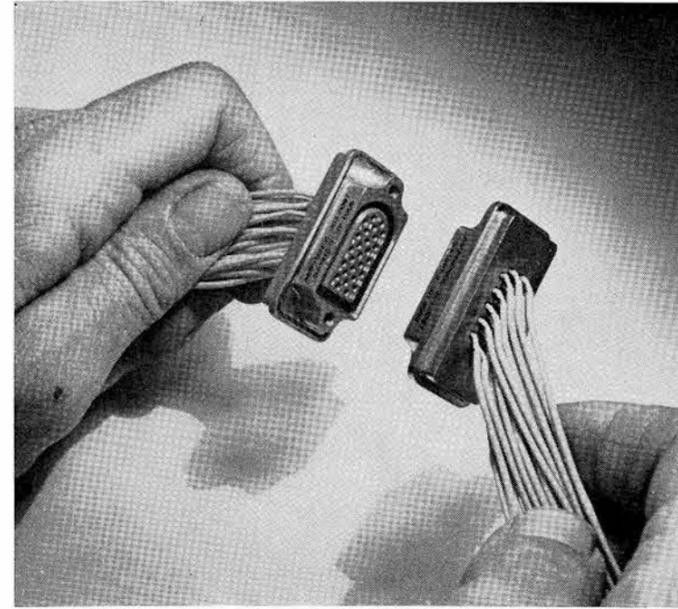
The five-man commission was created by the LARPD in 1964. Its responsibilities include administration and recommendations for employment policies, personnel rules, and employee appeals.

Jack Dini and Paul Coronado (both 8311) were co-authors of a technical paper titled "Preparation of Uranium for Electroplating with Nickel," which appeared in the Spring 1969 issue of TRANSACTIONS OF THE INSTITUTE OF METAL FINISHING.

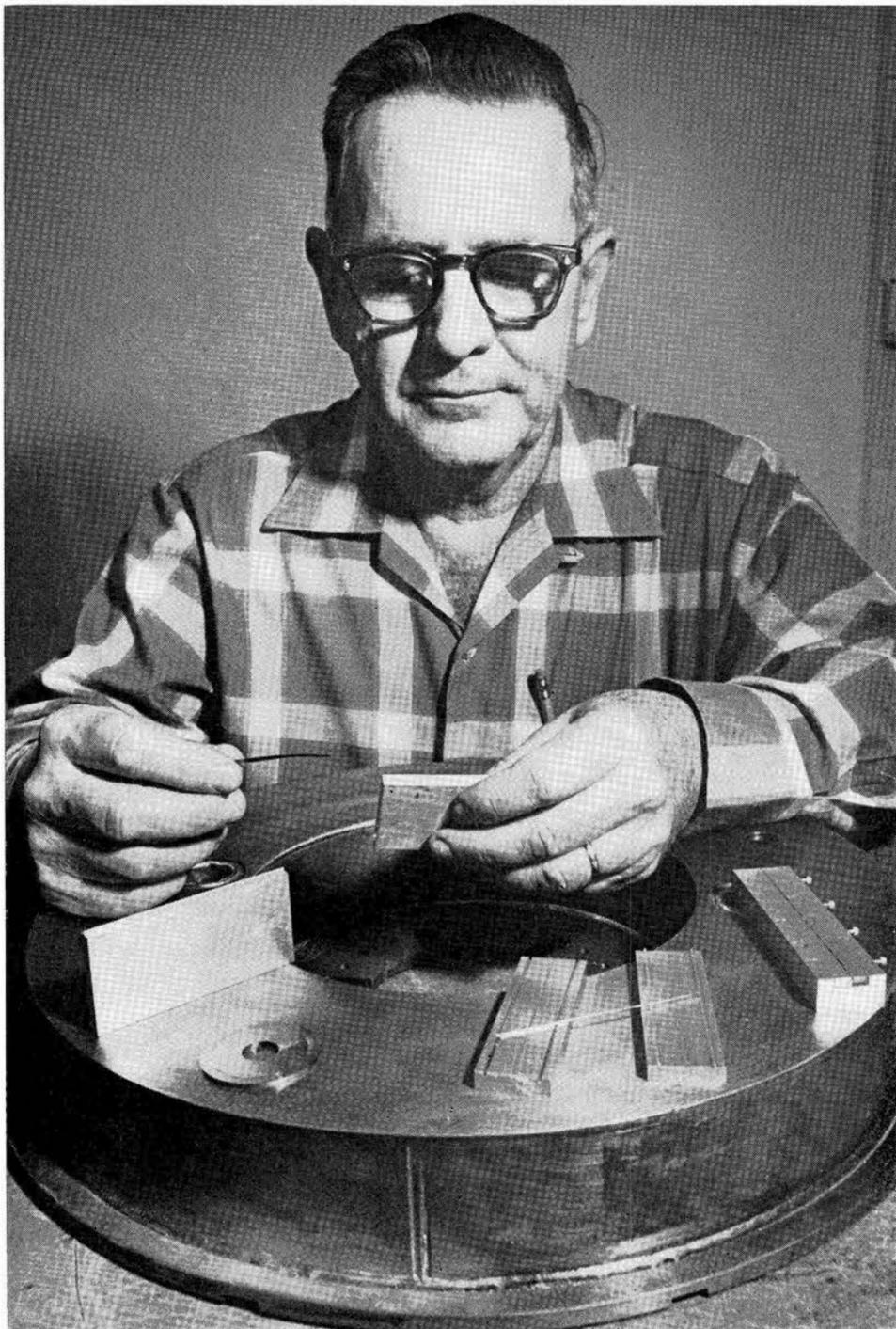


**RESISTANCE-TYPE WELDING** is used by Delores Smith as she works on a Marx generator. Each device has 135 welds and differences in combin-

ations of metals require six or seven weld "schedules" (adjusting the pressure and heat factors).



**PERCUSSIVE ARC WELDING** technique permits stranded copper wire to be welded directly onto flat steel or kovar pins on connector devices.



*Continued from Page One*

## MICRO-WELDING IS BIG JOB

devices or heat sinks or other materials which tend to equate the heat coefficient of dissimilar materials or similar materials when of different thicknesses. This preliminary work may take several days compared to seconds or minutes for the welding function alone.

The three- and six-kilowatt electron beam welders are among the most versatile type of equipment in the laboratory. The electron beam, produced by electrons emitted from a filament and accelerated by high voltages is precisely focused upon the joint and the welding spot can range from .002 to 0.5 inches in diameter. The concentrated energy (which creates the weld) can be varied as well as the duration of time. A steady beam of electrons may be needed to make welds requiring deep, controlled penetrations or a micro-second pulsed mode may be needed for welding thin metal foils.

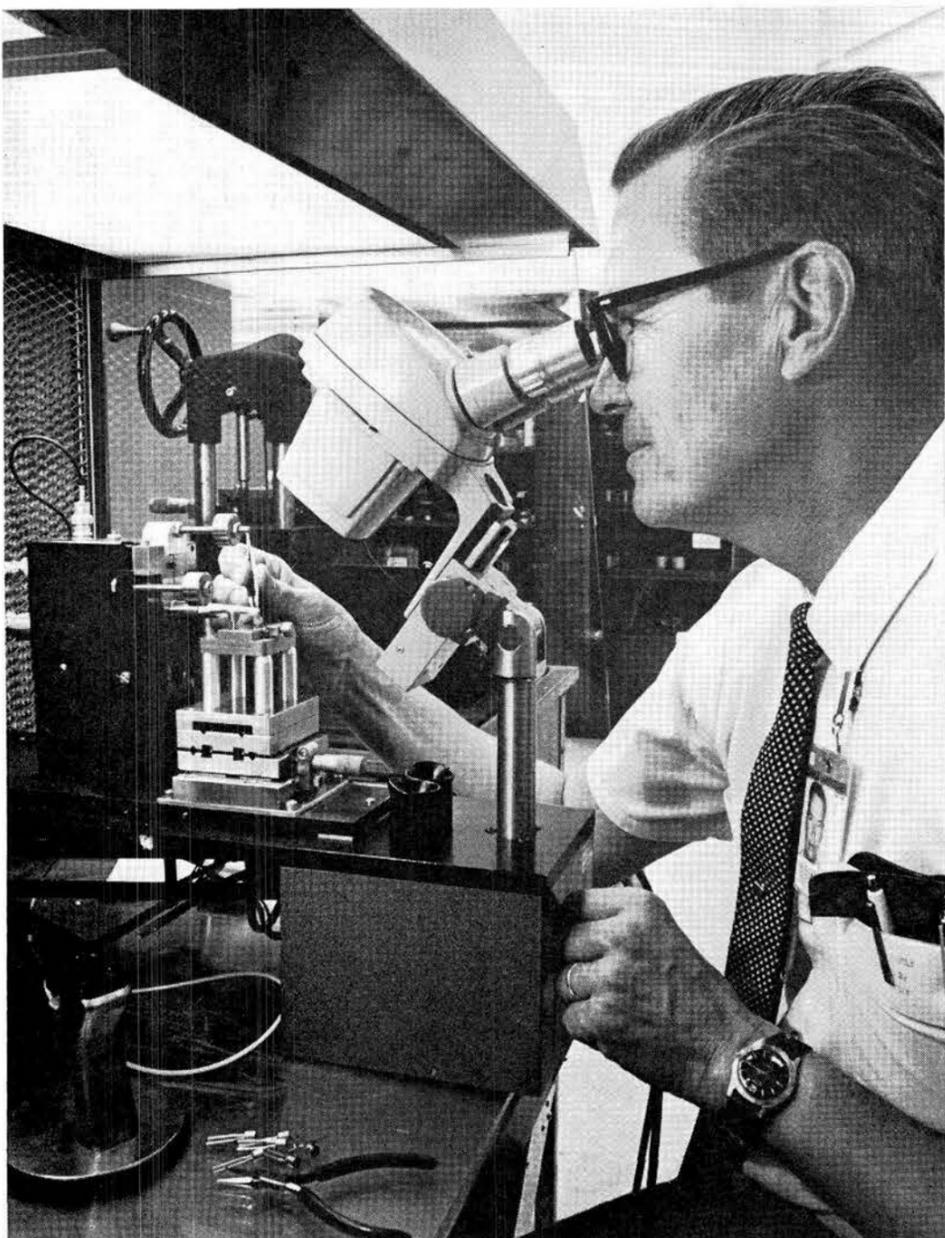
The welding apparatus is housed within a vacuum chamber and the object to be welded is moved under the electron beam by a remotely-controlled positioning table. The vacuum environment allows metals which are toxic or radioactive to be welded with all the toxic products retained in the tank or trapped in filters.

The electron beam is also especially suitable for work on thermally sensitive materials, items which must be kept free from contamination, and for joining dissimilar metals.

The ultrasonic welding machine operates on an entirely different principle. This machine introduces high frequency vibratory energy into the materials at the area to be joined, disrupting the molecular structure of the pieces and producing a permanent realignment and metallurgical bonding. Time, pressure, and energy in the frequency vibration can be controlled. One metal is virtually "scrubbed" into another, which makes this method suitable for joining many dissimilar metals and those of greatly different thicknesses.

Other approaches available for micro-miniature work are a percussive arc welder; five resistance welders, each installed in a clean air workbench and each with a different electrode configuration for spot welding on printed circuit boards; an argon-gas shielded pulsed arc welder which will join two fine wires in one spark of energy; and a laser beam microwelder which has made possible welding of heat sensitive materials plus contributing to special applications for welding in corners or other hard-to-reach places.

**THESE FORMING PLATES** and holding device (on the right) were designed by Claude Waldorf (4221-5). Cutting wheel for the rhenium strip was designed by the Miniature Machine shop (4254-2) which also made the other aids. The electron beam welder joined the seam of the .300-inch diameter tube. Large wheel upon which smaller items are placed is an example of how copper can be welded with this specialized equipment even though the base was four times as thick as the upright wall.



**HERB HOWE** selects the ultrasonic welder for special applications. With this process, high vibratory energy produces the metallurgical bonding, making it suitable for joining many dissimilar metals and those with greatly different thicknesses.



**SIX KW ELECTRON BEAM WELDER** is operated here by **Jim Taylor** (4221-5). Large vacuum chamber behind controls can contain items from the very small to about 18 inches in diameter. Welding

beam can be varied in width and power for different materials and can be pulsed at high power for heat-sensitive metals. Automatic tape control permits an operation to be repeated exactly at a later time.

## Speakers

G. W. Barr (5162), "The Influence of a Supersonic Flow Field on the Elastic Stability of Cylindrical Shells"; L. M. Lee (5161), R. P. May (5163), and T. R. Guess (5161), "Some Dynamic Mechanical Properties of Distended Carbons"; H. M. Stoller (1222), and E. R. Frye (5412), "Carbon-Carbon Materials for Aerospace Applications"; and J. L. Ledman (5435), "Development of Shear Spinning Technology for Beryllium," ASME/AIAA 10th Structures, Structural Dynamics and Materials Conference, April 14-16, New Orleans.

R. L. Gerlach (5441), "Alkali Metal Adsorption on Single Crystal Nickel Surfaces"; A. R. DuCharme (5441), "Effects of Surface Impurities on Lattice Response and Trapping," Surface Science, Evaporation and Effusion Symposium, New Mexico Section of the American Vacuum Society, April 28-30, Los Alamos.

H. D. Sivinski (1740), "Man in the Space Environment," Los Altos Civitan Club, April 3; "Planetary Quarantine for Space Exploration," Science Youth Days at Sandia Laboratories, April 17-18.

J. A. Hornbeck (1), "Challenge of Careers at Sandia," State Science Fair/Academy of Science meeting, April 19, Socorro.

M. J. Landry (7271), "Holography," North Valley Optimist Club, April 8.

C. S. Johnson (7271), "The Scientific Quest for ESP," Albuquerque Association of Educational Secretaries, April 14.

D. R. Morrison (1713), "Computers," Albuquerque District Dietetic Association, April 14.

A. Y. Pope (9300), "Sandia Field Testing," Junior League of Albuquerque, April 22.

W. C. Ryan (4221), "Glassblowing," Woman's Club of Albuquerque, April 23.

L. J. Vortman (9111), "Plowshare," Albuquerque chapter, American Society of Certified Engineering Technicians, April 28.

N. A. Bourgeois, Jr. (2614), "High Voltage Pulse Facility," Albuquerque Section, Instrument Society of America, May 1.

E. D. Jones (5114), "Nuclear Magnetic Resonance in Strongly Paramagnetic Systems," Stanford University Solid State Physics Colloquium, April 10, Stanford.

M. A. Parsont (9515), "The Influence of Particle Size on Lung Retention and Critical Organs," Lovelace Foundation Seminar, April 8, Albuquerque.

J. F. Reed (9322), "A Report on the Fire in the Sandia 300 psi Air Storage System," 31st Supersonic Tunnel Association meeting, April 24-25, Dayton.

J. G. Marsh (3414), "Security Classification Management and Cost Avoidance," First Southwest Interagency Security Conference, April 29-May 1, White Sands Missile Range.

D. L. Mangan (2613), "Plasma Expan-

sion into a Vacuum Environment," Southwest Regional Conference, American Nuclear Society, Student Branch, April 26, Albuquerque.

W. H. Curry (9322) and W. A. Millard (9325), "A Thin Strap Support for the Measurement of the Dynamic Stability Characteristics of High Fineness Ratio Wind Tunnel Models," 4th AIAA Aerodynamic Testing Conference, April 28-30, Cincinnati, Ohio.

George Banos (3233), "Practical Aspects of Personnel Administration," UNM course in Advanced Personnel Theory and Techniques, April 24, Albuquerque.

C. W. Gwyn (5112), "Ionizing Radiation Effects in MOS Devices," 135th National Meeting of the Electrochemical Society, May 4-9, New York City.

G. R. Elliott (2454), G. R. Norris, Jr. (1212), and S. D. Stearns (Dikewood Corp.), "Integration of a Digital Computer with a Vertical Balancing System on a Real Time Basis," Society of Aeronautical Weight Engineers, Inc., May 5-8, San Francisco.

Bruce Hawkinson (4112), "Computers as Control Devices," National Microfilm Association Convention, May 7, Boston.

G. P. Steck (1723), "Non-Parametric Estimation of  $g$  when  $G = g(F)$ ," Institute of Mathematical Statistics, May 7-9, Monterey, Calif.

R. J. Baughman and R. A. Lefever (both 5154), "Czochralski Growth of Volatile Materials"; John Matsko and R. A. Lefever (both 5154), "Preparation of Transparent Polycrystalline Magnesium Oxide and Spinel," Southwestern and Rocky Mountain Divisions of the American Association for the Advancement of Science, May 7-10, Colorado Springs.

J. F. Muir and E. L. Clark (9342), "Experimental Investigation of the Effects of Nose Bluntness and Free-Stream Unit Reynolds Number on Boundary Layer Transition at a Low Mach Number of 6," AIAA 4th Aerodynamic Testing Conference, April 28-30, Cincinnati.

R. L. Johnson (7226), "Current Optical Instrumentation Techniques and Projects at Sandia Test Track"; R. L. Shuman (7311), "Sandia Sled Velocity Measuring System," 23rd Meeting of the Istracon Instrumentation Working Group AFMDC, Holloman AFB.

E. H. Beckner (5240), "Plasma Production and Diagnostic Measurement at Kilo-volt Temperatures," UNM Department of Nuclear Engineering, April 18.

N. J. DeLollis (5433), "Primers: Functions and Future Possibilities," SAMPE Symposium, April 29-May 1, Los Angeles.

R. A. Graham (5132), "Physical Properties of Quartz under Shock-Wave Compression," Washington State University Physics Department Seminar, April 22.

L. Davison (5133) and B. M. Butcher (5161), "Structure of Compaction Waves in Porous Solids"; R. P. Reed (5163), D. M. Schuster (5431), and C. D. Lundergan (5163), "Spall and Filament Damage in Metal-Matrix Composite Materials and Wave Propagation in Elementary Composite Configurations," University of California Colloquium on Dynamic Behavior of Composite Materials, May 9, San Diego.

## Authors

R. C. Powell and R. G. Kepler (both 5113), "Evidence for Long Range Exciton-Impurity Interaction in Tetracene Doped Anthracene Crystals," March 31 issue, PHYSICAL REVIEW LETTERS.

R. J. Thompson (1722), "On Some Functional Differential Equations: Existence of Solutions and Difference Approximations," Vol. 5, No. 3, SIAM JOURNAL ON NUMERICAL ANALYSIS.

E. H. Beckner (5240) and D. R. Smith (5242), "Dominant Source of Soft X Radiation from Coaxial Discharge Tubes," Vol. 12, No. 1, PHYSICS OF FLUIDS.

R. M. Elrick (5271), "Anisotropy of Brownian Motion Observed in a Temperature Gradient Gas," Vol. 12, No. 1, PHYSICS OF FLUIDS.

B. R. Hunt (1920), "Polynomial Representation of Finite-State Machines," Vol. SCC-5, No. 1, IEEE TRANSACTIONS ON SYSTEMS SCIENCE AND CYBERNETICS.

R. E. Nettleton (5151), "Self-Consistent Phonon Treatment of Second-Order Displacive Ferroelectric," Vol. 220, No. 5, ZEITSCHRIFT FÜR PHYSIK.

R. Y. Lee (1712), "Turning Point Problems of Almost Diagonal Systems," Vol. 24, No. 3, JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS.

J. B. Gerardo and M. A. Gusinow (both 5243), "Comments on the Paper by Banks and McGowan Entitled,  $He^+$  in the Topside Ionosphere," Vol. 74, No. 3, JOURNAL OF GEOPHYSICAL RESEARCH.

R. L. Schwoebel (5440), "Step Motion on Crystal Surfaces II," Vol. 40, No. 2, JOURNAL OF APPLIED PHYSICS.

## Events Calendar

May 10-11—Council of Albuquerque Garden Clubs and Iris Society flower show, Floriculture Building, State Fair Grounds.

May 10—Hermit Peak (10,060 ft.) in the southeast corner of the Pecos Wilderness. N.M. Mountain Club, leader Norm Bullard, tel. 268-1812.

May 14-17—Baseball, Albuquerque Dodgers vs. El Paso; May 19-21, Dodgers vs. Dallas-Fort Worth. Albuquerque Sports Stadium.

May 15—YWCA chartered bus trip to Singing River Ranch in northern New Mexico. For information tel. 247-8841.

May 18—12th annual Rio Grande white water boat race from one-half mile south of Pilar downstream to the Taos-Rio Arriba county line. Watch from U.S. 64.



**DON'T PUT ALL YOUR EGGS IN ONE...**

**BASKET.**

**BUY U.S. SAVINGS BONDS**

**"The Lonely Bond"**

U.S. SAVINGS BONDS SOMETIMES GET TUCKED AWAY IN THE DESK AND FORGOTTEN. (DON'T HAVE TO WORRY ABOUT LOSING THEM) ISN'T IT NICE WHEN YOU RUN ACROSS ONE?



**FOR EDUCATION**

BUY U.S. SAVINGS BONDS IN YOUR CHILD'S NAME. WHEN HE CASHES THEM FOR HIS EDUCATIONAL NEEDS, ALL ACCRUED INTEREST IS FREE FROM FEDERAL INCOME TAX (IN CERTAIN CASES). See FOLDER:

**"TAX ADVANTAGES OF U.S. SAVINGS BONDS"**

**RETIREMENT**

AFTER RETIREMENT, SANDIANS CAN CASH U.S. SAVINGS BONDS AS NEEDED. WITH DOUBLE EXEMPTION AFTER 65, TAXES ARE REDUCED OR ELIMINATED.

**PAYROLL DEDUCTION**

SEEMS LIKE ALL YOUR PAYCHECK GOES FOR DEDUCTIONS, DOESN'T IT?

THE ONE BRIGHT SPOT IS U.S. SAVINGS BONDS!

ASK ART LEYBA (3462) AND JIM WALSTON (3463).

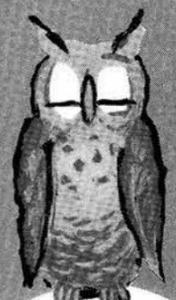


**'FREEDOM SHARES'**

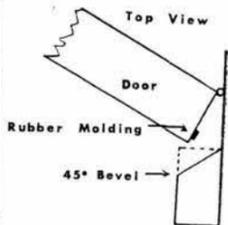
MATURE IN 4½ YEARS AT **5%**

175	110	76	76	76	-1½	Footc CB .80	140	14%	13%	13%	-7%	IntT&T pFE
174	1170	65%	65%	65%	.....	Footc Min	15	19%	19%	19%	-½	IntT&T pFH
170	12	57%	57	57%	+1½	Footc pf2.20	15	30½	30%	30%	-¾	ITT pfH 4.50
140	3	48%	48	48%	+½	Formok 2.40	331	51%	50%	51%	+¾	IntT&T pfJ
0	116	40%	39%	39%	-½	Formok .75	159	34%	32	33%	+1%	IntT&T pFR
2	199	61%	60%	60%	-1½	FMcK pf1.80	12	54	52%	53%	+1½	IntTT pFK
25	2	107	107	107	-3	FostWhl 60b	6	51%	51%	51%	+½	IntTT pFL 3
10b	1714	32	27%	30%	+2%	Fost Wh pf 1	18	.....	.....	.....	.....	Int Util 1
32	106	50%	47	50	+3	Foxboro .60	33	.....	.....	.....	.....	Int Util 1
	2	59%	58	59%	+2%	Frank Str .32	27%	-¼	.....	.....	.....	Interpace
	21	20%	20	20	.....	FreeSal 1.60	1	34%	.....	.....	.....	Interpce
	68	30%	36	36%	+¾	FruehCp 1.70	6	31%	31%	31%	.....	Int Bake
	93	52%	50%	51%	+1%	Fuqua Ind	43%	+¾	.....	.....	.....	InterDST
	25	48	48	48	.....							IntersPv
	38	38%	37%	38%	+½							Iowa B
	250	30%	30%	30%	.....	GAC Cp 1.50	64%	+1½	.....	.....	.....	Ia El LF
	5	85%	84%	85%	+½	GAC Cp pf 1	781	28	25%	26%	+½	Ill GF
	6	86	86	86	+1½	GAP Corp .40	29	34%	33%	34%	+¾	APL
	703	21%	20%	20%	-¼	GAP pf1.20	25	30	19%	29%	.....	APS
	129	23%	23%	23%	.....	Gam Sko 1.30	1	33	3	33	.....	H-
	2	21%	21%	21%	+¾	GamS pf1.75	5	31	3%	31	.....	
	115	50	49%	49%	+½	GamS pf1.60	9	37	36%	37	.....	
	41	32%	32	32%	+½	Gannett .65	8	7%	7%	7%	.....	
	24	39%	39%	39%	+½	Gar Wood	19	32%	31%	32	.....	
	8	42	42	42	+½	GarDen 1.30	4	23%	23%	23%	.....	
	117	72%	71%	72%	+½	Garlock .80	16	17%	16%	16%	.....	
	3	31%	31%	31%	+¾	Gemini Cap	14	11%	11%	11%	.....	
	38	49%	46%	46%	-¾	GeminiL .56a	14	11%	11%	11%	.....	
	20	59%	59%	59%	+¾	GnAlnv 2.20g	6	31%	31%	31%	.....	
	19	45%	44%	45%	+¾	GnAlnv pf4.50	145	72%	70%	72%	+2	JapC
	317	63%	61%	61%	-2½	GAmOil .60b	48	39%	38%	39%	+½	JerCI
	123	51%	50%	51%	+1½	GATran .60b	1	52	50	52	.....	Jewe
	410	50%	50%	50%	.....	GATran	32	14%	14%	14%	.....	Johr
	62	55	54%	54%	-¾	GATran	74	26%	27%	27%	.....	Jimv
	6	88%	87%	87%	-1½	GATran	2	27%	27%	27%	.....	Johr
	5	34	33%	33%	-½	GATran	77	34%	34%	34%	.....	Johr
	127	54%	54%	54%	.....	GATran	46	39%	39%	39%	.....	Johr
	137	33%	33	33	.....	GATran	415	94%	94%	94%	.....	Johr
	25	28	28%	28%	+½	GATran	415	94%	94%	94%	.....	Johr

UH OH!



**U.S. SAVINGS BONDS**



**OUCH, THAT SMARTS!** is what three-year-old Lynn Guernsey said to her mother after the tip of her finger was sheared off in a home accident. Lynn, daughter of Bill Guernsey (4252-1), suffered the injury when her finger was caught between the hinge edge of a door and the molding on the door jamb. As a result of the accident, Bill has devised a simple modification which could prevent this sort of mishap: Make a 45 degree chamfer or bevel cut on the side of the molding facing the door and attach a strip of rubber molding to the inside edge of the door to cushion the strong leverage exerted by the hinging action (see sketch above). Bill reports that only three days after his daughter's accident, a small neighbor boy suffered an identical injury. Fortunately, doctors were able to graft the tip of Lynn's finger back on and she is now almost completely recovered.

**SANDIA LABORATORIES**



**MOBILIZATION READINESS DAY**—Joe Moody (7451), left, and Harold Jeblick (2491) examine Sandia's exhibit for the "New Mexico Industrial Preparedness and Mobilization Day" proclaimed for May 3 by Gov. David Cargo. A similar proclamation was made by the Albuquerque City Commission. Aimed at illustrating cooperation between private industry and scientific-military teams in building industrial preparedness and mobilization readiness for the nation's defense, the exhibit was displayed at the New Mexico National Guard Armory May 3. The affair was sponsored by the Albuquerque chapter of the American Ordnance Association of which Harold is a committee chairman. Both he and Joe are directors of the group.

# Service Awards

## 20 Years



Robert Bailey 7414    Dora Elick 3462    Lawrence Lowe 4213    Gerald Morrisroe 7614    Lloyd O'Neal 9411    Ted Sherwin 3430

## 15 Years



Mary Bacon 3462    Florence Bonnell 6020    Ivy Dunn 2442    Robert Ezell 3455    Tom Harrison 9521    George Johnson 7332



Clarence Kassens 9251    C. J. Kentfield 7614    Carl Kochmann 4232    Anne McCullough 7631    Earl Minor 7411    Thurman Moyer 7415



Byron Murphy 9100    Robert Noble 8182    Jeanne Powell 8121    Edward Newfield 7636    Harold Schulte 7612    Donadieu Sonnier 4575

## 10 Years

May 9-22

Robert Harks 8161, Reuben Weinmaster 2315, Earle Chapman 2453, Delmar Gronseth 4512, Elmer Smith 8151, Harold Linker 1514, Marvin Aaron 4614, George Hosoda 8233, Herman Armijo 8222, Michael O'Neal 2614, Richard Jennings 4113, Conrado Otero 4512, Richard Stammer 8121, and Von Madsen 8151.



Harrison Young 7635    Joseph Woodley 7614



**RALLY ANYONE?** Clean sweep of awards for Midwest Division, Sports Car Club of America was made recently by (l to r) Earl Gruer (4542), 1st, driver; Phil Class (1543), 2nd, driver; Lyle Gerdes (1543), 1st, navigator; Ron Ewing (5235), 2nd, navigator. In the annual championship, Earl placed fifth nationally, Phil was eighth and Ron, ninth.

## SEGA Opens Season With Socorro Meets

The Sandia Employees Golf Association officially opened the season with tournaments at the NMIMT golf course at Socorro on April 19 and 26.

Low handicappers competed during the April 19 meet with Ed Stang (9241) taking the first flight and Jack Hansen (4200) winning the second flight. Ed took low gross honors with an 80 and the low net trophy with a net 70.

Three flight winners emerged April 26 among the high handicappers. Jess Denton (4513) took the first flight, Marv Daniel (2442) won the second, and Jof Myers (4214) was top man in the third.

Jess Denton also won the low net trophy with a net 73.

Tournament co-chairmen were Ron Andreas (1221) and Duwayne Branscombe (2451) for the April 19 meet, and Elmer Leslie (2322) and Kazuo Oishi (7211) for the April 26 tourney. A total of 82 SEGA members participated in the two events.

## Retiring



Hyacinth Walker, a computer facility operator in Operations Division 9411, retired April 30 after more than 16 years at the Laboratories. She was employed as a key-punch operator in February 1953.

Mr. and Mrs. Walker will continue to live in Albuquerque at 6220 Hannett NE. Mrs. Walker has been on an illness leave of absence. "I am slowly regaining my health," she says, "and can hardly wait until we can get into the camper and go fishing." Future plans also include redecorating their home. She enjoys knitting and reading, but most of all likes the outdoors—"the wide open spaces."

## Labs Team Takes Third Place

Sandia Laboratories pulled a third place in the recent Intra-Base bowling tournament. Jim Tichenor (2317) and Al Maes (1621) placed fourth in the doubles events.

Sandia Base won the tourney with a total of 10,032 in team points. Sandia Laboratories bowled 9663.

Team members and their all-events totals were Jim Tichenor (2317), 1682; Jim Rogers (2627), 1651; Phil Zuni (4232), 1638; Tom Roche (AEC), 1616; Al Maes (1621), 1571; and Tom Spindle (4222), 1515.

## Sympathy

To Belinda Moseley (3415) for the death of her father, May 1.

To Mike Adams (3520) for the death of his son in Vietnam, May 3.

To Milton Morris (7424), for the death of his son in Amarillo, April 24.

## 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 Laboratories 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

#### MISCELLANEOUS

- '65 HONDA 50 sport, black; blue acrilon carpeting, 13'x17'. Chandler, 296-3323.
- MEN'S 10-speed racing bike, \$40. Shea, 255-8092.
- LABRADOR RETRIEVERS, AKC reg., have shots, black or yellow available. Benson, 268-9727.
- DINING ROOM SUITE, 10-pieces, cost \$695, sell for \$195; commode table, \$35; exercycle, \$45. Browning, 299-6384.
- HUMMEL FIGURINES, Nativity, Mary, Infant, Joseph, mule, cow, \$40; hasock fan, \$20 Polaroid cameras 80B, B&W, flash, case, complete, \$20. Fisher, 298-0526.
- BICYCLE, boy's 3-spd. 26", \$10. Forsman, 299-5570.
- NIGHT CRAWLERS, available at 3425 Inca St. NE. Graeber, 298-0662.
- PUSH LAWN MOWER, lt. weight, \$8. Bullhorse, 268-5995 after 5.
- AIR CONDITIONER, evaporative, portable, used 2 weeks. Nielsen, 242-6144.
- KITCHEN TABLE, 4 chairs, \$15; child's slide, \$7. McFall, 298-1552.
- 9 x 9 UMBRELLA TENT, \$15; utility trailer w/springs & 4 x 7' bed, \$40. Moyer, 345-0567.
- GOOD MILEY one-horse trailer, new top, side, back curtains. Townsend, 247-9634 before 5, 898-1499 after 5.
- MAGNAVOX stereo record player, portable w/45 rpm adapter, \$40, not solid state. Magliat, 268-7601.
- PIANO, upright, dark finish, \$250; B&W RCA 21" TV. Vick, 265-2105.
- CAMPER, walk-in type, aluminum, insulated, paneled, inside & outside lights, \$350. Garcia, 633 Maxine NE, 298-9186.

2-WHEEL Sear's 1/2-ton trailer. Kishbaugh, 268-0670.

POODLE PUPS, miniature, 7 wks., male, weaned, \$25 ea.; one silver female, 5 mos. Gardner, 344-2547 mornings or evenings.

AKC REG. toy poodle, female, 6 mos. old, all shots, housebroken, \$75. Olson, 298-3795.

HAMSTERS, cream & gold, 2 mos. old, housebroken, 75c each. Guttman, 299-7031.

PEDIGREED toy poodle puppies. Littell, 255-2716.

BSA motorcycle, 441 Shooting Star, \$750. Chacon, 7415 Guadalupe Trail NW.

FARMALL CUB TRACTOR w/plows, cultivators, & blade, \$600; lg. utility trailer w/side racks, \$65. Shock, 877-3728.

BABY CRADLE, maple finish, brass fittings, cylindrical barrel stave design, swings in colonial style stand, pad included, \$25. Field, 345-1470.

DOUBLE BED, \$25. Husa, 298-3335.

FURNITURE: dinette, gas range, refrig., bedroom suite, steel bed, mattress & springs, chest of drawers, platform rocker, end tables, 24" TV, room cooler, & other items. Stark 299-5953.

14' FIBERGLASS BOAT, deep transom, windshield, top, side curtains; 18 HP motor, tilt-tongue trailer w/spare tires, nylon boat cover, \$495. Kassens, 299-5436.

TWO DOG KENNELS, portable, w/sloping fronts for use in station wagons, medium size, \$10 ea. Barth, 345-0172.

BEDSPREAD, heirloom, king size, antique white, \$15. England, 296-1367.

11'x12' LIGHT GREEN CARPET w/pad, \$35. Duffey, 298-8980.

'67 SUZUKI X6 scrambler, \$425, crash helmet included. Schuler, 296-2271.

GERBILS, \$1.50 ea.; Siamese kittens, \$8 ea. Hayes, 299-1200.

'63 HONDA 250cc scrambler motorcycle, rebuilt engine, \$295. White, 298-3630.

40-GAL. hot water heater, new, still in carton, natural gas, Major-General brand, 10-yr. warranty, \$50. Schafer, 299-6217.

CASTING ROD w/agate guides, handmade, Shakespeare reel, both for \$10. Fisher, 265-0626.

ONE BEIGE bathroom lavatory, chrome fixtures included, \$25. Newman, 256-3295.

SPRINGER SPANIEL PUPS, liver & white. Haskell, 345-0355.

PUPPIES, 8 wks. old, Basset conformation, Dalmation coloring, \$10 ea. Bassett, 898-1840.

POODLE, black miniature, 1 1/2 years old, all shots, \$30. Batchelor, 299-4831.

TRAILER, one-wheel, about 4 x 5 x 2 ft. high, spare tire included, \$30. Kyzar, 243-4639.

GOLF CLUBS, 3-5-7-9 irons & 1-3 woods, w/bag, \$20. Gozn, 268-7521.

GIBSON GUITAR, electric, hollow body w/Vox amplifier, all accessories, \$150. Lacher, 247-3456.

RABBITS, chocolate Dutch, 2 does, 1 buck, w/hutches. Keen, 299-6541.

BOX SPRINGS & MATTRESS (4" foam rubber), 46" x 70", new, \$38 or best offer; metal bed frame, adjustable, new, \$7. Borman, 268-7289 after 6.

SONY 530 stereo tape recorder w/speakers, mikes, tapes, \$200. Peters, 265-1143 after 6.

23" RCA TV, \$180, 5 yrs. old. Speakman, 299-8831.

TO GIVE AWAY: beautiful well-mannered female sealpoint Siamese cat, 1 yr. old May 4. Hagan, 282-3696.

AKC REG. miniature male poodle, black, 21 mos. old, from champion stock, good w/children. Seaburn, 299-2215.

COMMUNICATION receiver, Lafayette KT-200, four band broadcast through 30 MC w/B.F.O. & I.F. gain controls, \$25. Henry, 256-2467.

MOTORCYCLES—'67 Yamaha Twin 100 & '65 Yamaha 250; '19' Zenith slim portable TV; reg. Siamese Blue Point kittens. Hughen, 296-2600.

SCHWINN BIKES — 2 Sting Rays, haggle price; King trumpet, \$55, cost \$200 new; guitar \$20. Tiefs, 299-2763.

### CARS & TRUCKS

'64 IMPALA 4-dr. Sport, factory air, PS, R&H, sell or trade for later model. Marsh, 243-2767.

'65 CORVAIR MONZA, R&H, 4-spd. trans., \$800. Ferguson, 299-1501.

'65 VW. lt. gray 2-dr. sedan, R&H, \$975. Carter, 296-3781.

'62 LARK, 6-cyl., std., 2-dr., R&H. Rainhart, 299-2887.

'59 RAMBLER station wagon, 6 w/OD, new clutch assembly, \$150. Fitzgerald, 298-8851 after 5.

'65 MERCURY Comet, 4-dr., 6-cyl., heater, 35,000 miles, one owner, blue book price. Welch, 256-0894 after 5:30.

'58 TR 3, new paint, top, motor overhaul, etc., \$550. Smith, 296-1049.

'68 PLYMOUTH Road Runner, 2-dr. HT, 4-spd., 383 cu. in., mag. wheels, \$2200. Silva, 256-3739.

'63 FORD 3/4-ton 4-wd. V8 pickup w/'67 Aspen 9' camper, 4-spd. HD trans., Warn hubs, \$2200, \$290. Shummy, 265-1620.

'55 Cad. sedan, 68,000 miles, regular gas. \$290. Shummy, 265-1620.

'66 PONTIAC convertible, 2 + 2, 421 cu. in., AT, AC, all power, new tires. Swanson, 299-7833.

'62 RAMBLER Classic, 4-dr., R&H, AC, \$325. Patterson, 877-3158.

1927 "T" ROADSTER, Chev. V8, three 2's, 4.56 Plym. rear end. Barton, 255-5491.

'63 IHC SCOUT, 4x4 walk-thru cab, rear seat, skid plate, heavy duty bumper, 30,000 miles, \$1150. Kinoshita, 299-6491.

'57 CHEVROLET station wagon, V8, AT, PS, R&H, make offer. Venner, 268-8703.

'55 PONTIAC, \$95, everything works. Trujillo, 299-9351.

'52 PONTIAC, 4-dr., reasonable. 9533 Claremont NE. Munden, 296-6724.

### REAL ESTATE

LOT 47, Ponderosa Pines Subdivision, 2 acres. Guest, 344-9605 after 5:30.

NE HEIGHTS, 3-bdr., 1 1/4 baths, paneled den w/tp, private study, many built-ins, professional landscaping, FHA appraisal \$19,950. Lemmon, 255-2028.

NE HEIGHTS, 4-bdr., wb-fp, lg. kitchen, dining combo, patio, trees, carpeting, AC, 4 3/4% loan, \$17,850. Grab, 296-6846, 296-4356.

3-BDR., separate DR, fp in LR, 1 1/2 baths, dbl. garage, sprinklers, walled backyard, new roof, new paint inside & out, drapes, \$16,750, low down, contract acceptable. Mead, 298-4212, 299-2396.

3-BDR., 1 bath, AC, carpet, draperies, \$3700 equity, take over payments \$94/mo., 5 1/4% interest, 11616 Copper NE. Johnson, 299-1716.

3-BDR. ROBERSON, den w/tp, 1 1/4 baths, mature landscaping, 5 3/4% loan, 2132 Altez NE. Nelson, 298-9231.

3-BDR., den, study, built-ins, dishwasher, covered patio, new shag carpet, 5 1/4%, \$104/mo., \$3500 equity, \$15,900, available June 1. Wagoner, 299-6801.

2804 Dakota NE Mossman 3-bdr., study, 1 1/4 baths, new carpeting & paint, landscaping w/sprinklers & patio. LeRoy, 296-2953.

TRIFLEX, one 3-bdr., 1 1/2 baths, garage; two 2-bdr. units, space to build more, NE Hts., total \$22,000, balance on mortgage \$15,000. Baca, 255-8452.

3-BDR., custom brick home, located NE, 2200 sq. ft., make offer. Williams, 298-4602.

ROBERSON 3-bdr., den w/tp, pitched roof, 2-car garage, 4 3/4% loan, \$6000 equity, terms flexible. Anderson, 298-5285.

3.1 ACRES in Ranchos de Placitas, water & power available, cash or terms. Rudolph, 298-0941 after 5.

4 ACRES of land. Davis, 636-2874, Peralta.

### WANTED

TONS of rotton hay, straw, alfalfa for mulch, will haul it away. Maak, 282-3482.

HI-FI equipment, 25 watt amplifier, turntable, matched speakers. Slesinger, 299-4626.

COFFEE TABLE, round marble top. Perea, 255-6902.

USED Uher tape recorder. Baxter, 298-1614.

WOODEN BARREL, roughly 20 to 50-gal. size. Heckman, 298-3116.

WHEEL CHAIR for elderly man. Ebaugh, 298-2170, 299-2710.

GARAGE DOOR, metal, overhead type, 7 x 9 feet. Barth, 345-0172.

TALENT WANTED for Old Town Fiesta talent show. Gallegos, 268-0271 after 5.

CAR POOL member from area of Comanche & Morris NE to west half of Tsch Area 1. Stone, 298-4620.

SENIOR GIRL SCOUT picked to go to Roundup in Wyoming in Aug. would like to buy or borrow uniforms, size 10 or 12. Gillon, 255-9162.

TRUNDLE/BUNK BEDS; small hardwood desk. Aeschliman, 298-7846.

SMALL 2-wheel box trailer. Hurter, 265-6242 after 7.

REAR WINDOW for Metropolitan. Dickason, 299-8125.

GOOD, USED baby bed & mattress. Daniel, 268-8335.

TO RENT with or without option to buy, furnished or unfurnished 4 bdr. home starting June 1, NE Heights preferred. Parson, 299-1621.

### LOST AND FOUND

LOST—Volleyball book; man's lightweight green zipper jacket, man's plain gold band-size 11 1/2, brown Samsonite brief case w/Lon Ladd engraved on it, 2-blade brown bone handle knife, blue pocket planner, ruby colored glass earrings, black frame wrap-around sunglasses w/green glass, woman's yellow gold Timex electric watch w/black band, black open-top eye glass case. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—2 GMC keys on chain, tie clasp, beige leather covered button, 2 Chrysler keys on chain, Super Sport wide oval tire on white wheel, F-70-15 tubeless. LOST AND FOUND, tel. 264-2757, Bldg. 610.

SWIM  
SEASON  
STARTS  
MAY 30



Peggy Stevens, Dodie Kurtz and Connie Myers urge you to pick up your season swim tickets from the Club office now and enroll the youngsters in swim classes. Opening day festivities at the Coronado Club twin pools May 30 will be free to Club members.

### Coronado Club Activities

## Formal Sanado Club Ball Tomorrow

Annual Presidential Ball of the Sanado Woman's Club will be held tomorrow night at the Coronado Club. Mrs. S. T. Landrith, newly elected president, has chosen "May-time" as the theme of the formal ball, and the Club will be transformed into an outdoor garden illusion for the affair.

A giant maypole and baskets of pastel flowers will dominate the lobby area while the ballroom decorations will feature a trellis covered with flowers with a background of weeping willow trees and an old fashioned garden swing.

Mr. and Mrs. Landrith and Mr. and Mrs. S. D. Brooks (she is the retiring president) will greet guests on their arrival in the lobby.

Other officers to be installed during the ball are Mrs. K. C. Goettsche, first vice

president; Mrs. R. D. Volk, second vice president; Mrs. L. E. Larson, third vice president; Mrs. H. J. Filusch, fourth vice president; Mrs. V. G. Nelson, fifth vice president; Mrs. Ted Morse, secretary; and Mrs. B. A. Hock, treasurer.

The festivities will begin with a social hour at 6 p.m., dinner starts at 7, and dancing is scheduled from 9 to 1 a.m. Phil Graham's orchestra will provide music. Reservations should be made today through the Club office.

### Social Hours

Tonight, the Club's famous chuckwagon roast beef will be the buffet feature



Engineer T. J. Williams (2631) was elected and installed as president of the New Mexico Elks Association on April 26 during the group's annual convention in Albuquerque.

The state association represents 18 lodges and 13,476 members.

T. J. was initiated into Albuquerque Lodge No. 461 in 1956 and worked his way through the various offices. He served as Exalted Ruler in 1963 and has been a member of the board of trustees of the 5000-member lodge since 1965. On the state level, T. J. served on the executive council of the Cerebral Palsy Commission from 1964-68 and was first vice president of the association in 1968.

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The Fourth Annual KAFB Spring Horse Show will be held at the Kirtland AFB riding stables on May 17 and 18 with competition in both Western and English events. Jim Shreve (5271) will judge the Western beginner classes on Saturday.

The show will begin both days at 7:30 a.m. at the stables located on the south side of the air base, south of the east-west runway. For further information call Capt. Bernard Watlington, show secretary, at 268-5417.

## Take Note

Sadie Knight (3226) was a member of the championship team which held first place for two weeks in the New Mexico women's bowling tournament in Las Cruces recently. At the end of competition, the team earned fourth place in the state. Carmel Sanchez (3135), also competing in the tourney, brought home a 200 pin for her game of 211 in doubles and singles competition. Carmel and Sadie teamed for the doubles events.

## Supervisory Appointments



DAVID McCLOSKEY to supervisor of newly-created Defense Technology Studies Division 1715, effective May 1.

Dave has been at Sandia since 1966. He first was with the Optical Effects in Solids Division and later moved to Theoretical Division of Weapons Effects Research Department where he has worked until his present promotion.

He has a BS in chemical engineering and an MS in mechanical engineering from the University of Stanford. He received a PhD in engineering science and applied math at the California Institute of Technology where he held a National Science Foundation Fellowship and was a teaching assistant.

As a student, he also served as a consultant with the physics department of the RAND Corporation at Santa Monica.

Dave served three years with the U.S. Navy and was stationed at New London, Conn., where he taught nuclear science and engineering in the Navy's nuclear program.

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GEORGE SMITH to supervisor of Material Science Research Division I 5224, effective May 1.

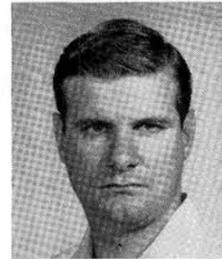
A staff member at Sandia since 1965, George has worked in Physics of Organic Solids Division where he has been doing fundamental research in solid state physics. His specific concern has been the energy transport mechanism in solids via excitons and electrons.

He has attended Deep Springs College, Calif., and received an AB degree in physics, and an MS and PhD in engineering physics at Cornell University. George also did a year of post graduate work at the Institute for Polymers at Marburg, Germany.

A veteran, George served three years in the Army Security Agency including a two-year tour in the Far East.

George is a member of the American Physical Society.

\* \* \*



CURTIS HINES to supervisor of Systems Studies Division II 1733, effective May 1.

Curtis has been associated with the Systems Studies Division since he joined Sandia as a staff member in 1967. His work has involved analysis of nuclear weapons systems.

He holds BS and MS degrees in electrical engineering from Mississippi State University and a PhD, also in electrical engineering, from Auburn University. While at Auburn, Curtis was a research assistant.

He is a member of the IEEE.

Curtis, his wife Judy, and their daughter live at 7711 Prospect NE.

### Congratulations

Mr. and Mrs. Fred Callahan (4153), a daughter, Janell Lynn, April 12.

Mr. and Mrs. Thomas Spindle (4222), a son, Donald, April 24.



MAYTIME FORMAL BALL tomorrow at the Club will be the occasion for the installation of new Sanado Club officers. Seated is Mrs. S. T. Landrith, Sanado president. Standing at left is Mrs. K. C. Goettsche, first vice president, with Mrs. S. D. Brooks, retiring president.

## Sandia Safety Signals

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