



FROM 93 TO 19 REELS of magnetic tape is one of the reductions made possible in the changeover of payroll computer programs. Representative stack of tapes necessary to process Sandia's payroll with the old program (right) are compared with those used in the new format (left). The new program was prepared by (l to r) Mrs. D. S. Eaton, S. B. Gasser, J. A. Rhodes and W. A. Gardner (all 9420).

New Payroll Computer Program Is Expected to Save \$54,000 Annually

Over 300 employees purchasing savings bonds are benefiting from a new payroll computer program that is saving Sandia an estimated \$54,000 annually.

The benefits and savings are the result of converting a computer program used to process Sandia's payroll from 9-PAC language to a new FORTRAN format. Written by Sidney B. Gasser and William A. Gardner with the assistance of Mrs. Donna S. Eaton and James A. Rhodes (all 9420), the new program effectively uses advanced techniques in data processing.

Reduction of time to process the payroll on the IBM 7090 computers from about 318 hours annually to 103 hours is the major cost-savings feature of the new format. This 68 percent reduction in computer time amounts to a savings of almost one hour each working day.

The new program is also of monetary benefit to employees who purchase multiple savings bonds through the payroll deduction plan. Under the former system, for example, an employee having \$18.75 deducted each month for the purchase of \$25 bonds in the names of each of three children had to wait three months for the three bonds to be issued. The \$18.75 deduction was split three ways, crediting \$6.25 to each child every month. Under the new program, the full \$18.75 deduction is credited to one of the three children in sequence. Thus each child should receive his bond and start earning interest two months earlier than was possible under the old system.

The new format also differs from the old in that it is programmed to process each employee's paycheck on the basis that he worked standard hours for the full payroll period. All exceptions, such as time off without pay, overtime pay, etc., are then fed into the program to compute the correct paycheck figures. This has resulted in a savings of computer time because under the old format both standard time and exceptions had to be entered.

Other savings offered by the new program include a reduction in the number of magnetic tapes necessary to process the payroll from 93 to 19; the capability of printing some payroll reports on standard paper instead of on special forms; reduction in the number of times payroll data are processed on the computer for each pay period from 39 to 3, which results in fewer computer re-runs; and a reduction in program maintenance.

In addition, the new format can easily be converted from FORTRAN to the advanced FORTRAN-V language for processing the payroll on Sandia's new UNIVAC 1108 computers.

Implementation of the new program in-

involved many factors associated with accurately processing weekly and monthly paychecks for about 8000 Sandians at some 30 different locations. Payroll codes alone include 35 different types of deductions and 45 methods of earning money.

Beyond the preparation of paychecks, the payroll computer program also involves associated reports like individual retirement fund statements, compilation of individual savings bond deductions and preparation of bank deposit slips. Each employee's deductions are also reported to the appropriate organization, such as credit union deductions to the credit union.

Two of the programmers, Sidney Gasser and William Gardner, devoted six months to writing the program and developing changeover procedures. Payroll information for the development of the new format was provided by J. P. Cavanaugh, supervisor of Weekly Payroll Section 4131-3, and M. D. Tucker, supervisor of Monthly Payroll and Reports Section 4131-1.

Materials in Violent Motion

Mechanical Behavior Dept. is Renamed

Department 1140, formerly Mechanical Behavior Department, has a new name—Solid Dynamics Department—which more accurately reflects the area of interest of the organization, according to manager Walter Herrmann. The name change became effective March 1 along with a reorganization of the department.

The group is working in an area not yet "Classical" in terms of an academic discipline. The work concerns understanding the phenomena occurring in materials undergoing violent motion.

At other laboratories the field is described by such terms as "material response," or "stress-wave response." Mr. Herrmann feels that "solid dynamics" is more descriptive in the sense that it incorporates concepts of changing states, deformations, and flows in the same way that the term "fluid dynamics" incorporates these concepts.

Function of the organization remains a combination of research coupled closely with engineering application. The research

SANDIA LAB NEWS



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SANDIA LABORATORIES

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

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

S. A. Moore Named To Nevada Economic Development Board

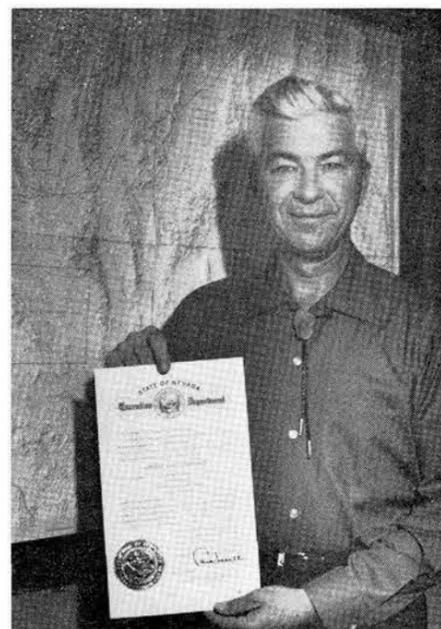
S. A. Moore, manager of Tonopah Test Range Department 7230, has been appointed to the Economic Development Board of Nevada by Governor Paul Lezalt. The appointment is for a four-year term.

Purpose of the board is to plan for and promote a new business and industry for the state and bring modern methodology to economic development.

Mr. Moore has been active in the Tonopah Chamber of Commerce since transferring to the Tonopah Test Range Department one year ago. He serves on the Chamber's board of directors and heads Tonopah's Industrial Development Committee.

He is also chairman of the Nye County Republican Committee. He is a member of the Lion's Club and Sportsman's Club; the latter is a wildlife and conservation organization.

Before transferring to Tonopah, Mr. Moore headed a system engineering department. He has managed weapons development efforts since November 1957 when he was promoted to department manager. He joined Sandia in 1949. Previously he worked in turbojet development at Wright Aeronautical in New Jersey.



S. A. MOORE, manager of Tonopah Test Range Department 7230, displays certificate appointing him to the Economic Development Board of Nevada.

New Gate 1 Barrier

Promoting Pedestrian Safety

Since Monday, a new pedestrian traffic pattern has been in effect as employees leave Gate 1. A barrier across the walk now reminds pedestrians to cross to the south side of H Street as they head for the parking lot across Main Street.

This ruling, largely ignored, has been in effect for some time. Many employees have continued to walk west on H Street on the north side, passing directly in front of the automobile exits from the parking lot in front of Bldg. 800. There have been many near misses.

In addition to the potential for serious injury, the efficient movement of traffic into and out of these lots has been impeded by the vehicle/pedestrian conflicts.

This hazard has been of concern to many people at the Laboratory.

The pattern is also in effect as employees enter Gate 1. Anytime employees pass the entrances and exits to the Bldg. 800 parking lot there is a real danger. The barrier gate and the ruling restricting pedestrian traffic to the south side of H Street should provide safe control.

The military policeman at the intersection of Main and H Street has been instructed to direct pedestrian traffic to the south side. At this intersection, the "scramble system" will be in effect so that pedestrians may walk diagonally across to or from the southeast corner.

is highly directed in response to Sandia areas of interest. The group examines explosive device design and impact problems—specifically those areas where material behavior under extreme blast and thermal stress is not fully understood.

The approach is not unique but is relatively rare — staff members in interdisciplinary teams work at the same time on both research and direct engineering applications. It is a highly effective and efficient system, according to Mr. Herrmann.

Stress Wave Phenomena Division 1141 under B. M. Butcher is concerned with understanding how materials behave under dynamic deformation conditions. The group is looking at large distortions and flow, the details of dynamic strength and yielding behavior in materials undergoing violent change.

Shock Wave Phenomena Division 1143 under D. E. Munson is concerned with the same kind of problems with this difference—Division 1143 looks at generally

higher pressures where thermal changes are more pronounced and Division 1141 uses impact facilities such as air guns for gathering data while Division 1143 uses explosives primarily.

The divisions closely coordinate their work with Dynamic Analysis Division 1142 under C. H. Karnes. Division 1142 provides mathematical analysis and mathematical techniques for solving dynamic deformation and flow problems.

Mechanical Properties Division 1144 differs from Divisions 1141 and 1143 in that the group examines stress/strain relationships of materials in both dynamic and static states in more conventional structural analysis terms.

In past years, metallic materials which were studied were relatively simple in structure, Mr. Herrmann says. Most Sandia applications today, however, involve materials much more complex, such as porous materials, fiber-reinforced composites, polymeric materials and various combinations of these.



CHECKING PRE-FLIGHT DETAILS of an airborne scientific expedition are (l to r) A. F. Hutters (7255) and M. M. Robertson (1122). Two NC-135A flying laboratories will be used to study atmospheric phenomena of cosmic rays and the auroral spectrum in the northern and southern hemispheres. Scientists and technicians will conduct studies as one plane makes local flights from Christchurch, New Zealand, and the other flies over Alaska. The planes with 12 Sandians aboard are scheduled to leave Kirtland AFB next Friday and return April 6. Mr. Robertson is one of the Sandia experimenters participating in the expedition, and Mr. Hutters is supervisor of Diagnostic Aircraft Operations Division 7255.



Carolyn Jones (9412)

Take A Memo, Please

Take your safety habits home with you. Keep well-traveled areas free of hazards; carefully follow instructions for use of electrical appliances; store poisonous materials away from the reach of small children; and conduct checks periodically for potential fire hazards.

SANDIA LAB NEWS



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ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

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Receives Wide Distribution

Sandia Contamination Control Report

Sandia gains recognition in the field of contamination control with the publication of a 55-page monograph for the Technology Utilization Division of National Aeronautics and Space Administration.

H. D. Sivinski, manager of Planetary Quarantine Department 2570; Willis J. Whitfield, supervisor of Systems Support Division 2572; and J. A. Paulhamus, a consultant to the department and a former Sandian who retired in July 1966, are the authors of a monograph on contamination control principles that was prepared by Sandia under a NASA contract. It is available from the Superintendent of Documents, U. S. Printing Office, at forty cents a copy.

The publication presents the fundamental principles of controlling contamination in an industrial plant. It is designed to give industrial managers, primarily those responsible for selecting the type of contamination control facility best suited for specific needs and for funding the project, a broad understanding of the subject.

"Contamination control," Mr. Sivinski states, "is an emerging discipline in which there are tremendous gaps in information. As an inter-disciplinary activity, it draws heavily on the technology of other fields, such as metallurgy, chemistry and physics. This monograph is a beginning. It presents the systems approach to contamination control from design concept through to the finished product."

A contaminant is defined in the publication as "any unwanted particulate, gaseous, liquid, solid, dissolved matter, or radiation within an environment." It may be large enough to be plainly visible in quantities, or sub-microscopic in size, defying identification by the most advanced analytical procedures. "Many times the unwanted matter may be classified as a contaminant only because of its location," according to the publication. Thus, contamination control cannot be applied effectively without an understanding of what constitutes contaminants and their detrimental effects on environments in which they may be found.

Heart of the publication is a three-page model that provides an overall view of contamination control and the inter-relationship of its factors, state the authors. The model lists typical sources of contamination, specific contaminants, types of contaminants, as well as general and specific examples of affected environments. It cites, for example, human skin oil as a liquid contaminant that may affect surfaces and interfere with the functional parts and assemblies of the final product.

Other chapters are devoted to contamination control principles in product design; clean rooms; cleaning product surfaces; various types of contaminants

Solid State Physics Meet Attracts Local Scientists to Berkeley

The March meeting of the American Physical Society is traditionally devoted to research in solid state physics, chemical physics and high-polymer physics.

Due to wide interest in these fields at Sandia, there is usually a heavy attendance of local scientists presenting technical papers on their own work and listening to the contributions of invited speakers. The meeting will be held this year in Berkeley, Calif., March 18-21.

Those from Applied Physics Research Department 5130 presenting papers are L. R. Edwards, "Thermal Conductivity of Thulium Single Crystals"; G. A. Samara, "Pressure Dependence of the Dielectric Properties of Hydrogen-Bonded Ferroelectrics"; R. T. Johnson, Jr., "Thermal Recovery and Radioactive Decay Effects in Fast-Neutron Irradiated CdS"; R. C. Wayne, "Pressure Dependence of the Magnetic Transitions in Fe-Rh, Fe-Rh-Pd, and Fe-Rh-Ir Alloys."

Contributors from Solid State Research Department 5150 include Albert Narath, "Nuclear Magnetic Resonance and Relaxation of ^{139}La in dhcp Lanthanum Metal"; E. D. Jones, "Angular Dependence of the Tm^{3+} Magnetization in Thulium Gallium Garnet" and with A. G. Switendick (5213), "Energy Bands in ScN, ScP, and ScAs"; W. J. O'Sullivan and J. E. Schirber, "The Fermi Surface of Pb Under Hydrostatic Pressure" and "Effects of

Pressure on the Fermi Surface of Cd"; A. G. Beattie, "Magnetoacoustic Dispersion and Attenuation for Arbitrary Values of q "; M. J. Clauser, "Line Broadening and the Pseudoquadrupole Shift in $\text{TmCl}_3 \cdot 6\text{H}_2\text{O}$ "; D. C. Wallace, "Explicit Temperature Dependence of the Thermal Expansion Coefficient"; R. E. Nettleton, "Polarization-Dependent Rayleigh Scattering in Ferroelectrics"; N. S. Gillis, "Calculation of Phonon Frequencies in HCP He^4 ."

Other participants will be F. L. English and M. K. Parsons (both 5143), "Correlation of Electro-Acoustic Properties with Resistivity Inhomogeneities in CdS."

Papers presented by members of Radiation Physics Department 5210 are F. L. Vook, "Thermal Conductivity of Electron-Irradiated CdS"; Ruth E. Whan, "Low Temperature Annealing Processes in Irradiated Oxygen-Doped Germanium"; A. R. Sattler, "Channeling in Diamond Type and Zinc Blende Lattices"; K. L. Brower (co-author H. J. Stapleton, University of Illinois), "Temperature Dependence of ESR Linewidth of Some Rare-Earth Double Nitrates"; G. W. Arnold and D. K. Brice, "Near Band-Edge Luminescence in GaAs:Zn "; B. L. Gregory, "Carrier Recombination at Radiation Induced Defects in Silicon"; and W. B. Gauster and J. C. Bushnell, "Laser-Induced Infrared Absorption in Silicon."



CONTAMINATION CONTROL PRINCIPLES are described in a NASA publication written by (l to r) H. D. Sivinski (2570), Willis J. Whitfield (2572) and J. A. Paulhamus, a retired Sandia employee now a consultant.

and their control; monitoring for contaminants; packaging, transport and storage; and personnel control and management.

"The work of the National Aeronautics and Space Administration has both demonstrated the difficulties and accelerated progress in controlling contamination. The experience gained, and the concepts and data generated, can be helpful in pharmaceutical, electronic, and other modern industries as well as in aerospace ventures," George J. Howick, director of NASA's Technology Utilization Division writes in the publication's foreword.

In April 1966, Sandia undertook a continuing technical program of research, development and engineering services in support of NASA's national planetary quarantine program. The program was suggested by the National Academy of Sciences as a prime require-

ment for assuring ecological (inter-relationship of organisms and their environments) preservation of planets and natural satellites other than earth. Because of Sandia's contamination control activities in the planetary quarantine program, the Division of Technology Utilization at NASA headquarters asked the Laboratory to prepare the monograph.

Congratulations

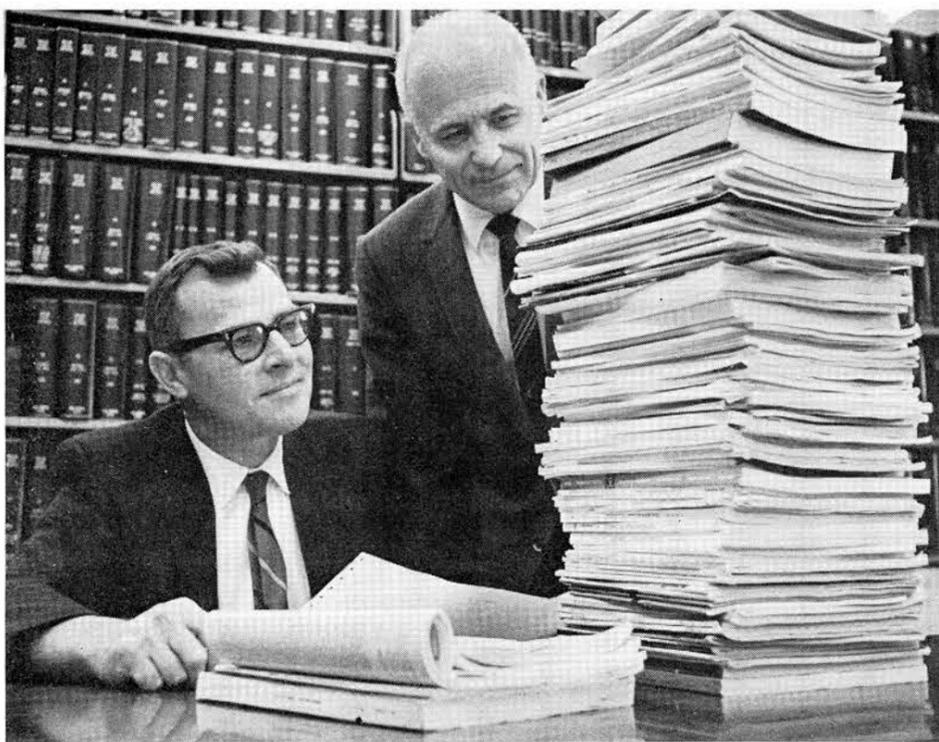
Mr. and Mrs. Richard G. Vigil (7222), a son, Randy James, Jan. 30.

Mr. and Mrs. David L. Poli (2545), a daughter, Diann Lynn, Feb. 19.

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SANDIA LAB NEWS



LIBRARIAN Earl A. Paxton (8232), right, and Henry Lucas of Application Division II, look at the number of periodicals (right) that previously had to be scanned manually to find the information now retrieved by computer (left) under the SDI system.

At SCLL Library

Tailored Information for Library User

How do you get the right information on the right subject at the right time?

The engineer has always been faced with this question and still is—but now with the help of the computer, many of the problems involved are being overcome.

In the technical library at Livermore Laboratory, a system called Selective Dissemination of Information (SDI) has been implemented to aid employees in getting the desired information.

Using a computer to compare an individual's or organization's field or fields of interest with literature content, the librarian obtains information tailored specifically to the user's needs.

The field or fields of interest are reduced to words and phrases which make up an interest profile. Data from this profile are then punched onto cards, put on magnetic tape, and fed into the computer. Other magnetic tapes—containing author, title, and subject data from technical reports, books and journals—are matched against the profile tape. The comparison results in computer output notices for distribution to the user.

The heart of the SDI system, which was developed by IBM and modified by SCLL, is the interest profile. Although the library constructs the profile in its final form, the user selects the terms he feels best suits his field or fields of interest.

As a help to the user in making his selection, a preliminary list of headings produced on the computer alphabetically (first by subject, then by key word) is left with him. This format enables the individual to scan the list rather rapidly, yet thoroughly. While making his selections, he is asked to signify his degree of interest by assigning numerical values—placing a number from "4" (the highest) to "1" (the lowest). When selecting the terms for his profile, he is not restricted to just those found in the list, but has complete freedom in making additions.

At the time the profile is constructed, the librarian arrives at a number, called the "hit" level value, which is determined primarily by the degree of interest shown in the various profile terms. This can be any two-digit number up through 99. The total of the term values in the profile must be equal to, or greater than, the hit level to generate an output notice.

User consensus has determined that computer notices on standard size computer sheets are preferred over cards. The user feels that the sheets are easier to handle and the information can be scanned much more quickly. Notices are listed five per page, and each sheet is perforated just beyond the half-way point. When the choices have been made, the right-hand portion, which is always unclassified, is detached and returned to the library for action.

The distribution schedule for the output varies from a weekly basis to monthly, to bi-monthly, depending on user instructions. No additional computer time is required to meet these varied schedules since commercial journal tapes are received each week, and the master tapes for the reports and books are updated weekly.

"We are most pleased with user response," says librarian Earle A. Paxton (8232) who adapted the SDI system to

meet SCLL needs. "Our library continually attempts to provide employees with the most up-to-date information available on their current job and related fields of interest, and we believe the SDI system is doing all that had been anticipated."

"No one expected the system to be a cure-all since there probably will always be problems in disseminating information, especially technical information," Earle pointed out. "The ever-increasing amount of information which librarians are receiving makes dissemination by the librarian almost impossible. Also, the librarian today cannot possibly search all the existing journal articles and expect to satisfy the user's information needs."

The SCLL library first started using EAM (Electronic Accounting Machine) equipment in 1959 to produce periodical holdings, lists and routing sheets. This was a first step in "computerizing" the library system.

Later, to better serve the user and to cope with the increasing flow of new information, the library placed its books and reports on an automated system. Under this system, a master accession record contains all the cataloging data pertaining to each document or book and merges the author, subject, and permuted title into a dictionary catalog for cumulative listing. The accession record provides the basis for various periodic accession lists and associated indexes, including the monthly SCAN (Sandia Corporation Accession News).

"The first phase of the SDI system could very well have been called a 'customized' SCAN, since initially the input consisted of data on only technical reports and books," said Earle.

The next type of input to the system used magnetic tapes containing data on journal articles pertaining to Sandia's fields of interest. "The first tapes were samples received from an organization specializing in the indexing of periodicals," Earle noted.

Costs for the SDI system were kept to a minimum because it is compatible with the library's other computerized systems. "We are able to create abstracts directly from our basic systems' output, rather than creating new data especially for SDI," he explained. "Initially the costs were minimized because we were able to use computer programs already in existence," he added.

Librarian and computer coordinator Mary Ellen Jacob (8232) and personnel from Management Information Division 8117

Sympathy

To Viola Banfield (8253) for the death of her mother-in-law in Reno, Nev., Feb. 10.

To Barbara Clough (8232) for the death of her father in Livermore, Feb. 23.

To Jesse Floyd (8222) for the death of his mother in Dalton, Ga., Jan. 29.

To Georgette Grogan (8245) for the death of her father in Berkeley, Feb. 9.

To Ken Jels (8158) for the death of his mother-in-law in Greenville, Ohio, Feb. 14.

To John Pearce (8120) for the death of his father-in-law in Marquette, Mich., Feb. 8.

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Take Note

SCLL was elected a voting member of the State of California Joint Apprenticeship Committee at a quarterly meeting held Feb. 9. Under an updating of the state apprenticeship standards, 15 management and 15 union representatives were given voting privileges. The management representatives are split into four main divisions — aerospace, machinists, tool and die, and automotive. Three companies, other than Sandia, were elected voting members in the management aerospace division — Convair, Lockheed and McDonnell-Douglas.

Each company which has developed a program under the state apprenticeship program is entitled to representation on the committee. J. L. Rowe, manager of Plant Services Department 8220, has represented

Sandia on the committee since November 1966, following the establishment of the first apprenticeship class at SCLL.

V. K. (Gabe) Gabrielson (8114) shot a net low score of 71 to win the first place trophy in the Sandia Employee Golf Club tournament Feb. 10 at the Alameda Municipal Golf Course.

The tourney was played on a straight handicap basis with participants divided into two flights. Bill Ryan (8212) and Ralph Morrison (8151) with net scores of 72 tied for top position in the first flight (handicap of 23 or less), and Jim Minger (8236) won the second flight (handicap 24-36) with a net score of 74.

The next SEGC tournament, 8200 vs. 8100, will be played at the Las Positas Golf Course in Livermore. Those interested should contact M. E. Houk (8161), ext. 2329; or Joe Genoni (8242-1), ext. 2433.

Visitors Invited to See Legislature in Action

In this an election year with politics commanding much attention, employees might find it appropriate to visit the state capitol and watch the legislative process in action.

The California State Legislature convened on Jan. 8 for a regular session that should keep the legislators in Sacramento at least through the middle of July.

During the early days of a regular session, the Assembly usually meets in the morning and the Senate in the afternoon. Near the end of a session, both Assembly and Senate may find it necessary to meet mornings and afternoons, sometimes evenings and weekends.

The state capitol and the visitor galleries of both Assembly and Senate are open daily from 7 a.m. until 9 p.m. Visitors are welcome at any time. Guided tours of the legislative chambers are available any weekday (10 and 11 a.m., 1 and 2:30 p.m.). A tour of the governor's offices (12:45 p.m.) is also available.

Congratulations

Mr. and Mrs. Bill Ashurst (8146), a daughter, Kristen Ann, Feb. 26.

Mr. and Mrs. Su Chiu (8147), a son, Lesley Wei, Feb. 18.

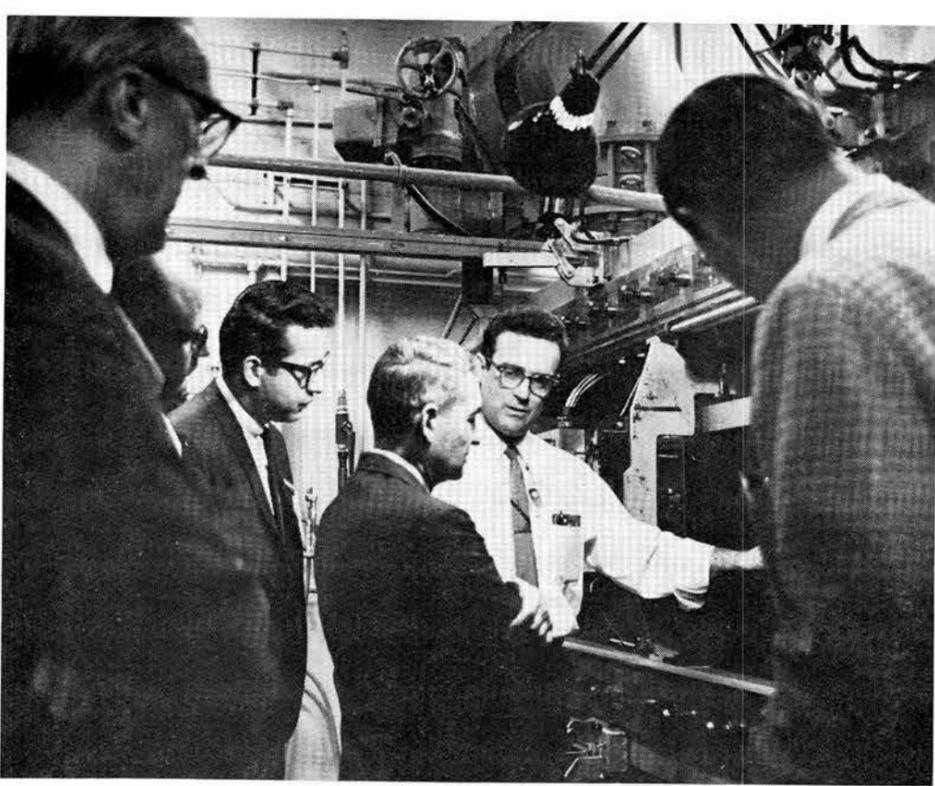
Mr. and Mrs. Carl Furnberg (8132), a son, Grant Carlton, Feb. 13.

Mr. and Mrs. Hank Schoeppe (8168), a daughter, Ginette Elaine, Jan. 21.

Mr. and Mrs. Walt Maupin (8124), a son, Mark Ako, Jan. 18.



"ANY SPARE YARN?" asks Mary Werner (8231), surrounded by some of the caps and mittens she and her mother have knitted for needy Korean children during the past several months. Their efforts are an extension of an SCLL Christmas project. New and used warm clothing donated by various employees were mailed to Claire Grubbs' (8141) son David who is with the U. S. Army in Korea. He, in turn, distributes the donations with the aid of the chaplain and missionary workers. Employees can help now by contributing any spare yarn to Mary. For the "I'd rather do it myself" type, she has knitting instructions.



TRI-SONIC WIND TUNNEL was one of the Sandia facilities Equal Employment Opportunity Commission officials toured during a recent visit to the Laboratory. Looking at a model in the tunnel are (l to r) W. G. Funk (3250); W. H. Curry (9322); Walden Silva, EEOC deputy regional director; T. E. Robles, EEOC regional director; J. F. Reed (9322); and D. S. Tarbox (3200). The tour followed presentations on Sandia's mission and programs.

High-Pressure Gas Safety Course Given

Some 150 Sandia, AEC, AEC contractor and military personnel last week attended a two-day training course, "Working with High-Pressure Gas Systems," sponsored by Safety Engineering Department 3350.

The course was presented by a team of high-pressure systems specialists from Lawrence Radiation Laboratory. John L. Ledman (1131) discussed "Hydrogen Em-

brittlement" during the program.

The course evolved during five years of intensive development at LRL. Primarily a technical discussion with a safety orientation, the course concentrated on the essential know-how of dealing with pressurized gases up to 150,000 psi. A discussion of latest equipment and equipment design was included.

D. E. Fossum of Employee Training and Education Division 3132 assisted with arrangements for the course.



JOHN LEDMAN (1131), left, discusses safety of high pressure gas systems with Mike Sykos, member of an LRL team of high-pressure systems specialists.

W. F. Carstens Will Appear in 'Marat/Sade' Production March 14-19

William F. Carstens (3410) will be spending the evenings of March 14 through March 19 in a nut house.

He will play the Marquis De Sade in the University of Albuquerque's production of "The Persecution and Assassination of Jean Paul Marat As Performed by the Inmates of the Asylum of Charenton Under the Direction of the Marquis De Sade."

Otherwise known as "Marat/Sade," the play takes place in a mental institution. The entire theatre will be part of the set. The audience, in a sense, will be inmates also.

Bill insists that he was not necessarily type-cast for the role.

"I was pleased when Jim Morley, the director, asked me to play the part," Bill says. "It is an exciting play, both in the ideas developed and the dramatic techniques used to develop them. When it was done on Broadway, audiences were shaken up and critics gave rave reviews."

Bill is an accomplished actor and has received many good reviews for his performances in productions of the Old Town Studio and Corrales Adobe Theatre.

"Marat/Sade" will be performed at the University of Albuquerque Theatre March 14-19 at 8 p.m.

Events Calendar

March 8-16—"Marriage Go Round" starring Vivian Vance. Albuquerque Little Theatre, tel. 242-4750.

March 8-10—"Bang: A Recollection!" Old Town Studio, tel. 242-4602.

March 9—"Racine's 'Phaedra' (in English). UNM Concert Hall, tel. 277-3121.

March 9-11—Ice Hockey: March 9, Albuquerque All Stars vs. El Paso, 8 p.m.; March 9-10, Junior All Stars vs. El Paso Juniors, 5:30-7:30 p.m.; March 11, Canadian All Stars vs. American All Stars of the New Mexico Hockey League, 8 p.m. Ice Arena, 5110 Copper NE.

March 14—Albuquerque Symphony Orchestra with Fredell Lack, violin soloist. UNM Concert Hall.

March 15-16—NCAA Far West Regional Basketball Playoffs. UNM Arena.

March 16—American National Opera Company presents "Carmen" (in French). UNM Concert Hall, tel. 277-3121.

March 16—Ice Hockey, Albuquerque All Stars vs. Lubbock, 8 p.m., Ice Arena, 5110 Copper NE.

March 16—American National Opera Company presents "Tosca" (in English). UNM Concert Hall, tel. 277-3121.

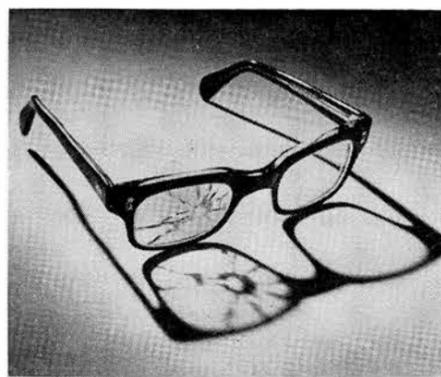
Son Suffers Eye Injury; Parent Urges Safety Glasses for Children

The 16-year-old son of Homer McIlroy (3114) is recovering from a serious eye injury sustained last week from an accident with a BB-gun. Now that the panic of the accident is over and it is evident that his son suffered no permanent vision damage, Homer has a few thoughts he wants to share with other parents.

"Safety regulations at Sandia require that many of us wear safety glasses," Homer says. "So we do. I'm guilty of not extending this on-the-job safety protection to my family at home. It occurred to me that others might not do so either."

"If wearing safety glasses is a good practice for adults on the job, then it's a good practice for active youngsters to wear them also. My son's accident proves the point," Homer says. "I urge all parents to get safety lenses for their children's prescription glasses. If my son David had been wearing them, he would not have been seriously hurt."

The regular glass lens of young David's glasses shattered when the BB hit. Sur-



SAFETY GLASSES would not have shattered when struck by BB.

face of his eye was scratched and cut. Stitches were required, but he will recover.

David has already requested that his father get him the "thickest safest glasses made" for future use. Homer has placed the order.

Supervisory Appointments



JOFFRE P. MYERS to supervisor of Shop Engineering Division 4214, effective March 1.

After joining the Laboratory in July 1952, Joff was assigned to a weapon design and development group. Two and a half years later he transferred to another weapon project group where he worked on component development. Later he was promoted to supervisor of a test section. In February 1964, he transferred to Shop Engineering Division where he has been a group leader.

Before coming to Sandia, Joff was with a plant engineering group at the Alameda Naval Air Station in California from 1947 to 1952. From December 1940 to March 1947 he served with the U. S. Navy at various naval air stations as an aircraft mechanic.

Joff received his BS degree in mechanical engineering from the University of Idaho in June 1952. He is a member of the American Society of Mechanical Engineers and is currently chairman of the ASME Professional Division's Interest Committee of Region VIII.



BARRY M. BUTCHER to supervisor of Stress Wave Phenomena Division 1141, effective March 1.

Since joining Sandia in August 1962, Barry has been conducting research on the dynamic mechanical properties of materials. He was a member of a research staff conducting static high-pressure research in the Engineering, Mechanics and Materials Department at Cornell University before coming to the Laboratory.

Barry received his BS degree in civil engineering from Yale University in June 1955 and his PhD in engineering materials from Cornell in February 1962.

He is a member of the American Institute of Metallurgical Engineers, American Society for Metals and Sigma Xi.

Wildlife Banquet March 21

Marv McKinley (2541), twice winner of the Golden Bull Trophy, will again compete for the annual title of the Albuquerque Wildlife and Conservation Association's Banquet on Thursday evening, March 21, 1968, at the Leon Harms Youth Hall, State Fairgrounds. More than 100 door-prizes will be awarded.

Tickets and Memberships will be available at the door. Advance sale may be obtained from M. French Stewart (2555), M. L. Price (5530), G. C. McDonald (5590), C. L. Hines (3244), J. T. South (4224), B. A. Hock (7212), G. Q. Wilson (7332), and L. E. Heames (5134).

Retiring

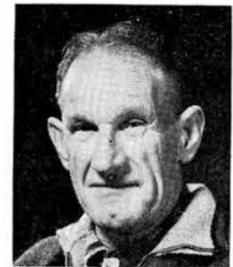


Samuel F. Boyden retired Feb. 29 after working at Sandia for 17 years. He joined the Laboratory in February 1951. Since that time he has worked in a number of organizations — shipping and receiving, transportation, mechanical assembly, electronics repair and inspection—and for the past seven years has been in Cable & Transformer Section 4233-1.

Sam and his wife Hazel, who works in Stockpile Sampling Division A 2122, live at 1704 Vassar Dr. NE. They have four children, 15 grandchildren and one great-grandchild.

Sam's retirement plans include a trip to Iowa to visit family and friends. He also expects to keep occupied with his home electronics shop.

* * *



Frederick N. Spaulding, a packer in Receiving & Shipping Division 4624, will retire March 30. He has held the same job since he came to Sandia almost 20 years ago, in October 1948. Before that time he had worked for the Santa Fe Railway for 22 years.

Mr. and Mrs. Spaulding live at 329 Utah SE. With the exception of some travel, Fred has no definite retirement plans. "I'm just going to take it easy," he says, "and work in my garden. I've lots of roses and other flowers to take care of." Fred says they will make a trip to the west coast to visit with his wife's relatives, and they also plan to travel to Arkansas to visit with friends.

Authors

K. H. Zimmermann (2134), "Spiral Delay Lines," February issue, NEW MEXICO PROFESSIONAL ENGINEER.

D. J. Mottern (9333), "The Pseudobinary Section of PbTe and Au," January issue, TRANSACTIONS OF THE AIME.

G. P. Steck and W. J. Zimmer (both 5323), "The Relationship between Neyman and Bayes Confidence Intervals for the Hypergeometric Parameter," February issue, TECHNOMETRICS.

W. G. Perkins (1413), "Fluorescence of X-Ray Excited Anthracene," January issue, JOURNAL OF CHEMICAL PHYSICS.

Marvin Moss (5154), "Dispersion Hardening in Al-V by Plasma-Jet Spray Quenching," March issue, ACTA METALLURGICA.

Osborne Milton (1133), "The Electric Strength of an Epoxy Is Seen to Be Influenced by Many Processing Variables," November 1967 issue, INSULATION.

H. H. Wicke (5321), "The Regular Open Continuous Images of Complete Metric Spaces," December 1967 issue, PACIFIC JOURNAL OF MATHEMATICS.

J. M. Worrell (5321), "Closed Continuous Mappings of p-Spaces," and "Concerning the Paracompact p-Spaces of Archangel'skii," both October 1967 issue, and "Some Properties of Full Normalcy and Their Relation to Cech Completeness," 1967, page 555, NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY.

J. E. Schirber (5151) and D. H. Anderson (7114), "Effect of Hydrostatic Pressure on the Mn, As and Sb NMR in Ferromagnetic MnAs and MnSb," March issue, JOURNAL OF APPLIED PHYSICS.

H. H. Wicke and J. M. Worrell (both 5321), "On a Class of Spaces Including Archangel'skii's p-Spaces," August 1967 issue, "Complete Mu-Spaces" and "Open Continuous Mappings of Mu-Spaces," both October 1967 issue, NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY.

R. E. Adams (2451), "An Inexpensive Latching Schmitt Trigger and Single-Shot Circuit," January issue, ELECTRONIC DESIGN.

E. D. Jones (5151), "Temperature Dependence of the $\text{Eu}^{3+} \langle S(T) \rangle$ in EuP ," March issue, JOURNAL OF APPLIED PHYSICS.

E. R. Dunaway (1144), "Applications of High-Speed Photography to Materials Testing Under Dynamic Strain Rates," Vol. VI, pages 285-94, HIGH SPEED TESTING.

Service Awards

Speakers

Take Note

20 Years



H. E. Keith
2561



N. W. Berg
2443



E. J. Bernard
5612



E. G. Borbely
9423



R. E. Brian
2554



A. N. Chaves
4615



Verna Ann Clark
4234



G. A. Daniels
2211



J. B. Jordan
4224



A. S. Kraft
4254



R. P. Lewis, Jr.
1622



H. F. Macielek
1521



J. H. Mafit
8251



P. C. Morris
7124



Gene Newlin
6011



Sam Rodocovich
3242



L. K. Stam
5636



J. L. Talley
2554

R. W. Rohde (5133), J. R. Holland (9332) and R. A. Graham (5132), "Shock-Wave Induced Reverse Martensite to Austenite Transformation in 70%Fe-30%Ni," annual meeting of the Metallurgical Society, Feb. 25-29, New York City.

J. R. Holland (9332), "Shock-Induced Phase Transformation in Dilute Alloys of Germanium Copper," annual meeting of the Metallurgical Society, Feb. 25-29, New York City.

Charles Stein (1131), "Dislocation Interactions in Aluminum Deformed at Elevated Temperatures," annual meeting of the Metallurgical Society, Feb. 25-29, New York City.

J. R. Freeman (5141), "Comparisons Between Experiment and Theory for a Large Inverse Pinch Device," American Physical Society meeting, Feb. 26-28, Boston.

J. R. NiCastro (5142), "Radiative Fluid Dynamic Similarity," American Physical Society Meeting, Feb. 26-28, Boston.

R. T. Meyer (5234), "Time Resolved Mass Spectrometry," New Mexico State University Chemistry Department Seminar, Feb. 22, Las Cruces.

W. W. Allison (3351), "High Potential Hazard Control," Pennsylvania Safety Congress, March 19, Pittsburgh.

R. L. Shuman (7335), "Environmental Testing and Environmental Test Equipment Used at Sandia Corporation, Albuquerque, N. M.," South Plains Chapter of IEEE, March 11, Lubbock, Texas.

A. J. Clark, Jr. (9330), "New Developments in the Space Isotope Power Program," Fifth Space Congress, March 11, Cocoa Beach, Fla.

R. T. Dillon (5590), "Civil Air Patrol Program," Evening Optimist Club, Feb. 22, Albuquerque.

F. L. English and M. K. Parsons (both 5143), "Inhomogeneities in the Resistivity of Various Single Crystal Semiconductors," U. S. Naval Ordnance Laboratory Seminar, Feb. 16, Silver Spring, Md., and NASA Seminar at Goddard Space Flight Center, Feb. 19, Greenbelt, Md.

J. M. Hueter (2563), "Creativity," Highland High School government class, Feb. 21.

C. S. Johnson (7252), "A Citizen's View of the State of the Union," Sunrise Opti-

mist Club, March 5, and "The Scientific Quest for ESP," First Presbyterian Church, March 10.

A. D. Swain (2152), "Human Factors Engineering," UNM mechanical engineering class, March 5.

M. M. Sluyter (9321), "Some Examples of Local Similarity Problems in Magnetohydrodynamic Boundary Layer Flows," Third Conference on Pure and Applied Mathematics, New Mexico Institute of Mining and Technology, Feb. 23-24, Socorro.

R. L. Schwoebel (5123), "An Atomistic View of Crystal Growth," UNM seminar, Feb. 28.

'Experimental Methods' Meet Scheduled March 29

A one-day symposium on "Experimental Methods in Engineering" will be held Friday, March 29, at White Winrock in Albuquerque. The meeting is being sponsored by the Rocky Mountain District of the American Society for Testing and Materials and the Albuquerque Branch of the New Mexico Section of the American Society of Civil Engineers.

Sandia speakers and titles of their presentations include D. W. Ballard (2564), "Infrared—A Dynamic Nondestructive Test Method"; R. I. Butler (7342), "Use of Quartz Gages in the Measurement of Shock Pressures in Solids"; and H. D. Arlowe (7335), "Specialized Signal Conditioning: Problems and Solutions."

Other speakers include R. C. Dove, chairman of the Department of Mechanical Engineering, University of New Mexico, and Sandia consultant, and Paul Klieger, manager of Applied Research Section, Portland Cement Association.

V. E. Arnold (2564), chairman of ASTM Rocky Mountain District Council, and C. L. Hulsbos, professor and chairman of UNM's Department of Civil Engineering and director of ASCE's Albuquerque Branch, will serve as presiding officers of the symposium.

For additional information, contact Mr. Arnold, tel. 264-1143.

10 Years

March 8-21

W. W. Erdman, Jr. 2213, E. R. Servis 2565, W. M. Coelho 8252, A. C. Littleford 2442, C. D. Lingerot 1414, Emma S. Vasquez 3126, H. G. Neues 2431, Thurman Foreman 4574, R. T. Laws 7233, D. C. Beard 8142, J. A. Abbott 2454, Ruth E. Bontrager 3251, and E. L. Patterson 5142.

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MARCH 8, 1968

SANDIA LAB NEWS

Twice each year the VFW Post 401 collects reading material for patients at the New Mexico State Hospital in Las Vegas. A delivery will be made in April. Anyone who would like to donate paperback novels, or magazines is urged to contact Tom Conroy, tel. 268-7454, to arrange pickup.

First of a series of lectures on the technique of tracing ancestors will be presented March 19 at 7:30 p.m. at the old Sunport building. Sponsored by the New Mexico Genealogical Society, the series will include 10 programs to be presented the third Tuesday of each month in the northeast room of the Albuquerque Museum.

Purpose of the series is to help persons with no previous knowledge of the subject to successfully carry out their own family research, according to Richard E. Holben (2212), a past president of the group. The society is a non-profit organization. Admission to the lectures is free.

For additional information, call Mr. Holben, home tel. 256-9488.

Robert E. Rowe, senior engineer with the Western Electric Company in Oklahoma City, will speak to the Albuquerque chapter of the American Society of Tool and Manufacturing Engineers on March 21. At the same meeting, Oscar M. Schroll (2546) will be installed as chapter chairman.

Mr. Rowe is responsible for the design of manufacturing facilities for many products made at the Oklahoma City Works. Recently, he was elected to the national ASTM board of directors.

Three Sandians participated last week in a one-day seminar on "Contamination Control in Research" held at the Western Skies March 1.

F. W. Oswalt (2564) discussed "Microbiological Tagging as a Cleaning Effectiveness Test for Ultrasonic Cleaners." D. W. Ballard, supervisor of Manufacturing Research Division 2564, moderated one of the technical sessions. H. D. Sivinski, manager of Planetary Quarantine Department 2570, moderated a panel discussion on "Contamination Control in Research."

The meeting, sponsored by the Rio Grande Chapter of the American Association for Contamination Control, was attended by approximately 100 scientists, engineers and microbiologists from throughout the U.S.

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, or national origin.

FOR SALE

MISCELLANEOUS

HEATHKIT APACHE and SB-10 plus phone patch & antenna relay, \$125. Huddle, 265-6248.
5-PC. DINETTE SET, yellow, \$15; maple bookcase bunkbeds, hardly used, \$75. Cox, 298-4885.
TWO DOUBLE BEDS w/springs & mattress; settee, brown leather; 5" professional scope; R. F. signal gen; tube caddy. Clyde, 255-6805.
RANGE, Hotpoint electric. Clark, 877-1368.
WIDE ANGLE & telephoto lenses for Petriflex 1.8 35mm camera; special viewfinder for above lenses, \$15. Slesinger, 299-4626.
WATER SKI RIG, 14" Lonestar fiberglass w/40hp Johnson & trailer, many extras. Sayers, 898-3851 after 5:30.
STEEL TRUNK w/tray, 39" long x 23 1/2" high x 21" deep, \$15. Stark, 299-5953.
4-PLACE SETTINGS, 9 misc. pieces, Gorhams "Buttercup" sterling silver, \$312 value for \$190. Fink, 877-1127.
FLOOR POLISHER. Eaves, 299-7728.
CAR TOP CARRIER w/straps & suction cups. Archuleta, 255-6781.
MATTRESS, king size, Penney's brand. Carlson, 299-9096.
WESTINGHOUSE 2-track tape recorder, 8 tapes, 2 microphones, \$60 or best offer; All American stamp album, \$30. Cox, 268-2068.
MINIATURE Schnauzer puppies, pedigree, AKC reg. Stewart, 298-0439.
CLAY FLOWER POTS, all sizes, prices from 1c to 5c. O'Neill, 255-6355.
WIRELESS intercom system, \$30. Robinson, 296-2753.
21" B&W console TV, \$25. Mueller, 299-1079.
HARDIE BAGPIPES, R.S. Kilt, other Scottish items of apparel. Williams, 298-2671.
'66 YAMAHA CYCLE, 60cc. Hansen, 898-3173.

FREE, evergreen tree, 12-15' tall; approx. 1 pickup truck load of grass sod, now cut and stacked. Browning, 299-6384.
HI-FI components: Fisher 400 receiver, Garrard A-70 turntable, 2 Jensen speakers. Hughes, 256-2747.
REALLY BIG stock saddle: 16 1/2" seat, plain leather, no tooling, made by Bill Oliver, Amarillo, \$175. Cockerles, 898-3106.
DYNA & Lafayette amp, preamp & tuner for 1/2 orig. price. Smith, 344-2221.
L&H electric stove, 30", \$25; kitchen table, seats 6, \$5. Cummings, 298-7804.
SWIMMING POOL, 4' deep, 18' dia., used 6 wks., complete w/recirculating pump, cost \$287, will accept any reasonable offer. Netz, 282-3607.
KITCHEN DINETTE, 4 chairs, green formica top, \$20; top load auto. washer, \$40; HO car racer set, \$20. Finley, 299-0739.
CRAFTSMAN table saw, floor model drill press, accessories, \$300 or swap for car or motorcycle. Guttman, 299-7031.
GERMAN Shepherd puppy, 3 mos. old, reg. w/all shots, guaranteed show quality, \$200 or co-ownership \$100, terms. Vilella, 298-7955.
GARRARD RD-80 auto changer & 7-tube amplifier, \$20. Meikle, 299-4640.
BOAT, 14' fiberless w/canopy, 35 hp Mercury, tilt trailer, some ski equipment. Gambrel, 242-1119.
BOAT, 12' aluminum Lone Star, wide & deep; trailer, Shoreline; McCullough motor, 7 1/2 hp outboard, \$325. Geibel, 299-0275.
ROLLAWAY BED, \$15. Webb, 298-8139.
CRAFTSMAN band saw, 4 1/2" jointer, without motors, \$35 each; students 3/4 violin, \$65; Ammunition loading equipment, make offer. Allen, 299-9075.
MEMBERSHIP in Sigma Flying Club, Cessna 182 Skylane & club owned hangar at Sunport. Bickel, 268-3203.
BATHROOM LAVATORY & medicine cabinet, make offer. Ewald, 255-4191.
AUTOMATIC PISTOLS: Luger, Walther, Mauser, Lahti & others; S&W .38 spl., Flintlock reproduction; 9mm ammo-N.C. Rand, 299-1048.
14' PLYWOOD BOAT, fiberglassed outside, w/trailer. Erdman, 298-3097.
GE refrig., 2-dr., w/freezer top, \$70; pool table, \$60; baby buggy, bathinette, \$8/ea. Browne, 344-9675.
LINDSEY soft water unit, \$275; electric range; auto. washer; misc. Jeffrey, 268-4764 after 6.
AKC reg. German shepherd pups, show & pet quality. Abbin, 256-0188.
GE refrig.-freezer comb.; small Coolerator refrig.; Bendix elec. ironer; Mission wall heater, dbl. burner. Workman, 298-3604.
AQUARIUM, 21 gal., all accessories, 1 tiger fish, 2 angel fish, 7 neon fish, \$20; GE 19" TV, 4 mos. old, \$330. Kelly, 345-1214.

MONROE electric calculator, 8-col., 16-register, \$75. Holloway, 255-6938.
TWO RABBIT HUTCHES, \$2/ea. Coughenour, 296-4146.
MOBILE HOME, 8 x 36', full bath, 2-bdr., new carpet, completely refinished inside and out, must sell. Boyden, 256-9136.
RECORD PLAYER, 4-speed Bogen (Lenco) with ceramic stereo cartridge, \$7. Anderson, 264-7762, Mon.-Fri.
TWO HEATHKIT AS-10 acoustic suspension speaker systems. One woofer, two tweeters. Cost \$140, sell for \$90. Bohlman, 242-5450.
BOY'S 26" bicycle, J. C. Higgins, 3-speed English lightweight, \$35. Hager, 299-1939.
THREE HORSES, reasonable. Beautiful poodle puppies, champion grandired, good coats, excellent pedigree. King, 268-9911.
KNIGHT Model KU-45 AM-FM stereo receiver 32 watts, \$60. Boling, 282-3256.
FREEZER, Ward's 15 cu. ft., upright, new compressor, still in warranty, has juice can rack. Cover, 268-0921.
TV CONSOLE: dinette set; blond end and coffee tables; lamps; gossip bench; sofa; chair; bird cage; mixer. Dillard, 256-6039.
15' CHASSIS-MOUNTED camper on '66 GMC 1-ton truck, self-contained, full-foam construction, \$590. Miller, 247-4522.
ICE SKATES, boy's, girl's, size 6, \$8 pair; birdseye maple dresser, chest, mirror, \$40. Martin, 282-3794 after 3 p.m.
14' HOMETTE camping house trailer, clean, \$550 or best offer. Downs, 296-4710 or 265-0217.
RADIAL ARM saw, floor polisher, paint sprayer, pipe vise, pipe dies, bolt cutter, log chain, assorted pipe fittings. Pliner, 255-1550.
KNITTING MACHINE, deluxe Brothers Knit, 200 needles, originally \$110, sell for \$90. Johnson, 344-7170.

CARS & TRUCKS

'63 CHEVROLET Super Sport, 327 cu. in. V8, 4-spd., bucket seats, R&H. Van Hauen, 296-2531 after 5:30.
'64 CHEVROLET IMPALA station wagon, V8, AT, PS, PB, AC. Everett, 298-3994.
'59 CHEVROLET pickup, lwb. wide bed, new engine & trans., \$450. Jones, 877-1202.
'61 RAMBLER Classic station wagon, AC, OD, R&H, std. shift, \$325. Scheerer, 298-2550 after 6.
'65 KARMANN GHIA, white, \$1295; '63 Valiant, \$525. Hipscher, 299-0673.
'66 PONTIAC Catalina, 4-dr., AT, PB, PS, factory air, V8, new tires, \$2400. Groll, 299-2600 after 4:15.
'47 CHEVROLET pickup, lots of new parts, needs paint, \$175 firm. Cobb, 268-3151.
'65 FORD LTD, extras, new tags, \$1970. Gallo, 298-1089.

'68 PLYMOUTH Barracuda, 2-dr., HT, bucket seats, 383 cu. in. Formula S. Roberts, 298-3126 after 5:30.
OR TRADE: '40 FORD tudor sedan, new interior, glass, suspension, etc. Tarbell, 256-1322.
'53 CHEVROLET station wagon, AT, R&H, \$150. Robnett, 299-9192.
'64 CHEVELLE conv., V8, 4-spd., new brakes. Boade, 298-6120.
'55 FORD 4-dr. sedan, R&H, AT, \$250. Campbell, 11212 Apache NE, 299-9195.
'55 OLDS 4-dr. HT, one owner, \$200. Blossom, 299-6709.
'58 MG, new tires, many new parts. Claassen, 255-4347.
JEEP military, 4-wheel drive, 6 cyl. engine, locking hubs, some extra parts, \$425. Chavez, 243-2525.
'66 VW sedan, 14,000 miles, R&H, vinyl upholstery, \$1325 or trade for older compact station wagon. Gutscher, 298-6563.
'59 CHEVROLET parts, 6 cyl. engine, AT, 12 volt electrical, radio. Chodorov, 268-6991.
'62 FORD pickup, 1/2 ton w/deluxe shell, new paint and upholstery, low mileage, '68 plates, \$985. Emery, 299-1675.
'55 CHRYSLER hardtop, V-8 w/std. shift, new upholstery, must sell, \$195. Braton, 255-5491.
'53 CADILLAC convertible, completely overhauled 20,000 miles ago, new paint, good top, \$350. Reed, 299-7425.
'55 PLYMOUTH 4-dr. std., good "to and from" car. Stake, 255-0610.
'60 CHEVY Biscayne, 6-cyl., standard, 2-dr., R&H, '68 plates, \$375. Chives, 255-6155 weekdays after 6 p.m.
'66 MERCEDES 200, 4-speed trans., 27,000 miles, one owner, \$2675. Stone, 298-4620.

REAL ESTATE

BOSQUE FARMS, 3-bdr., 1 1/4 baths, FR w/pc, carpet, utility rm., dbl. garage, fca, AC, 1/2 acre, \$18,000 or trade for NE Heights home. Street, 636-2275.
MOSSMAN 3-bdr., dbl. fp, built-ins, new carpeting, drapes, alum. awnings porch cover, patio w/post lights, utility shed, corner lot. Phillips, 2936 Calif. NE, 268-0964.
MOSSMAN 3-bdr., garage, utility room, AC, custom made drapes, new carpets, refrigerator, stove, landscaped, 2509 Palomas NE. Villanueva, 299-9219.
MOUNTAIN cabin, water, electricity available, take camping trailer on trade, \$6500. Adams, 268-5943.
CORRALES, large 3-bdr. home w/separate apt., adobe walled, paved patio, corals, 1 acre, trades considered. Swiss, 898-2083.
ASHCRAFT, all brick, 4-bdr. plus den, 2 1/2 baths, completely carpeted, covered patio, landscaped, NE Heights, \$36,000. Eberhart, 268-6943.

WANTED

SHOTGUN, 20 ga., model 12 Winchester or 410 ga. model 42; rood running go-cart w/breaks. Zaluga, 344-1564.
RIDERS to the vicinity of Cleveland, Ohio area, leaving Albuquerque March 30. Vinovich, 299-1979 after 5:30.
USED concrete mixer, 4 1/2 cu. ft. or larger. Hilly, 282-3974.
RIFLE, .35 caliber, pump or lever action. Stuart, 299-9190.
TYPIST to type technical material in Spanish, evenings and weekends. Must have own typewriter. Murfin, 298-0760.
SELF-PROPELLED camping unit, NOT a pickup mounted camper. Hill, 243-3493.
'66 PLYMOUTH Belvedere or '66 Dodge Coronet. Dietzel, 298-3295.
RIDER for car pool from vicinity Juan Tabo & Copper NE to 860/880 parking lot. Bartlett, 299-4861.
VOLKSWAGEN sedan or Karmann Ghia hardtop approximately 1960 model. Miner, 299-2020.
LATE MODEL refrigerator-freezer combination, bottom freezer preferred with approx. 14 cu. ft. refrigerator section. Carter, 298-0945.

FOR RENT

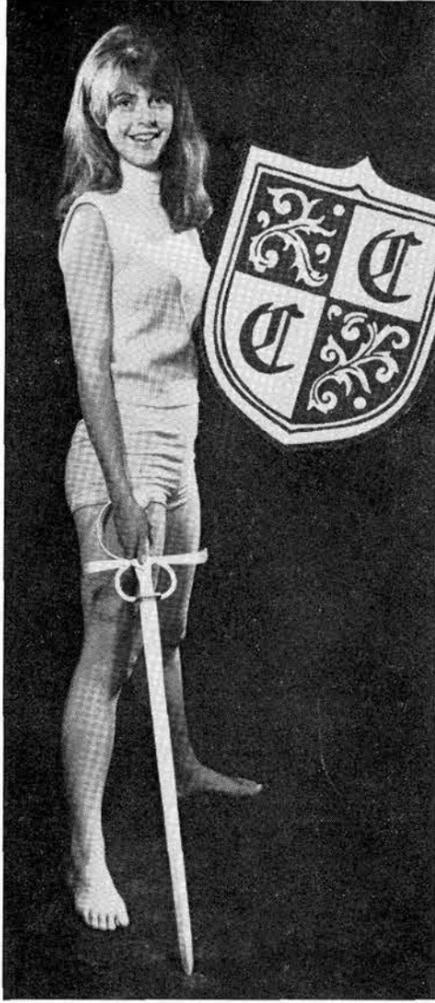
UNFURNISHED 2-bdr. apt., large kitchen, lots of cupboards & closets, utilities paid, 10 mins. from Sandia, near Los Altos-Grant school. Berynk, 299-9171.
UNFURNISHED 2-bdr., close to Sandia & Kirtland. Robinson, 296-2753.
HOBBY SHOP GARAGE, 12'x24' including work bench & vise, w/yard space on a C-3 lot, electric lights furnished, \$30/mo. Vilella, 298-7955.
15' TRAVEL TRAILER, sleeps five, butane stove, lights, reserve now for summer vacation. Colp, 268-8035.
LARGE 3-bdr. home, land under irrigation, suitable for gardening, chickens, small animals, children 2115 Aspen NW. Thompson, 299-3416.
EFFICIENCY apt., utilities furnished, one person only, near the Base, \$50 a month. Balfour, 265-4677 after 5.

LOST & FOUND

LOST—pipe: Rayban colored glasses; 15 yr. chain tieclasp; sunlenses; report in Kodak film box; sterling silver/inlaid pearl tieclasp; "Introduction to Pathology"; silver w/pearl and rhinestone earring; gold bracelet with stone fobs. LOST AND FOUND, Bldg. 610, tel. 264-2757.
FOUND—10 keys on snap ring; reading glasses; gold w/pearl round cufflink; 20-yr. tieclasp. LOST AND FOUND, Bldg. 610, tel. 264-2757.

Coronado Club Activities

'Beefeaters Ball' Scheduled March 16



JOIN the Coronado Club's Royal Order of Beefeaters Saturday, March 16, for the annual feast. Joyce Costello (7113) reports that social hour starts at 6 p.m., dinner at 7, entertainment at 8:30 and dancing at 9 to Phil Graham's orchestra.

Dance Classes Start

A new 10-week series of basic and advanced dance courses starts at the Club Monday, March 18. The basic class will meet from 7 until 8:30 p.m. on Mondays followed by the advanced class from 8:30 until 10 p.m. American dances will be taught by Gail and Jennifer Ward while Charles and Holly Balistrere will teach Latin dances. Register at the Club any time before the first sessions. Fee is \$20 per couple.

Sandia Safety Signals

Drinking and Driving

Most people have the misguided idea that a few drinks will not affect their driving ability. This is a mistake. It is true, that after a few drinks we can start a car, get it going and steer it; but the point is we don't have the judgment and reflexes to do these things safely.

Teaching Home Safety

Some behavioral outcomes of teaching safety in the home are to help children develop an awareness of accident hazards; develop a child's responsibility for his/her own safety; gives an opportunity to practice safety measures at home and school; and through knowledge of safety hazards to become self-confident in case of an emergency.

Hitchhikers on Highway

A study of the New Jersey turnpike found the following among hitchhikers: 162 runaways, 98 military AWOL's, 7 fugitives from mental institutions, 5 escaped convicts and 501 people with criminal records. Do you still want to be a good Samaritan?

Billed as a spring celebration on Saturday, March 16, the "Beefeaters Ball" highlights the Coronado Club's March calendar. Focal point of the affair will be a gigantic Baron of Beef with all the trimmings.

The event starts with a social hour from 6 to 7 p.m. Dinner will be served from 7 to 8:30 p.m. Larry McGinnis, folksinger and guitarist, will entertain after dinner, and Phil Graham's orchestra will play for dancing after 9 p.m.

The hearty dinner and the evening of entertainment go for an admission charge of \$2.75 for members, \$3.25 for guests. Pick up your tickets at the Club office.

* * *

Teenage Go-Go

A wild teen fashion show will be featured at the monthly Teenage Go-Go tomorrow night at the Club. Moderated by Norma Manson of Sears, the style show will present teenage models wearing the latest look. Other attractions include a group of musicians known as "Liquid Joy." Dancing starts at 7:30 p.m. Member parents should pick up tickets at the Club office (25 cents for members, guests 50 cents) by 5 p.m. tomorrow.

* * *

Social Hours

Ole! It's the Mexican food buffet at social hour this evening. The Aristocrats will make the happy music. The buffet costs \$1.25 for adults, \$1 for kids. Pat Reich at piano will entertain in the main lounge.

On Friday, March 15, Rex Elder will be swinging on the bandstand while the popular seafood buffet will be served.

Sol Chavez and the Duke City Brass will shake things up Friday, March 22, while the Coronado Club kitchen staff serves its special chicken buffet.

* * *

Luncheon Fashion Show

A noon hour show of Easter fashions is scheduled at the Club Tuesday, March 19. Mrs. James Ayers is coordinator. Professional models will present styles from Lillyan's Fashions.

* * *

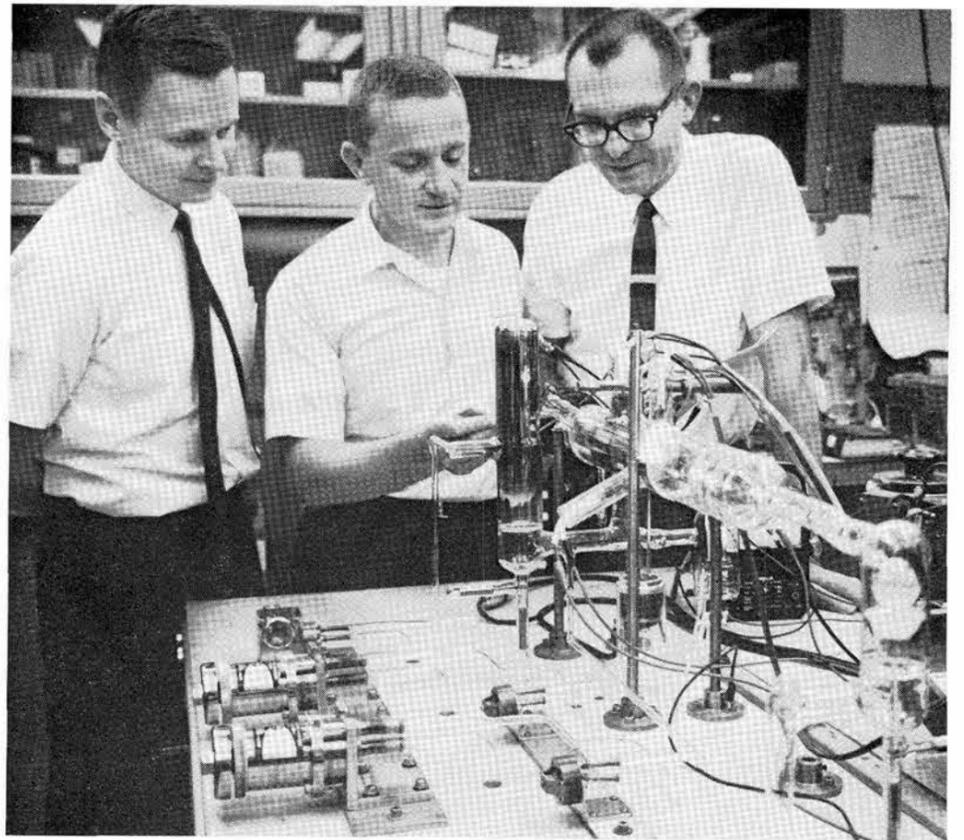
Assistant Manager Named

Dennis Shanfeldt is the new assistant manager of the Coronado Club. He will manage Club evening operations and periodically visit cafeterias in Bldg. 839 and Area III.

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CONTRASTS in teen fashions moderated by Norma Manson of Sears will be one of the highlights tomorrow evening during the Teenage Go-Go at the Coronado Club. Models will include Karen Spellum (sitting), daughter of Mr. and Mrs. D. H. Spellum (DASA) and Linda Ayers, daughter of Mr. and Mrs. James Ayers (7459). Both boys and girls styles, ranging from the subdued to the wildest mod, will be shown.



THIS LOW-ENERGY electron diffraction apparatus is used by R. L. Park (5123), center, to determine the structure of crystal surfaces. His research will be discussed during the forthcoming annual symposium of the New Mexico Section, American Vacuum Society. R. L. Schwoebel (5123), left, served on the program committee and J. D. Williams (1433) is program chairman and vice president of the sponsoring organization.

N.M. Section, Vacuum Society Plans Fourth Annual Symposium

Some 200 persons are expected to attend the fourth annual symposium and equipment exhibition sponsored by the New Mexico Section of the American Vacuum Society. The event will be held March 13-15 at Holiday Inn.

Special invited papers will include discussions of a broad range of surface science techniques and their relation to ultrahigh vacuum. Program chairman J. D. Williams (1433) explains, "This is the area in which there has been the greatest increase in interest because of techniques which allow the researcher to obtain a higher vacuum than was possible even 10 years ago."

M. K. Laufer (2411) is chairman of the section; Mr. Williams is vice chairman; and D. G. Schreiner (5123) is secretary-treasurer.

The symposium will be opened with an address by the current president of the American Vacuum Society, Paul Redhead of the National Research Council, Ottawa, Canada. He has conducted research on traveling wave tubes, new types of mass spectrometers, and other electron devices. In 1957 he developed a new type of cold-cathode vacuum gauge that was capable of measuring lower pressures than could be measured by any other gauge available at that time.

Invited speakers will include R. L. Park (5123) who will discuss "Characterization

of Crystal Surfaces by Low Energy Electron Diffraction"; H. D. Hagstrum of Bell Telephone Laboratories (Auger Emission); G. K. Wehner of Litton Industries, Minneapolis (Sputtering); A. J. Melmed of the National Bureau of Standards (Field Ion and Emission Microscopy); N. M. Bashara of the University of Nebraska (Ellipsometry); and W. P. Ellis of Los Alamos Scientific Laboratory (Low Energy Electron Diffraction).

The keynote address will be given by Harry Gatos of Massachusetts Institute of Technology, whose work has been mainly in surface studies of semiconductors. He is editor of the technical journal, SURFACE SCIENCE.

Among those presenting papers are J. F. Cuderman (5235), "Alkali Metal Ion Sources"; R. L. Schwoebel (5123) and Prof. E. J. Nowak of the University of New Mexico, "The Reduction of Nickel Oxide by Hydrogen"; and J. G. Eberhart (1111), "The Critical Surface Tension and Solid Surface Composition."

A Sandia consultant, E. R. Harrington of the Albuquerque Academy, will speak on "Ghost Towns in New Mexico" during the annual banquet, to be held Wednesday, March 13, at 7:30 p.m.

Other events scheduled during the symposium are an exhibit by 20 manufacturers of vacuum equipment on March 13 and 14 (open to the public), workshops beginning at 10 a.m. March 15, and the presentation of \$100 to the university science student submitting the best paper on vacuum science and technology. W. M. Olson (LASL), chairman of the awards committee, will present the award to Andrew T. Chow, a graduate student in metallurgy at New Mexico Institute of Mining and Technology.

The list of attendees is expected to include G. Allie of the French National Center of Scientific Research at Bellevue, France.

Welcome . . . Newcomers

Feb. 19 - March 1

Albuquerque	
Max E. Light	1543
Donald L. Marchi	2211
* Joanne M. Ryan	3126
Margaret Valdez	3126
Georgia	
Frank M. Bacon, Atlanta	1413
Kansas	
Thomas L. Downey, Wichita	7311
* Denotes rehired	

Sympathy

To Jack T. Graham (3242) for the death of his son, Peter, on Feb. 22.

To E. S. Roth (2565) for the death of his father in Albuquerque, Feb. 28.

To Rosalie Crawford (1) for the death of her father in Deming, Feb. 29.

Coronado Ski Club

Coronado Ski Club members leave tomorrow at 6 a.m. on chartered bus bound for a day's outing at Sierra Blanca ski area. There may be a seat left on the bus. Contact J. W. Benson (4372), tel. 264-1269.

Regular monthly meeting of the Ski Club is scheduled Tuesday, March 12. Ednae Gross of Taos Ski Valley will be guest speaker. The program will include a humorous ski movie featuring Art Furrer.

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