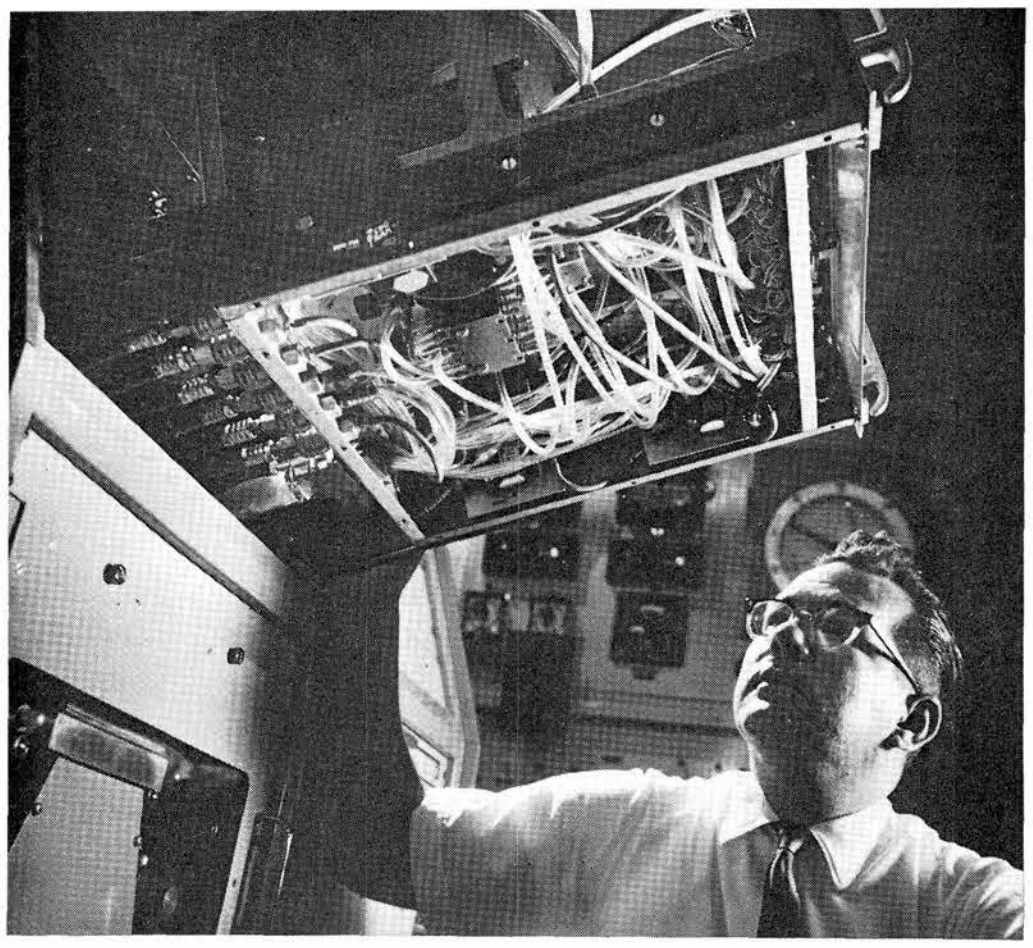
SANDIA LAB NEWS

VOL. 19, NO. 16, AUGUST 11, 1967

SANDIA LABORATORIES ALBUQUERQUE, NEW MEXICO LIVERMORE, CALIFORNIA OPERATED BY SANDIA CORPORATION FOR THE U. S. ATOMIC ENERGY COMMISSION



FLUIDICS CONTROL PANEL, which controls automated testing of nuclear weapons in final assembly stages, is inspected by Ron Oelsner. Previous testers for final checking were manually operated due to limits on amount of electric power that could be used.

New Fluid Tester Automates Final Checks of Nuclear Weapon Assembly

A team of designers of Product Tester Design Division 2451 has combined fluid circuitry with minimum electric power in a new, highly flexible, automated tester. The new tester is designed for use in the final assembly stages of nuclear weapon production, an operation involving high explosives where strict safety regulations limit the amount of electric current which can be used. For this reason, past testers for this stage of production have been manually operated and usually uniquely designed for each operation — resulting in a multiplicity of testers.

The new fluidic tester will replace several types now in use and can easily be adapted to new systems.

Other advantages include its programmed operation — human error is greatly reduced — and its flexibility. The system is programmed by a pneumatic tape reader, and a great number of switching operations can be provided by simply changing the tape. The new tester also meets the requirements for use near high explosives.

"The relatively new technology of fluidics made the tester possible," Ron Oelsner, tester designer, says. "As far as I know, this tester is the first device to combine fluid power and fluid logic circuitry for control operations with electric power for the measurement of signals from the system undergoing test."

Fluidic devices use a flow of air to perform the same functions as electrical switches, amplifiers, relays, modulators, etc. The functions are performed mechanically by varying the size and shape of the fluidic devices through which the air flows. For specific applications, fluidic devices offer significant advantages — increased reliability (no moving parts), economic fabrication (plastic tubes), lower power consumption (pressurized air) and high environmental tolerance (unaffected by heat, vibration, radiation, etc.)

The heart of the new tester is a perforated tape fluid flow reader. It reads standard one-inch, eight-level, mylar tape in blocks of 40 characters each. Program instructions are read by the action of air jets through the tape code holes. Any combination of 320 binary signals can be read at a two-second time rate. In this particular system, 300 signals are fed (by multi-tube cables through bulkhead connectors) to the cross points of a specially-designed crossbar switch.

The remaining binary signals are used

(Continued on Page Two)

Sandians Participating In Naval Research Reserve Seminar Here

The Fourth Research Reserve Seminar in Applied Research is being conducted at Sandia Base Aug. 6-18. Sandia Corporation speakers discussing Sandia programs will be featured during sessions on Aug. 14 and 15. Sponsored by the Office of Naval Research in conjunction with Naval Reserve Research Company 8-7, the seminar provides reserve Naval officers with knowledge of scientific programs relating to Naval operations.

Several Sandians, members of Naval Reserve Research Company 8-7, are active in the administration of the seminar. E. F. Johnson (9331) is special assistant to the seminar chairman, C. E. Jordan (3243) and R. P. Baker (2441) are session coordinators. Mario Sanguinetti (3412) is public relations officer for the seminar.

Sandia speakers will include President J. A. Hornbeck, Vice President R. W. Henderson, A. Y. Pope (9300), A. J. Clark (9330), W. D. Olson (1510), O. M. Stuetzer (1420), A. E. Bentz (9232), R. C. Dougherty (5624), B. F. Murphey (7100), G. H. Roth (7320) and M. McWhirter (7340).

Patent Awarded for Sandia-Developed Ion Plating Process

A patent for the apparatus which makes possible ion plating has been assigned to the Atomic Energy Commission in the name of D. M. Mattox (1123).

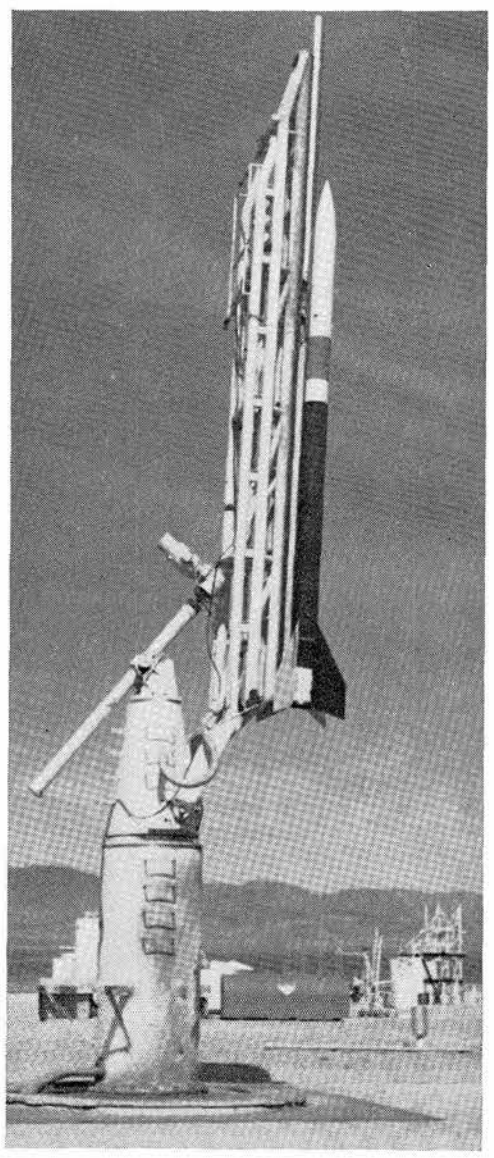
With the equipment, adherent metal coatings can be deposited on metallic substrates which cannot be coated effectively with conventional techniques. This includes such combinations as copper and gold coatings on molybdenum; aluminum on steel or uranium; gold and copper on aluminum.

In the process, the part to be coated is made the cathode of a high voltage circuit and is cleaned by ion bombardment from an inert gas discharge. The film material (to be deposited) is then thermally evaporated from a filament which is the anode of the high voltage circuit. A portion of the evaporated film atoms is ionized in the gas discharge, accelerates across the cathode dark space, and with high velocity strikes the surface of the part to be coated.

The process is already in use by industry and throughout the AEC complex. At Sandia the technique was used to deposit aluminum coatings on the uranium fuel assembly of two pulsed reactors, thereby eliminating radioactive contamination due to flaking of corrosion products from the fuel.

A PATENT has been issued for this apparatus, invented by D. M. Mattox (1123), which makes possible ion plating of numerous metals which could not be coated by conventioinal techniques.

Single-Stage Rocket Starting New Sandia Family of Diagnostic Rockets



SANDHAWK poised at Tonopah Test Range.

A high-performance rocket system capable of carrying a 200-pound payload to a 100-mile altitude has been developed by Carrier Development Division 9224.

Called the Sandhawk, the single-stage rocket system is the first of four Sandhawk vehicles planned for Sandia's diagnostic rocket program.

The single-stage was developed to replace three-stage rocket systems which require more time to assemble and, because of the multiple stages, are generally less reliable. The Sandhawk motor has an average thrust of 18,000 pounds for 15 seconds. This long burn-time results in low accelerations and provides a "soft ride" for the payload.

The spin-stabilized and unguided vehicle is 24 feet long and weighs 1820 pounds at launch. Its 90-inch long, 13-inch diameter payload includes standard telemetry, instrumentation and recovery packages. Because the telemetry compartment is water tight, the telemetry equipment can be reused even after impacting at sea. The rocket motor was manufactured to Sandia's specifications by Thiokol Chemical Corporation.

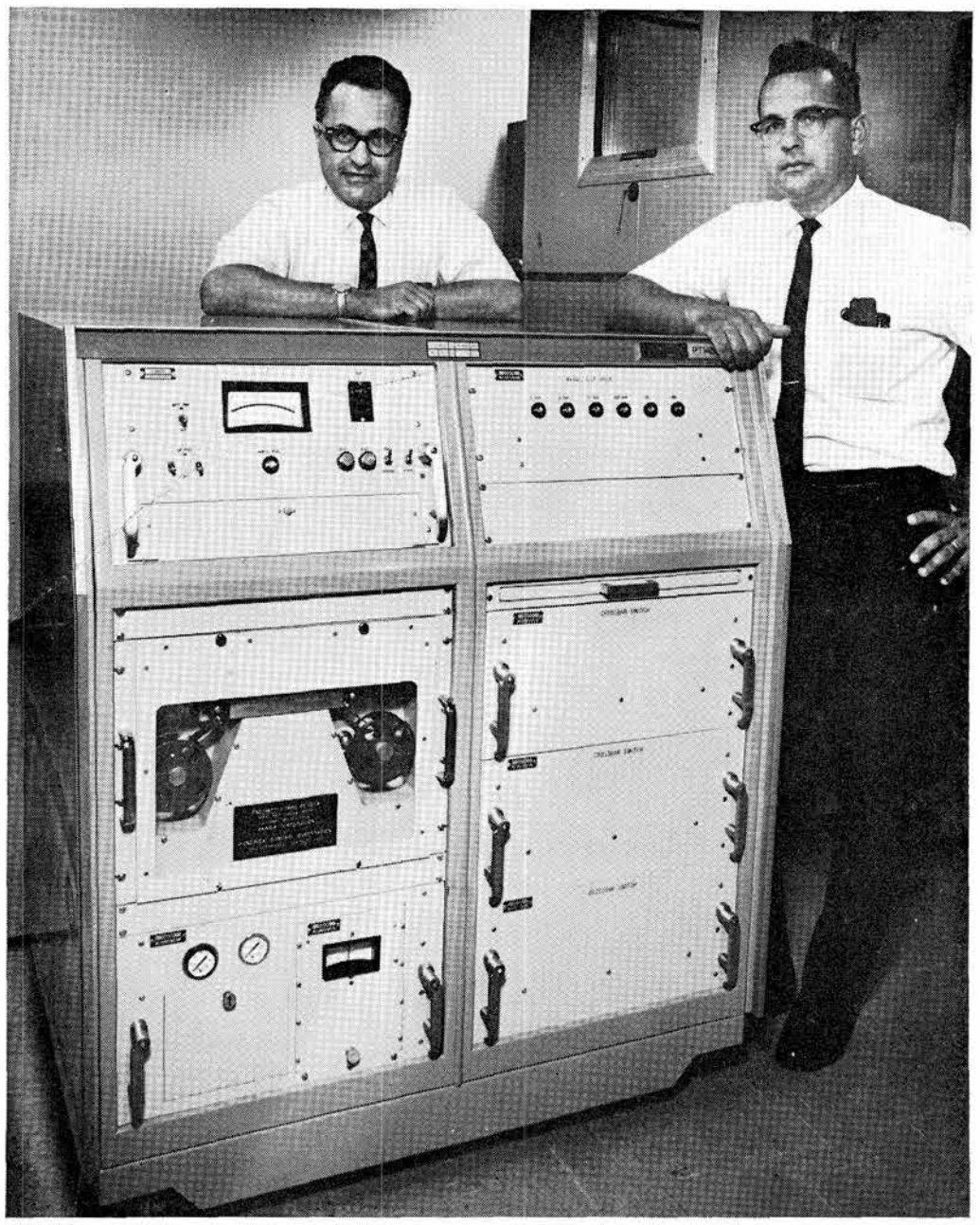
The other three members of the Sandhawk family of carriers are in various stages of development. They are the Sandhawk-Dart, which will carry a 12-inch diameter, 265-pound Dart payload to an altitude of about 84 miles; a Nike-Sandhawk, which is designed to boost a 12- or 13-inch, 200-pound payload about 190 miles; and a Terrier-Sandhawk, which will carry a 12- or 13-inch, 200-pound payload to an altitude of about 285 miles.

First successful single-stage Sandhawk flight was conducted at Tonopah Test Range last January. Other successful flights were staged from Barking Sands launch complex at Kauai in the Hawaiian Islands in May.

Payload instrumentation on these flights monitored acceleration, vibration, payload attitude, motor chamber pressure and numerous temperature readings from points throughout the system. In addition, a fin-shroud instrumentation package was used on some flights to monitor temperatures and vibrations of the fins.

ATTACHING TELEMETRY ANTENNA to a Sandhawk payload is Les Luehring (9224), project engineer for the new single-stage rocket system. The payload is 13 inches in diameter and 7½ feet long.

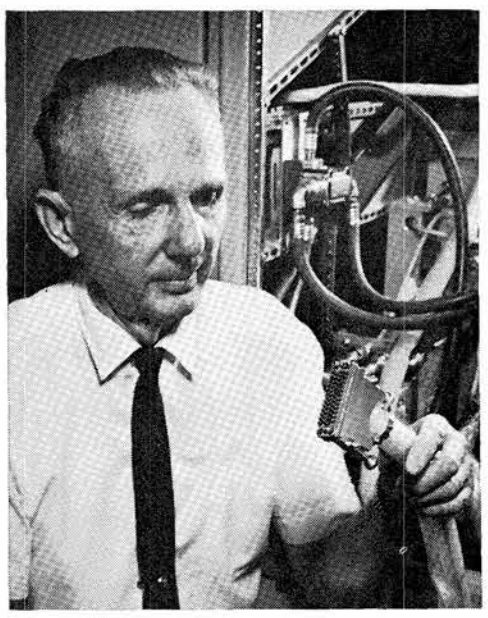
L. F. Luehring (9224) is the designer and project engineer of the single-stage Sandhawk and E. T. Ronan (9224) is designer and project engineer for the Sandhawk-Dart. Other members of the project team and their responsibilities include W. R. Barton (9324), G. W. Stone, Jr. (9314) and G. G. Wilson (9324), aerodynamics; L. M. Stone and W. E. Watson (both 9221), payload systems; D. W. Johnson (9324), recovery system; R. R. Middlesworth and V. T. Strascina (both 9224), mechanical assemblies; and P. K. Goen (9221), firing module.



NEW TESTER — Prototype of a new breed of production tester based on fluidics technology is displayed by Gino Carli (left), Division 2451 supervisor, and Ron Oelsner, tester designer.

Continued from Page One

New Fluidic Tester Developed



FLUID CONNECTOR was one of the innovations Max Bleakney (2451) created for new fluidic production tester. Fifty air tubes are handled as a single cable, fit into a modified electric connector.

for system control. Fluidic devices are used almost exclusively in the control circuitry. A four-stage binary counter controls the system's cycle time (adjustable in one-second increments from one to 16 seconds), and the circuitry includes logic for controlling the tape reader, a pressure actuated visual display unit counter and the limited power electrical measurement circuitry.

Although the tester uses conventional fluidic devices and existing electronic components, the Sandia designers made several innovations in "mating" the two technologies.

Max Bleakney contributed a new connector design which allows 50 fluid lines to be combined in a single cable which can be plugged into a modified multiple pin electrical connector.

Other innovations were made in the crossbar switching circuits. To find a switch that had the density required to accommodate 300 air lines, a standard electrical crossbar switch was extensively modified. This switch (which can be described as a three dimensional array of 300 sets of contacts) can activate a series of six contacts by actuating a single cross-point. The electrical solenoids of the original crossbar switch were replaced with leather diaphragms which allow mechanical pressure to activate the switching process.

"This new tester fills a long-standing need in nuclear weapon production," Division 2451 supervisor Gino Carli says. "Since we could use very little current in the final assembly testing, we have not previously been able to automate this critical activity. Our new tester represents a first attempt by test equipment designers at Sandia to fabricate a fluid power automatic system. From the test results, and the enthusiastic reception of the prototype, we feel that we have made a valuable contribution to the nuclear weapons production program."

SANDIA LAB NEWS

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Staff: Matthew J. Connors, Lorena Schneider

Congratulations

Mr. and Mrs. John Sanchez (4574), a son, Stephen Edward, July 18.

Mr. and Mrs. Robert Hatcher (4574), a son, Robert Logwood, July 14.

Mr. and Mrs. Rubel Romero (4574), a daughter, Judith Machell, July 4.

Mr. and Mrs. Gardner Green (4574), a daughter, Sharon Ann, June 18.

In The Public Interest

Tom Garcia Serves as Member of State Personnel Board

Four months ago, Tom Garcia (4631) was appointed by Governor David F. Cargo to serve as one of the five members of the State Personnel Board, one of the most important bodies in state government. It is responsible for administration of the State Personnel Act, the governing personnel policy for the 10,000 state employees. Vice President R. B. Powell (3000) is chairman of the Board.

Tom, an electronics technician, has never been a candidate for public office, but for more than 10 years he has been involved in local planning, organizing and coordinating political activities. Through these activities he has met and worked with many state leaders.

"I enjoy politics," Tom says, "and I like politicians—both Republicans and Democrats. They are sincere, hard-working and dedicated individuals. Most are motivated to serve the public in the best way possible, to provide good government."

"I did not actively seek this appointment, and was unfamiliar with the workings of the State Personnel Board and its relations with the State Personnel Office. Now, after three months of meetings, I am thoroughly impressed with the members and policies of the Board and feel confident that I will be of service."

(Apparently Tom's confidence is shared for he has been invited to represent the Board at the International Conference on Public Personnel Administration to be held in British Columbia, Oct. 1-5.)

"I was also hesitant," Tom says, "because I had little experience in the personnel field. I did serve a couple of years as chairman of the Metal Trades Council job study committee which reviewed our system of job classification. This experience has proved valuable."

The purpose of the State Personnel Act, Tom believes, is to promote professionalism in state employees, to eliminate the political spoils system for state jobs. The Act provides job security and a merit system for state employees.

"New Mexico's merit system was unorganized to say the least before 1961 when the State Personnel Act was adopted," Tom says. "Since then, the state has been able to maintain continuity in government between administrations. Professional employees have attained job tenure, increased benefits and can look forward to adequate retirement plans."

TOM GARCIA (4631) journeys to Santa Fe about three times a month to attend meetings of the State Personnel Board. He has served on the Board since April.

Board members represent the public interest in the administration of the Act. Members perform investigations, studies and audits necessary for the proper administration of personnel. They hear appeals and make recommendations to agency directors. The Board also makes reports to the governor and is charged with the continuing responsibility of recommending improvements in the system.

The State Personnel Board isn't political, Tom says. It is completely devoid of partisan feelings. Every issue is objectively considered.

"This is the intent of the State Personnel Act," he says. "Under this law, we do our best to give the state the best administration possible."

New Courses and Audit Students Added to Fall Out-of-Hours Program

Twenty-three new courses have been added to Sandia's Out-of-Hours Program for the fall semester.

This semester a total of 89 courses will be offered to Laboratory employees during non-working hours to assist them in keeping up with the latest changes in science, technologies and skills.

The new fall catalog listing courses in math, physics, electronics technology, mechanical technology, drafting and design, administrative technology and a study program for data reduction clerks and material analysts will be distributed to employees. It will contain enrollment cards and instructions. The enrollment period is Aug. 21-Sept. 1. Classes begin Sept. 18.

For the first time, employees may enroll to audit any class (no homework or tests required) on a space-available basis. Audit students will be loaned a textbook for the duration of the course.

Noon-hour and a few evening courses will be conducted at the Laboratory. Four technical-institute level courses will be held nights at Highland High School under the auspices of Albuquerque Technical Vocational Institute.

Among the new courses are numerical methods for computer applications, mathematical treatment of engineering problems, vacuum science, materials science, electron microscopy, instrumentation fundamentals, radiation effects in solids and vector dynamics of rigid bodies.

Because enrollment in the courses is offered on a first-come basis, interested employees are urged to register as soon as possible. Last semester there were 1604 enrollments in the Out-of-Hours Program.

The program provides job-related courses not offered at local high schools or universities. It is administered by Employee Training and Education Division 3132.

Joyce Costello (7113)

Take A Memo, Please

Remember, safety rules apply at home as well as at work.

Livermore Youth Opportunity Trainees Discuss Attitudes

The SANDIA LAB NEWS interviewed five Youth Opportunity Trainees at Livermore to learn their views on whether the youth of today take too much for granted.

James T. Haun, a messenger in Public Information and Services Division 8235, is a June graduate of Livermore High School. He will attend college in the fall and study business administration.

"Some feel the world owes them a living, but I don't really agree. The majority want to get out and do something. We face reality and do things on our own. My friends want to work. They're looking for more freedom and they find it when they're on their own. We rely too much on our parents when we take a lot for granted—then we're lost when we leave them."

* * *

Pamela A. Mallory, a typist clerk in Purchasing Division 8243, is a June graduate of Amador High School. She plans to attend college and study business administration.

"They do in a way. Young people expect more than they used to. Taking things for granted has become a way of life—certain things are always there. Some expect too much—they think if their parents want them to get ahead, they'll give them everything. But this is just a small number. I think we all expect a certain amount from our families, but most of us want to work and do things for ourselves."

* * *

Oscar C. Lopez, a laborer in Plant Maintenance Division 8222, is a June graduate of Livermore High School. He plans to work this fall and attend Chabot College evening extension classes in electronics.

"I don't think it's true for most of us. My friends don't take too much for granted. They're trying to find jobs and work to get things on their own. During high school I worked part-time to buy my clothes and books, and my parents gave me a little spending money. Now I'm saving to help with my schooling."

* * *

Sandra L. Graver, a data processing clerk in Management Information Division 8117, is a sophomore at Chabot College; studying business data processing.

"Today, youth have a better chance in life and a better outlook. They do expect more since there's more available to them—for instance, education and job opportunities. In some cases, such as when using the family car, it's important to show you're capable of handling things which you're given. I take some things for granted, but mostly try to help out as much as I can. If I do my share, I feel my parents will meet me halfway."

* * *

Gary E. McElroy, a stockkeeper in Material Control and Services Division 8245, is a June graduate of Granada High School. He plans to enter college in the fall to study architecture or drafting.

"Youth take a lot for granted. We're always trying to be better than our parents and the generation before us. But it's different with each person—some of us don't think of the future and live only for today. I plan to go to college in the fall, but I think it's up to me, rather than my parents, to put me through. They still have to bring up my four brothers and sisters."

PARTICIPANTS IN SANDIA'S YOUTH OPPORTUNITY CAMPAIGN this summer at Livermore Laboratory include (l to r) James T. Haun, Pamela A. Mallory, Oscar C. Lopez, Sandra L. Graver, and Gary E. McElroy. They are five of the 10 students who were hired for temporary summer jobs and training experience under the President's national program to help students continue their education. This is Livermore's third year in the program.

Take Note

Three Livermore Laboratory employees will present technical papers at the semi-annual meeting of the Environmental Testing Subgroup of the Interagency Mechanical Operations Group (IMOG). The meeting will be held Aug. 23 and 24 at the Rocky Flats Division of the Dow Chemical Co. near Golden, Colo. A. W. Clark (8128) will discuss "Monterey Impact Shock Machine"; H. D. Reed (8128), "Remote Control Environmental Chamber"; and R. A. Thompson (8147), "Water Pressure Velocity Generator."

* * *

F. J. Maloney (8128) recently spoke to 44 high school students and a staff of counselors at the City College of San Francisco. He talked about the mechanical engineer's function in industry, and described how engineering technicians support that function. In addition, he showed the film, "Environmental Testing at Sandia." The students were attending a special six-week course at the two-year college to encourage their interest in engineering.

* * *

An eight-week shorthand refresher course will be offered at Livermore Laboratory beginning Sept. 7. Classes scheduled Tuesdays and Thursdays during lunch periods, will include a review of shorthand theory and speed development. The course is being offered as part of SCLL's training program. Interested persons should contact W. L. Miller (8214) ext. 2251.

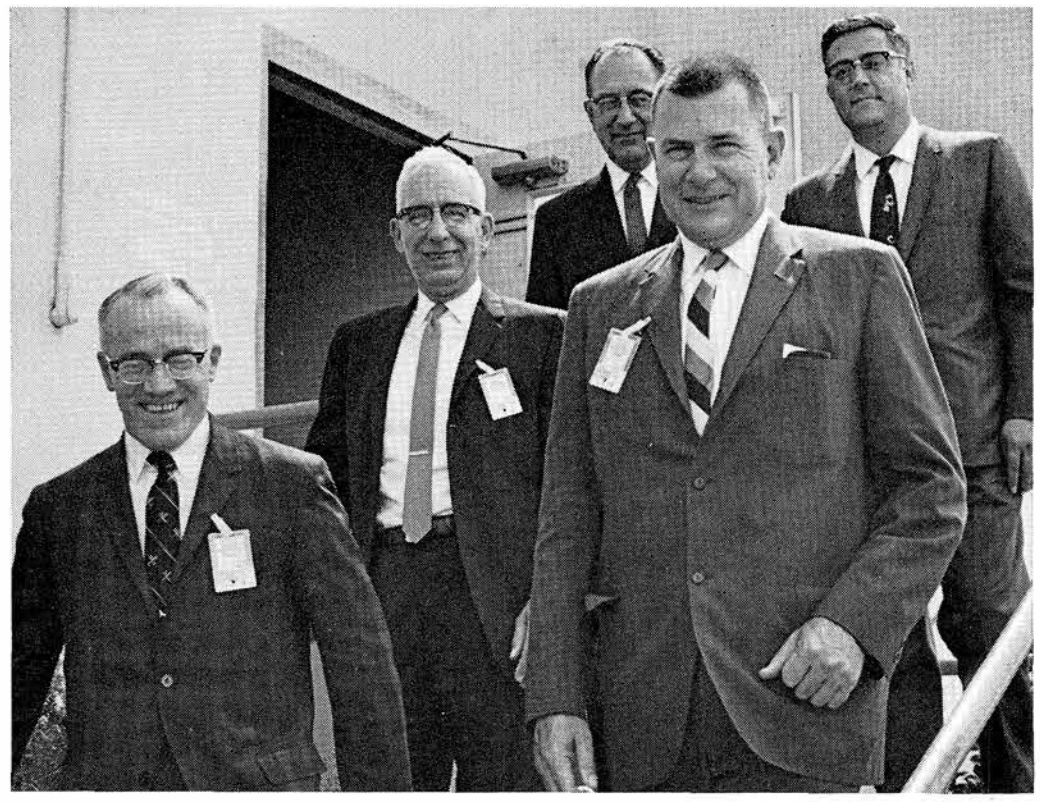
* * *

Employees and their families who have books or magazines which they no longer want may contribute them to the Parks Job Corps Center library. Recently reopened with the assistance of VISTA aides, the library is in need of reading material of any kind. Call 828-1000, ext. 411, if you have contributions you wish to make.

* * *

Lawrence Radiation Laboratory has renumbered the 132 buildings at its Livermore site. The new system replaces the arbitrary numbering used in the past and will make it easier for visitors to find the building they seek.

Maps of LRL/Livermore, showing both old and new building numbers, are available in the lobby of Bldg. 911 and from Public Information Division 8235, Rm. 138, Bldg. 912.



VISITING LIVERMORE LABORATORY for technical briefings recently were officials of E. I. Dupont DeNemours' Savannah River Operations. Shown during a tour of the Laboratory are (l to r) N. Stetson, manager, Savannah River Operations (Aiken, S. C.); W. B. Delong, director, Reactor Materials Section; M. H. Wahl, manager, Atomic Energy Division; L. Squires, assistant general manager, Explosives Department (all of Wilmington, Del.); and L. Gutierrez, director, Systems Development at Livermore 8100.

LIVERMORE NEWS

VOL. 19, NO. 16 SANDIA LAB NEWS AUGUST 11, 1967

Forklift Modification Increases Safety of Handling Cylinders

Two Livermore Laboratory employees have designed a removable metal frame for a forklift which reduces handling hazards for six-pack units of gas cylinders.

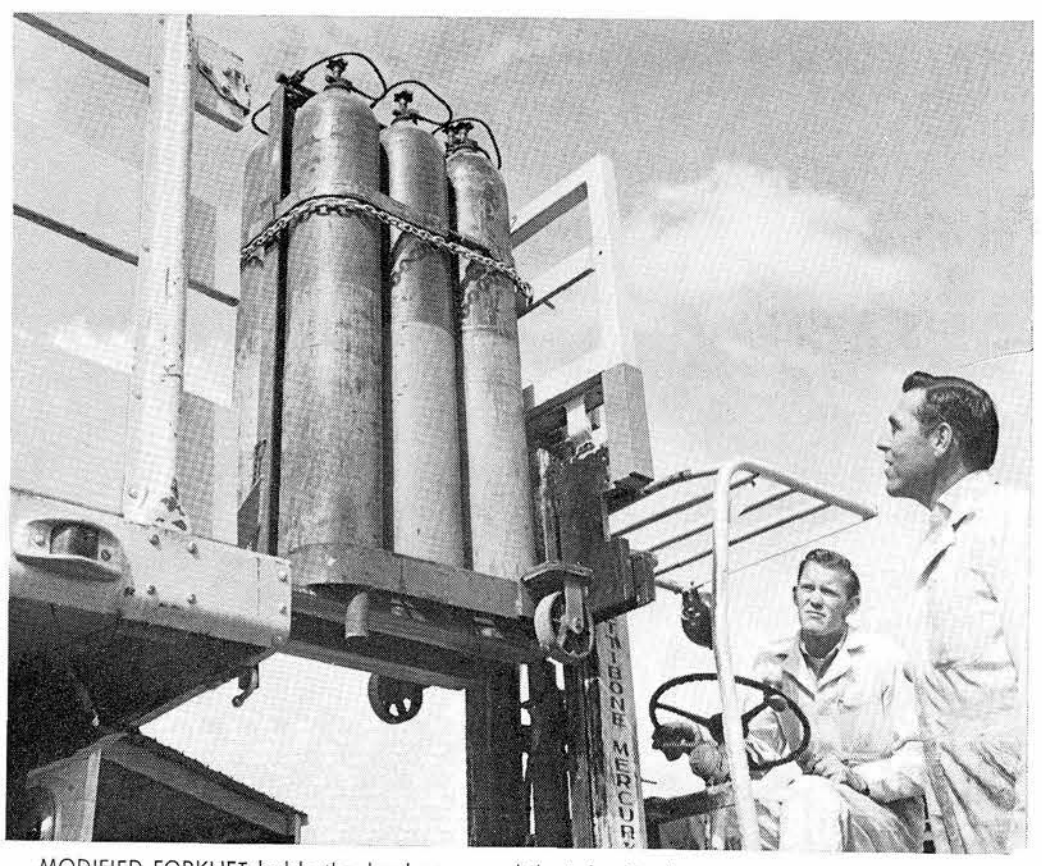
Stan Serpa and John Tootle of General Stores Section 8245-3 process about 770 argon, helium and nitrogen cylinders a year. Some 258 arrive as six-packs, and they needed a safer method for handling them.

Six-packs are heavy—800 pounds. They're pressurized—a total of 1400 cubic ft. at 2200 lbs. per square inch. Dropping one could crush anything beneath it, or break connective tubing or valves which could release a jet of high velocity gas capable of causing serious personal injuries.

In the new design, a metal frame slips into a base which is welded to the lifting part of the forklift. Eyebolts on this metal frame provide anchors for the chain which goes around the cylinders and keeps them from toppling. Once the chain is secured, the operator can move the load without a man steadying it. Full mobility of the forklift is maintained. And the removable feature of the frame permits normal use of the forklift when six-packs are not being unloaded.

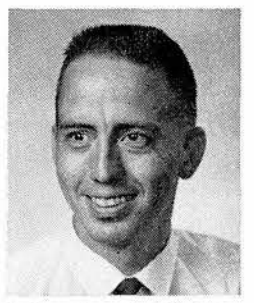
Formerly, the narrow-base, top-heavy load could overturn easily unless a man steadied it. Chains had been wrapped around the load and anchored to an immovable part of the forklift. This restricted the tilt, up-and-down and sideway motion of the equipment. Frequent adjustment of the chains was necessary. Raising the load high enough to clear the bed of a supplier's truck increased the handling hazard.

The new method is easier and, more important, safer.



MODIFIED FORKLIFT holds the load secure while John Tootle, operating forklift, and Stan Serpa (both 8245-3) unload compressed gas cylinders. Design of the removable metal frame and its chain by John and Stan reduces handling hazards for six-pack units.

T. F. Wieskamp Awarded MS Degree in Applied Science



T. (Ted) F. Wieskamp received a Master of Science degree in applied science recently from the University of California at Davis/Livermore.

The first semester of his graduate work was completed under Sandia's Educational Aids Program and the balance was under the SCLL Technical Development Program.

Ted is an engineer in Electrical Subsystems Division 8155. He joined Livermore Laboratory in June 1962, following his graduation from Oregon State University where he received his BS degree in electrical engineering. Before transferring to his present organization in 1965, he worked in test development divisions, involved in transducers and test instrumentation.

Formula Vee Class

Bill Denison Holds Top Racing Position

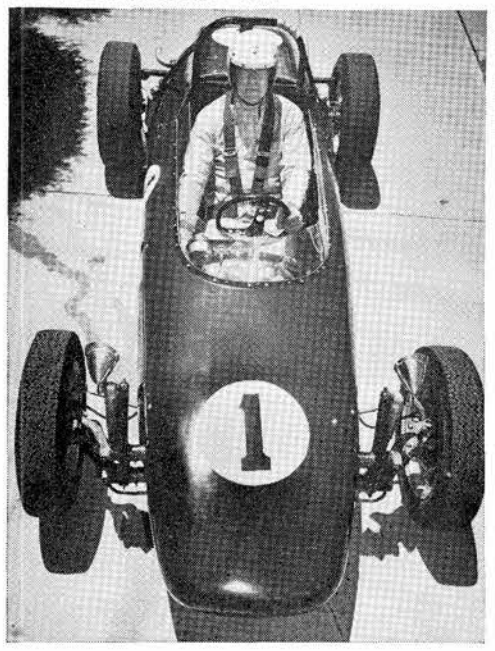
Bill Denison (2121) and his royal blue "formula vee" Volkswagen racer are the top driver and car in their class of Sports Car Club of America's Midwest division. The area includes New Mexico, Colorado, Nebraska, Wyoming, Oklahoma, Kansas, and part of Illinois. They earned the title the hard way — in six grueling races during the past year.

As in the European Grand Prix circuit, points are awarded to top drivers for first, second, third and fourth places in the races. From these points, the ranking is established. Bill's formula vee is proudly marked with an unmistakeable "No. 1."

He will be competing against the nation's top drivers during the Thanksgiving holidays in the national championship races at Daytona Beach, Fla.

The formula vee class is specifically for racers with Volkswagen components — motor, transmission and front-end suspension. Within very limited specifications, these can be modified. The result, however, is a breed of car with very little variation. The race depends more on the driver's skill and the condition of the car than individual differences in the vehicles.

Bill's current car — assembled from three junked VWs — is the second one he's built. He searched the junkyards for a VW that had been clobbered in the rear for the front-end parts, and a VW smashed in the front end for the engine. The third VW from the junkyard was for spare parts. The frame and body for the formula vee was purchased as a kit.



BILL DENISON (2121) has driven this formula vee racer, assembled from three junked Volkswagens, to the top spot in the Midwest Division of the Sports Car Club of America competitions.

The formula vee specifications allow for balancing of all moving parts, reducing the weight of the flywheel from 10 to 12 pounds, matching the intake and exhaust ports, and polishing the intake and exhaust ports in the cylinder head. Total weight of the car cannot be less than 825 pounds.

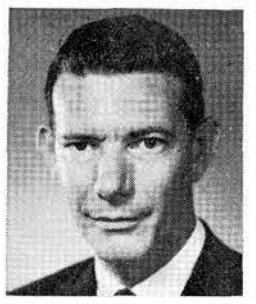
Since first completing the car, Bill has torn it down and rebuilt it three times. It will do 105 mph. He doesn't have a speedometer on the instrument panel because he says a tachometer and gear box tell him what he needs to know.

Bill's current championship of the division is the result of carefully learning the driver's trade. He bought his first sports car — an MG-TD in 1956 and entered his first race that year at Ft. Sumner. For the past three years, he has been competing in the formula vee class. His den at home is crowded with trophies he's won during the years.

Trophies are all an SCCA driver wins from racing. These are amateur competitions with no prize money. For this reason, Bill held the total cost of his current car to about $2000.

"The rewards of winning are still worthwhile," Bill says. "There is a tremendous thrill in racing. I like to compete I like to win. It's fun to drive a well-tuned, well-performing car. In addition, there are the friends you bump into — I mean, the friends you run into — well, anyway, it's a change of pace from the office . . ."

Supervisory Appointment



ROBERT L. RUTTER to supervisor of newly created Instrumentation Fielding Division IV 7126, effective July 16.

Bob has worked in the field testing organization since he joined the Laboratory in June 1960. He worked on gage development and seismology during his participation in Sandia's Technical Development Program from 1960 to 1962. For the past five years, he has been an experimenter or project leader on 10 nuclear tests at Nevada Test Site, one in Mississippi plus the Dominic series in the Pacific.

Bob received his BS degree in electrical engineering from the University of Missouri in June 1960 and completed the TDP program at the University of New Mexico.

From December 1952 to December 1956, he served with the U. S. Air Force as an automatic tracking radar technician. He is a member of Tau Beta Pi, Pi Mu Epsilon and Eta Kappa Nu.

Western University-AEC Program Benefits Faculty, Schools, Sandia

This summer six professors from the Rocky Mountain region have been carrying out research at Sandia Laboratory under a cooperative program of the Associated Western Universities (AWU) and the Atomic Energy Commission.

The AEC-AWU program is designed to allow faculty members to participate in nuclear science related research activities at the National Reactor Testing Station in Idaho Falls, Los Alamos Scientific Laboratory and Sandia Laboratory. Considerations are the participant's educational qualifications and scientific interests, the availability of the necessary facilities at the AEC site, and ultimate benefit to the home university.

Under this program, the educators become acquainted with the range of AEC research activities in nuclear science and will take this information into the academic community. The scientific problems encountered may provide subjects for graduate student research programs which could be performed at the AEC sites under AWU grant.

Most of the AWU men here this summer visited Sandia last fall during a technical orientation conference co-sponsored by the university association, Sandia Laboratory and Lovelace Foundation.

Included in the present group is Roy L. Johnson, Jr., who has been teaching civil engineering for the past year at the University of New Mexico and as a result is already aware of some of Sandia's projects. "Among my graduate students are a number of Sandia employees who attended the university on a part-time basis," he explains.

In Deformation of Structures Division 1142, Roy is working out a classical solution to the thin shell problem (for example, what happens to cylinders when subjected to stress loading), and is verifying the results obtained by Sam Key (1142) in finite element technique problems.

Different Approach

Roy was with a firm of consulting engineers for 10 years but at that time was concerned mainly with bridges and structural designs. "My work then was more conventional," he says. "Here, the approach is from the engineering mechanics viewpoint with a heavy emphasis on mathematical solutions. I've found I've had to go back and review some of the things learned in my own graduate courses."

His BS, MS and PhD degrees are all from the University of Wisconsin where he also taught for several years. "I'm expected to do a certain amount of research in addition to teaching," Roy says. "The experience in engineering mechanics has been enlightening."

E. J. Nowak is another newcomer to the University of New Mexico. He has taught chemical engineering there for a year. Jim received his BS degree from Northwestern University and PhD degree from Princeton University, then worked three years for ESSO in catalysis research. He's interested in hydrogen reduction of nickel oxide to nickel metal and has been studying replication of nickel oxide single crystals. In Surface Kinetics Research Division 5123 he uses the same equipment that Dick Schwoebel (5123 supervisor) employs for his research in gold single crystals.

Unique Research Tools

"At Sandia there is a chance to work with research tools not ordinarily encountered: ultra high vacuums, electromicroscopy, microbalances. What I've learned this summer about high vacuums will enable me to carry out useful work in this field when I'm back at the university," he says. "I also have a much clearer picture of the research being conducted here."

John E. Drumheller feels that the opportunity to come to Sandia Laboratory was "a rare opportunity I couldn't pass up." He has been working with R. N. Rogers in Electrical Properties of Solids Division 5151 in electron paramagnetic resonance studies. Part of the project is related to research he has underway under a National Science Foundation grant. John is interested in the environment surrounding two-dimensional copper crystals, and pair interactions in $LaCl_3$.

He has taught physics at Montana State University for three years, at the University of Missouri for two years, and a similar period at the University of Zurich, Switzerland. His BS degree is from Washington State University, and both MS and PhD degrees are from the University of Colorado.

"This has been a chance to broaden my experience," John says, "and has opened the door to the whole area of exchange interactions with which I was unfamiliar. It has put me in the position to be able to suggest additional problems to my students."

Investigating Theories

Another physicist is John C. Raich who has been teaching at Colorado State University for a year and was previously a research associate for two years at Purdue University. At Sandia he is assigned to Theoretical Solid State Physics Division 5155 and is investigating the theory of solid hydrogen and the theory of many particle physics.

"Duane Wallace (5155 supervisor) and I are working on the same theory for hydrogen and it is very helpful to be able to talk to someone in the same field," he says. Since a computer is the only equipment John is using at the present time, there is not the benefit from Sandia's specialized facilities which the other professors may realize.

He has BS and MS degrees in physics from the University of Wisconsin, and a PhD degree from Iowa State University.

The only physical chemist in the group is Lynford L. Ames who is assigned to Aerospace Sciences Division 5234 and is working with R. T. Meyer in pulsed high temperature vaporization of metals and inorganic spectrometry.

Lyn has a BS degree in chemistry from Muskingum College (New Concord, Ohio) and a PhD in physical chemistry from Ohio State University. He spent a year at Oxford University doing post-doctoral work before joining the staff of New Mexico State University.

"My work here is related to a research program I have underway at the university, however, the pulsed mode is something new for me. We are getting a new mass spectrometer at Las Cruces which means I will be able to continue some of the work begun here," he says.

Better Advice for Students

"Being here—even just for the summer —gives me a better idea of how to advise graduate students. Some would be happy in a laboratory or with industry, while others are better suited for teaching."

George P. Mulholland is also from New Mexico State University. He has taught mechanical engineering for a year and was previously a teaching assistant at Oklahoma State University where he received his MS and PhD degrees. His BS was from New Mexico State.

At Sandia, his summer assignment is in Aerodynamic Research Division 9321 where he is working with Lynn Tyler and using the shock tube facility to study reflected shock waves.

Sources for New Ideas

"I find that in the university environment one needs a source for new ideas or one tends to stagnate. These ideas can be developed through research and contact with others making similar investigations, or they can be vitalized through work in industry," he says. "It's also valuable to know which research problems are being investigated, and how they are being solved."

According to H. R. Shelton (3134), coordinator of the AEC-AWU program at Sandia, both the Company and the educators receive benefits from the program. "The University people make a valuable contribution to our regular research programs," he says. "They bring an additional insight to some of our problems. Some of the participants have become Sandia consultants and all of them comment on the advantages of the exposure to 'working professionals'."

MEETING WITH H. R. Shelton (3134), right, official contact between Sandia and Associated Western Universities, were four of the six faculty members who have spent the summer at the Laboratory under an AWU-AEC program: (l to r) L. L. Ames of New Mexico State University, R. L. Johnson and E. J. Nowak, both University of New Mexico, and J. E. Drumheller, Montana State University.

Zach Ortiz, Active Pilot, Heads State Civil Air Patrol Squadron

Zach Ortiz (5151), commander of Civil Air Patrol Pilot Squadron II, pursues an active off-the-job aviation career. He spends as much as 10 hours a week on CAP duties, works weekends as a flight instructor and occasionally flies a commercial charter or ferrying mission for a local firm.

Recently he was in Oklahoma City attending an FAA Academy for CAP flight instructors.

As commander of CAP Squadron II, Capt. Ortiz heads the only complete flying squadron in the state. Primarily, the group of 25 pilots is the search and rescue unit called on by the Air Force to locate downed aircraft or to perform various disaster and emergency missions in New Mexico.

A member of the CAP since 1954, Zach has headed the squadron for about 14 months. As an Air Force Auxiliary agency, the group is military in organization and maintains a continuing training program. It is run "by the book" with a required progression of educational activities and performance testing.

Still, the group shares the informal camaraderie of pilots—and it is this feeling that motivates the CAP.

Flying is as safe as any other activity, much safer than Sunday highway driving. Still, accidents occur. There is an inherent dramatic danger associated with flying. When a flyer is down, pilots are uneasy until he's located. Because it could happen to any pilot, they all want to help.

The CAP is the official agency for aircraft search and rescue.

Zach estimates that he has participated in about 25 searches in the 13 years he has been a member of the CAP.

"We fly organized patterns until we locate the downed plane," Zach says. "And there's a good feeling to be part of the effort, to be able to help."

To be ready for emergencies, the squadron meets once a week for training sessions. They maintain two T-34 aircraft and a P-18. Pilots log several hours a month in these planes. A number of pilots in the group make their private planes available for missions and training.

"In the near future," Zach says, "the squadron will begin a training program for new pilots. This instruction will lead to private pilot certification and upgrading of current pilot skills. We plan to increase the group by additional pilots and purchase new aircraft."

The CAP could also use other non-pilot volunteers. In Albuquerque, in addition to Zach's group, there is a Ground Rescue Squadron, a Cadet Squadron for both boys and girls 13 through 18, and a Composite Squadron of both cadets and adults. All are involved in aspects of the CAP mission. The Cadet squadrons concentrate on aviation education with the instruction of courses in meteorology, navigation, electronics, mechanical maintenance and leadership.

All of the groups meet at CAP headquarters at Kirtland Air Force Base. Zach invites anyone interested in CAP activities to call 298-5926 after 6 p.m.

ZACH ORTIZ (5151) is commander of Civil Air Patrol Squadron II. Currently, he is recruiting additional pilots for a new training program.

Blood Pressure Facts

HYPERTENSION

By S. P. Bliss, M.D.
Medical Director—3300

High blood pressure is one of the most common and serious ills that afflict us. Of the three leading causes of death in the U.S. (heart disease, stroke and cancer), high blood pressure—or hypertension—is often a contributing factor to the first two.

To begin with, what is blood pressure? It is usually expressed by two numbers, such as 125/90. These numbers are measurements of the pressure at which the heart pumps blood throughout the body (this is the first number and is usually between 100 and 150 mm. of mercury) and a measure of the residual resistance to blood flow in the vessels (this is the second number, usually between 60 and 100 mm.).

What is normal blood pressure? Any bloo dpressure that is not abnormal. Although some doctors feel that blood pressure above 140/90 are suspicious, almost all agree that blood pressures consistently over 150/100 are abnormal.

What is the ideal blood pressure? It's 120/80 for men and women, young and old.

What about the lower limits of normal? These are harder to define because, while there very definitely is a disease called chronic high blood pressure, there is no disease called chronic low blood pressure. Of course, anybody with a blood pressure of 70/30 is sick; as a matter of fact, he's probably in shock. But, short of true shock, not only is low blood pressure not an illness but the lower your blood pressure the better off you are, the less likely you are to ever sustain a "coronary" attack. It's a form of life insurance—and a cause for congratulations.

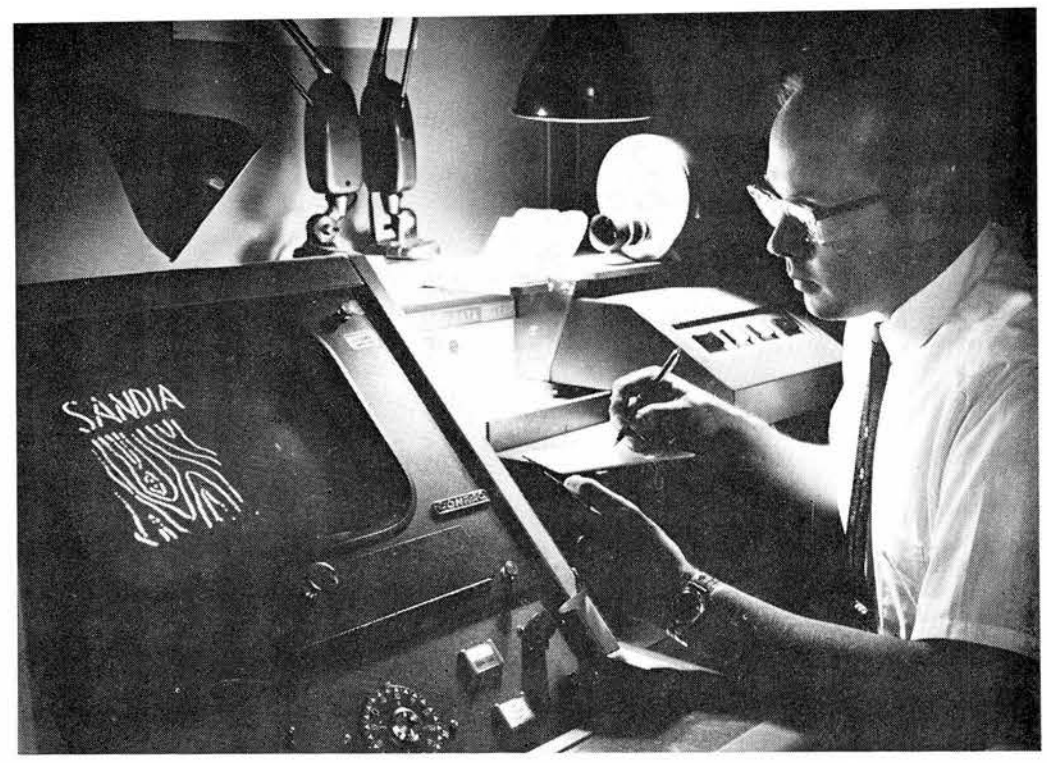
What can be done about hypertension? Much. Too much to go into here. Suffice it to say that your doctor, by using varying doses of combinations of medicines, can lower your blood pressure to whatever level he thinks best—if he thinks that blood pressure should be lowered at all. While it is true that most blood pressures should be in the normal range, not all blood pressures above normal limits warrant the immediate institution of blood-pressure-lowering medications. That is a complex decision that only your doctor should make.

Sympathy

To John Cotch (4512-4) for the death of his son in Santa Fe, July 17.

To C. K. Hoffman (2561) for the death of his mother Aug. 1.

To June Christy (3126-6) for the death of her husband Aug. 2.



CONTOUR LINES of a terrain map and a handwritten "Sandia" are projected on the Sandia Image Digitizer's monitor screen as R. K. Cover (2565) notes some operations. The Sandia-developed system converts illustrations, such as graphs and waveforms, to digits for computer processing.

SID Converts Pictures into Digits For Computer in Quarter-Second

An image digitizer capable of converting black and white pictures into digital data for a computer in a quarter of a second is being developed by Manufacturing Process Development Division 2565 and Computer Science Division 5256.

Graphic material that can be converted on the Sandia Image Digitizer (SID) includes graphs, sketches, photographs of oscilloscope waveforms and engineering drawings. Development work on SID was initially undertaken to provide a fast method of converting engineering drawings to data on punched paper tape which programs operations on numerically-controlled machining equipment.

The new system eliminates human functions in converting two dimensional graphic material into a digital format for subsequent computer analysis. Thus, more accurate data are obtained in less time.

Photographs of oscilloscope waveforms, for example, are presently digitized by using a machine such as a small area coordinate digitizer. An operator moves a stylus along the contour of the waveform and depresses a button each time he wants to record a point on the curve. Or he might use a ruler and a pair of dividers to measure and record the data which is then key punched on data processing cards.

With SID, the graphic material in its field of view is completely digitized in a quarter of a second.

SID consists of modified closed-circuit TV camera, an analog-to-digital unit and a television-like monitor screen. The prototype is connected to a CDC 160A satellite computer in Bldg. 806 which, in turn, is linked to a CDC 3600 central processing computer in Bldg. 880.

The television camera transmits a signal whenever the scanner moves from a black to a white portion of the image. Moving in a zig-zag fashion across the image from the top to the bottom, it detects one edge of the black line in the image on its left to right scan. The other side of the line is recorded during the right to left scan.

With the constant scanning speed, the times at which these points are encountered provide the blueprint for the outline since they are convertible to positions on a rectangular field.

By referring to data stored in its memory core, a computer working from a special program can recreate the image on a cathode tube display like a television picture; reproduce it on a standard printer; or draw it in a continuous line with the use of an x-y plotter.

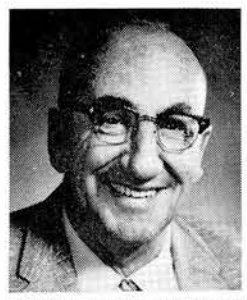
Since information is fed into the computer core memory only when boundaries are encountered, storage is more efficient than in the grid method of digitizing, which typically requires the use of one million bits (binary digits) for every image. In SID, the number of bits used in the core varies directly with the complexity of the image.

SID is capable of producing data about four times faster than the computer can accept the data. It waits for the computer if the boundary crossings are close together. However, the computer waits for the digitizer to create data if there are relatively few boundary lines.

D. R. Morrison, supervisor of Computer Science Division 5256, originally proposed and designed the system as an aid to research in pattern recognition. Original components were fabricated by Gulton Industries. Manufacturing Process Division took over development and the first partially satisfactory output was obtained in August 1966. R. K. Cover (2565) modified the electronic systems and with B. W. Lindsay (5256) developed the computer programs.

Work is currently underway on an improved version called SID II. The new system, which will use integrated circuits instead of transistors, will be more versatile. It is expected to be operational this fall.

Retiring



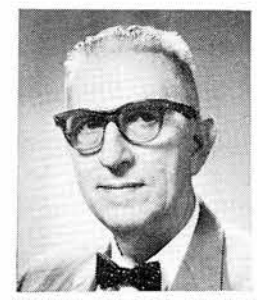
Robert G. Elsbrock, an industrial hygienist at Sandia Laboratory, will retire Aug. 18. He came to work at Sandia in May 1956 in the Industrial Hygiene Division and in 1964 transferred to his present position in Safety Engineering Division 3211.

Before joining the Company, Bob worked six years as the principal chemist for the New Mexico State Public Health Service in food and water analysis. He taught school in Ohio for 10 years and at New Mexico Institute of Mining & Technology for one year.

Bob's retirement plans include returning to the teaching profession. He will teach science at Santa Fe High School beginning this fall. Mr. and Mrs. Elsbrock own a home in Santa Fe. They have three children — all married and four grandchildren. Their son lives in Grand Junction, Colo., a daughter lives in Albuquerque, and a daughter in Dallas.

Bob is looking forward to teaching again. "I like kids and I think teaching is important," he says. "I'm happy about returning to Santa Fe. It's a nice place to live. I like to fly-fish and the Pecos River isn't too far from my house. Being around students will probably keep me young and who knows, I might even have to learn the 'frug'."

* * *



Harold P. Baecker, a plant layout engineer, retired Aug. 3, with more than 18 years at Sandia. He came to work for the Company in October 1948 in the drafting organization. From 1950-52 he was with a mechanical standards group in tool accountability and product planning. He worked in the manufacturing organization from 1952-60 when he transferred to his current job in Liaison Engineering & Coordinating Division 4545.

Mr. Baecker's favorite pastimes are woodworking — "I like to putter about" — and travel — "I want to see a lot more of the U.S. I don't have any specific plans," he says, "except to do some traveling. I like to drive, setting my own pace, doing what I want to do, with no schedules to meet."

Promotions

Edward Salazar (1113) to Staff Member Technical
Edward L. Lane (1332) to Staff Member Technical
Thomas E. Latta (9226) to Staff Member Technical
Lawrence H. Ivy (9422) to Staff Member Technical
Thaddus N. King (1143) to Staff Assistant Technical
Don S. Lovato (4574) to Janitor
Carl J. Hullinger (4622) to Stockkeeper
Ignacio B. Ortiz, Jr. (4514) to Woodworker
Herman T. Gower (4518) to Painter
Ervin L. Smith (4231) to Technician
F. K. J. Derquin (3126) to Typist Clerk
Antonia M. Barnhill (4333) to Record Clerk
Frances L. Chavez (4333) to Record Clerk
David G. Graves (3415) to Mail Clerk
Herman T. Lee (3415) to Mail Clerk
George Nuanez (3415) to Mail Clerk
Raymond K. Sandy (3415) to Mail Clerk
Patti M. Harvey (3126) to Steno Clerk
Sandra N. Mills (3126) to Steno Clerk
Sandra E. Chrisman (3126) to Typist Clerk
Cecelia Griego (3126) to Typist Clerk
Susan K. Walsh (4333) to Record Clerk
Archie R. Gibson (3415) to Mail Clerk
Danny H. Rhoden (3415) to Mail Clerk
Evelyn L. Avery (3126) to Secretarial Stenographer
Carole A. Domres (3126) to Secretarial Stenographer
Julianita Gonzales (3126) to Secretarial Stenographer
Mary Alice Flores (4311) to Stenographer Clerk
Beatrice A. Gutierrez (4312) to Stenographer Clerk
Sylvia W. Ingram (4312) to Stenographer Clerk
Flora L. Ortiz (4312) to Stenographer Clerk
Josephine M. Arnold (3126) to Typist
Arminta L. Robinson (3126) to Typist
Faustina S. Peralta (2552) to Teletypewriter Operator
Wilda M. Kamm (2232) to Document Clerk
Profeso Padilla (4333) to Property Clerk
Jean A. Kirby (2522) to Report Clerk
Maria M. Chacon (2232) to Tabulating Equipment Operator
Sandra L. Lee (4363) to Travel Clerk
Miguel C. Griego (4623) to Service Clerk
Geomy Pohl (2522) to Property Clerk
William E. Forbes, Jr. (8235) to Messenger
Barbara J. Combs (8113) to Secretarial Typist
Mary D. White (8232) to Library Assistant
Timothy C. Roudebush (8235) to Mail Clerk
E. Gay Adams (8231) to Typist
Marie A. Dremalas (8232) to Library Assistant
Barbara A. Farshler (8253) to Senior Clerk
Rita Thorp (4114) to Secretarial Typist
Thomas W. De Haan (1132) to Laboratory Assistant
K. W. Campbell, Jr. (7341) to Laboratory Assistant
Silviano Chacon (1325) to Laboratory Assistant

After Light Plane Ditched . . .

Two Sandia Couples Remember Only Pleasant Events from Caribbean Tour

CESSNA 175 lost at sea.

Now they can talk about it—a fabulous three-week tour in light planes on the Caribbean islands. Four Sandians—Larry (7335) and Marilyn (4135) Bennett, Duane (7335) and Norma (7340) Arlowe—made the trip last October.

The trip was marred when Larry's Cessna 175 conked out on the way back. He ditched between Puerto Rico and South Caicas. The couple had just enough time to get clear of the craft before it sank. They lost everything—luggage, cameras, souvenirs, even Marilyn's purse.

Duane was flying a Cessna 182 and was carrying the life raft. During the entire trip—more than 5000 miles—they had flown within sight of each other for just such an emergency. Duane managed to drop the raft within 12 feet of the couple in the water.

Larry and Marilyn were wearing life jackets which helped when the hand-pump inflation gear on the raft didn't work. It took Larry 30 minutes to inflate it with lung power. They spent the next 27 hours on the raft—**wet,** cold, sleepless, hungry and thirsty.

Duane, circling overhead, radioed for help. He relayed their position and remained in the area as long as he could.

After an extensive search, Larry and Marilyn were picked up about noon the next day by the U. S. Coast Guard Cutter "Sagebrush." They were taken back to Puerto Rico and treated royally by the Coast Guard personnel. They returned to Albuquerque by commercial jet, their only luggage the lifesaving raft.

"Now we can laugh about it," Larry says. "On the raft I remember an ugly fish following us. The hungrier I got, the prettier that fish looked. Finally, I grabbed the aluminum oar and managed to clobber him. He sank like a rock. Later, a gull landed on the raft. He looked as beat as we did. That was one pooped gull. I grabbed for him but he had enough energy to take off fast."

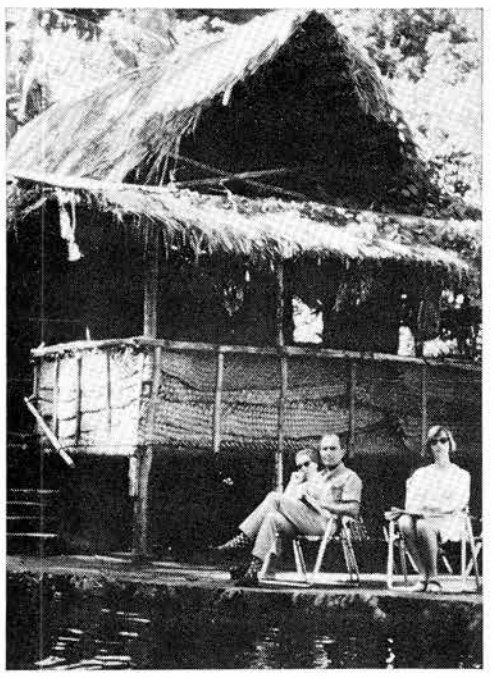
Now the four Sandians remember the pleasant things about the trip—bustling Nassau, great displays of beautiful tropical flowers, banana boats, jungle waterfalls, clear lagoons and great skin diving, fine dining, friendly people, and an unspoiled tropical paradise on the island of Dominica.

"This was the place to get away from it all," Duane says. "We'd even like to go back in a light plane."

For several months after the accident, Marilyn didn't want to fly anymore. Now she would consider another trip. Larry collected the insurance for the loss of the plane and he's considering joining a flying club.

Duane insists that light plane travel to the Caribbean is the only way to go. The customs people are cooperative to light plane pilots. The view from the air is terrific. The light plane gives access to out-of-the-way islands, expands many times the area covered by the average tourist.

"Time helps," Larry says. "After a while you forget the bad things and remember only how much fun you had."



TWO SANDIA COUPLES, touring the Caribbean in light planes, found this unspoiled tropical paradise on the island of Dominica.

Welcome . . . Newcomers

July 24 - Aug. 4

Albuquerque
Abel Anaya, Jr. 4574
**Louis D. Archuleta 3154
David J. Asbury 3415
Wanda L. Conger 3126
Ann W. Dunsworth 3126
**Erlinda Garcia 3154
Sandra S. Hunt 3126
Stanley E. Logan 1514
*Sam T. Mancuso 3111
Dennis A. Oliver 2223
**Marybelle Romero 3154

Colorado
Michael A. Gusinow, Boulder 5122
Gary C. Tisone, Broomfield 5121

Illinois
Marcus Bunting, Tuscola 5633

Mississippi
Charles S. Field III, Starkville 7121

New Mexico
Nancy C. Aucoin, Roswell 3133

New York
Milton J. Clauser, New York 5151

Oklahoma
Robert G. Easterling, Stillwater 2153

Texas
L. Patrick Murphy, Lubbock 4151
James D. Roger, Mederland 1514

Wyoming
William M. Spaulding, Laramie 1314

* Denotes rehired
** Denotes temporary

Deaths

Valentine Hoffman, a retired Sandia employee, died July 29 following an illness. He was 74.

He was employed at Sandia from April 1952 through June 1958 as an engineer in the Materials organization.

Survivors include his widow, a daughter, and three grandchildren.

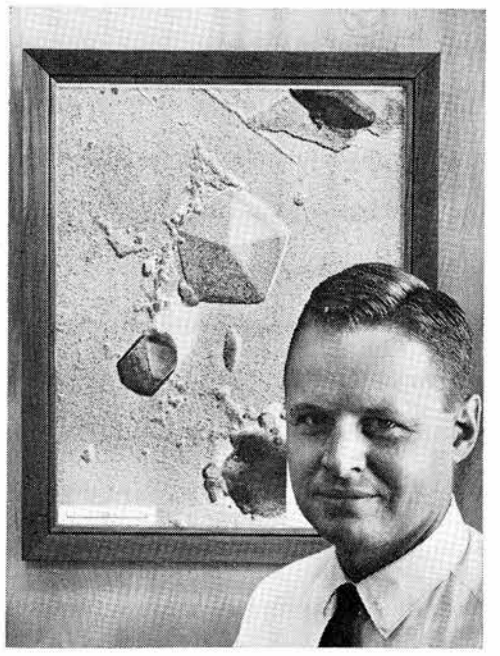
* * *

Roy H. Keyser, supervisor of Integrated Contractor Section II 2523-2, died suddenly Aug. 1. He was 50.

He had worked at Sandia since June 1948.

Survivors include his widow Ruth (3321), a daughter and two grandchildren.

Take Note



UNUSUAL PHOTOGRAPH of a pentagonal-shape plane of a single gold crystal accompanied a technical article by R. L. Schwoebel (5123) and will appear on the cover of a new book written by a physicist in Singapore and printed in England.

In May 1966 the JOURNAL OF APPLIED PHYSICS contained an article by Richard L. Schwoebel (5123) on the structure of a particular plane of a gold single crystal. One of the illustrations, showing a pentagonal shaped formation, was on the magazine's cover.

The same photograph will be on the cover and dust jacket of a forthcoming book, written by A. P. Cracknell of the Department of Physics, University of Singapore. He had seen the earlier journal and requested permission for use of the illustration for "Crystals and Their Structures," which is being published by Permagon Press, Oxford.

* * *

Adm. Alfred M. Granum, who retired from Sandia's purchasing organization in January 1964, was recently appointed chairman of the New Mexico Regional Export Expansion Council by Secretary of Commerce Alexander B. Trowbridge. His term will expire June 30, 1969. Adm. Granum is president of the A. M. Granum Co. in Albuquerque, a manufacturers' agent firm with foreign contracts.

* * *

Sandia Toastmasters Club 765 recently installed several Sandians as new officers. Bill Emrick (5624) is president, Bob Nelson (1434) is executive vice president, Lou Feltz (9323) is educational vice president and Rudy Baca (9229) is treasurer. The group meets Thursdays at 6:30 p.m. at Wyatt's cafeteria and welcomes new members. Call Bill Emrick (877-0674) for further information.

* * *

The Sandia Laboratory Slow-Pitch All Stars will face the Sandia Base team at 8:30 p.m. Aug. 28 during the opening evening of the Interbase Softball Tournament. The games will be played at Manzano Base Aug. 28 through 31 starting at 7 and 8:30 p.m. each evening. Spectators are welcome.

New Sandia Reactor Goes Critical; Full Operation Expected This Fall

After first achieving criticality June 2, Sandia's newest reactor — the Annular Core Pulse Reactor (ACPR) — is currently undergoing start-up tests. More than two years in design and installation, ACPR will bring a new dimension to Sandia's radiation effects program. Full power and routine operation of ACPR is expected this fall.

As with the SPR-II (pulsed) reactor, ACPR will be used to determine the effects of radiation on various materials, components and systems. It will provide neutron fluxes as great as the SPR-II, but in a larger volume than is available with SPR-II. The ACPR test chamber is nine inches in diameter and 15 inches long.

During the few thousandths of a second that the reactor is at its pulsing peak, before automatically shutting itself down, ACPR's energy output — in terms of electrical kilowatts — will be 20 times greater than the rated output of Hoover Dam.

ACPR's core is immersed in a 15,000-gallon tank of demineralized water, about 27 feet deep and 10 feet in diameter. It has 169 fuel rods, made of enriched uranium-zirconium hydride. The fuel rods, encased in stainless steel, measure about two feet long by one and a half inches in diameter.

Components, subsystems and complete electronic systems for radiation effects testing may be lowered through a tube into the large experiment cavity. During a single pulse, they may be exposed at the rate of 5×10^{18} neutrons per square centimeter per second. Reflectors at the top and bottom of the experiment cavity insure more uniform neutron flux distribution.

Located in Bldg. 6588 in Area V, the ACPR facility will be operated by Applied Radiation Science Department 5220 under A. W. Snyder. It is the largest and most powerful reactor of its type in the world.

CITY DATA PROCESSING PERSONNEL recently toured Sandia's computer facilities and met with members of the computing organization. Shown at the IBM 3600 computer console with Charlie Clendenin (9411-4) second from left, are (l to r) Benny Ruiz, Howard Bentz and Gilbert Benjamin. Bob Holeman is seated at the console.

Speakers

D. W. Ballard (2564), "First Hand Impressions of Life Behind the Iron Curtain," Sunport Optimist Club, Aug. 2, and Sandia Optimist Club, Aug. 3.

Albert Goodman (5637), "Some Things that the Future May Bring," Heights Optimist Club, Aug. 2.

C. S. Johnson (7252), "ESP—Past and Present," Sunport Optimist Club, Aug. 9.

J. P. Grillo (3311), "Beryllium, the Supertoxic Supermetal," Rio Grande Kiwanis Club, Aug. 10.

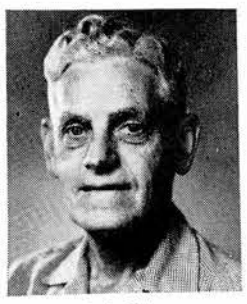
R. E. Day, Jean Gillette and W. H. Trump (all 3132), "Training Activities at Sandia Corporation," University of New Mexico graduate class in education, July 28.

E. D. Jones (5151), "Nuclear Magnetic Resonance Experiments in fcc Rare-Earth Pnictide Intermetallic Compounds," UCLA Physics Department Colloquium, Aug. 3, Los Angeles.

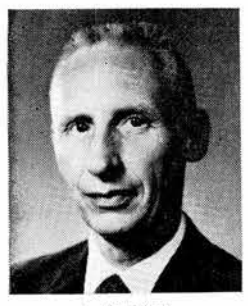
R. S. Claassen (5100), "Research at Sandia," Sandia Optimist Club, Aug. 10.

Service Awards

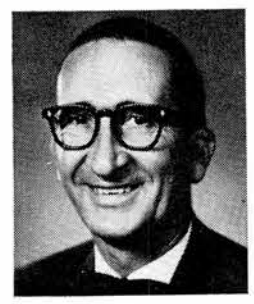
20 Years



R. L. Bishop
4224



A. R. Eiffert
4210



D. D. Wader
4234

15 Years

J. R. Ames
1424

C. A. Corbin
4224

Winnie DeWitt
3210

L. A. Dillingham
2223

D. M. Ellett
1541

Carl Endres
7341

A. R. Engquist
2111

Ruth Gustin
4234

Beulah Hansen
9411

E. R. Helz
8163

D. E. Hinman
4315

H. O. Howe
4234

F. G. King
7311

G. W. Krause
2544

D. B. List
7123

Dorothy Matlack
3413

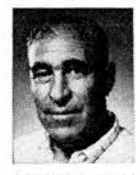
Velda Messersmith
3241

Orelio Montoya
1133

W. L. Morehouse
8166

W. E. Petty
2131

G. W. Randle
7135



Serefino Sanchez
3312

Wilfred Sanchez
4221

L. M. Spivey
8138

Authors

F. J. Conrad and B. T. Kenna (both 1121), "Separation of Radioselenium by Dry Volatilization," July issue, ANALYTICAL CHEMISTRY.

E. D. Jones (5151) and Bruno Morosin (5131), "Determination of the Sign of the Nearest - Neighbor Exchange Interaction in GdAs," July 10 issue, PHYSICAL REVIEW.

G. J. Simmons (5612), 'Two Algorithms for the Direct Computation of Binary Correlation Functions," forthcoming issue, PROCEEDINGS OF THE IEEE.

E. A. Aronson and C. W. Harrison, Jr. (both 1425), "On the Evaluation of Potential Integrals Occurring in Antenna Theory using Digital Computers," July issue, IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION.

C. D. Taylor (1425), "Thin Wire Receiving Antenna in a Parallel Plate Waveguide," July issue, IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION; "Electromagnetic Scattering by Thin Inhomogeneous Circular Cylinders," July issue, RADIO SCIENCE.

S. W. Key (1142), "The Gruneisen Tensor for Anisotropic Materials," June issue, JOURNAL OF APPLIED PHYSICS.

J. D. Kennedy (5133) and C. W. Curtis of Lehigh University, "Transient Electron-Inertia Field Produced by a Strain Pulse," Vol. 41, page 328, JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA.

W. B. Gauster (5214) and D. H. Habin (1435), "Electronic Volume Effect in Silicon," June 12 issue, PHYSICAL REVIEW LETTERS; W. B. Gauster and M. A. Breazeale of Oak Ridge National Laboratory, "Interference of Finite Amplitude Ultrasonic Waves in Solids," July issue, JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA.

J. L. Wirth (5212), "A Review of Two Residual Network Programs," April issue, ELECTRO-TECHNOLOGY.

R. L. Schwoebel (5123), "Surface Vacancies on Metal Crystals," July issue, JOURNAL OF APPLIED PHYSICS; "Surface Step Motion and Filamentary Crystal Growth," Report on 27th Annual Conference on Physical Electronics.

G. L. Cano (5232) and G. J. Lockwood (5241), "The Response of NaI(T1) and CsI(T1) Crystals to Low-Energy Heavy Ions," Vol. 157, No. 3, PHYSICAL REVIEW.

R. E. Cuthrell, F. A Greulich, and A. W. Lynch (all 1133), "A Micropenetrometer for the Characterization of Polymer Surfaces," July issue, REVIEW OF SCIENTIFIC INSTRUMENTS; R. E. Cuthrell, "A Macrostructure and Environment Influenced Surface Layers in Epoxy Polymers," Vol. 11, pages 949-952, JOURNAL OF APPLIED POLYMER SCIENCE.

P. D. Thacher (5142), "Effect of Boundaries and Isotopes on the Thermal Conductivity of LiF," April 15 issue, PHYSICAL REVIEW.

H. H. Wicke (5261), "Concerning an Arc Theorem," Vol. 14, page 290; "On Product Mappings and Cartesian Products of Spaces Having Bases of Countable Order," Vol. 14, page 424; "On Inductively Open Continuous Mappings of p-Spaces," Vol. 14, page 162, all NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY.

H. H. Wicke and J. M. Worrell (both 5261), "Open Continuous Mappings of Spaces Having Bases of Countable Order," June issue, DUKE MATHEMATICAL JOURNAL; "Uniformly Monotonically Complete Lindelofian Open Continuous Mappings of Metrizable Spaces," April issue, NOTICES OF THE AMERICAN MATHEMATICAL SOCIETY.

R. A. Lefever and John Matsko (both 5154), "Transparent Yttrium Oxide Ceramics," August issue, MATERIAL RESEARCH BULLETIN.

10 Years

Aug. 11-24

W. L. Clement 2572, Mary M. Campbell 3126, H. E. Frankel 3131, J. C. Dresser 7133, K. W. Shrock 7335, T. J. Tucker, Jr. 5133, L. A. Kent 1141, J. F. Zuni 4231, Florence H. Archuleta 2232.

J. D. Hitchcock 8138, T. K. O'Kelley 8255, J. P. Hoice 1422, H. R. MacDougall 1541, Antonia M. Garcia 2234, E. W. Scott 2412, R. R. Zottnick 2434, J. W. Richardson 2521, R. W. Weaver 8142, A. A. York 2152, O. H. Schreiber 8139, and Jeanette B. Passmore 2234.

Events Calendar

Aug. 11-13—Inter-Tribal Indian Ceremonial, Gallup.

Aug. 11-13, 17-20 — Tennessee Williams' "The Glass Menagerie," Old Town Studio, 1208 Rio Grande NW.

Aug. 11-28 — Bertold Brecht's "Mother Courage," Corrales Adobe Theater.

Aug. 11-13—National Arabian Horse Show, State Fair Coliseum.

Aug. 11, 16 and 19 — "The Marriage of Figaro"; Aug. 12, "La Boheme"; Aug. 17, 24, "Carmen"; Aug. 18, 23, "Salome," Santa Fe Opera.

Aug. 11-20—"The Subject was Roses" and Aug. 23-Sept. 3, "Born Yesterday," Santa Fe Theatre Company, Greer Garson Theatre.

Aug. 12-13—Wheeler Peak, N. M. Mountain Club, leader Lilly Rendt, tel. 298-9270.

Aug. 19 — Holy Ghost Canyon-Windsor Trail. N.M. Mountain Club, leader Ellen Hippeli, tel. 255-8295.

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CLASSIFIED ADVERTISING

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

RULES

1. **Limit: 20 words**
2. **One ad per issue per person**
3. **Must be submitted in writing**
4. **Use home telephone numbers**
5. **For Sandia Corporation and AEC employees only**
6. **No commercial ads, please**
7. **Include name and organization**
8. **Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.**

FOR SALE

Cars and Trucks

'60 T-BIRD, $550. Benjamin, 298-4909.

'62 CHEV. Greenbriar bus, $650; '58 Ford station wagon, $150. Haskell, 865-7900.

'57 PLYMOUTH V8, 66,000 miles, original owner. McKinley, 268-4779.

'48 CHEVROLET 2-dr., less than 10,000 miles. $595; '57 Pontiac Star Chief, 4-dr., $175. Braffett, 255-1381.

'65 DODGE DART, 6-cyl., maroon, 2-dr., radio, ww tires, $200 below NADA. Lee, 268-9137.

EL DORADO overhead camper on ¾ ton truck. Schafer, 299-6217.

'63 VW sedan, radio, leatherette interior, $850. Staller, 298-8532.

'61 COMET 4-dr., stick shift, $395. Schowers, 911 Chama NE, 255-9279 after 5.

'66 PLYMOUTH Belevedere, lt. blue, 2-dr., 17,000 miles, one owner, factory air, PR, PS, $1900. Whitford, 242-6554.

'55 DESOTO 2-dr. HT, V8, AT, R&H, PS, PB, power seat, $150. Schulze, 298-9328.

'65 EL CAMINO, red w/white cover, R&H, low mileage, $1875. Browne, 344-9675.

'62 CHRYSLER Newport, low mileage, 2-dr. HT, PS, PB, AT, $1050. Sheaffer, 255-9473.

'61 RAMBLER wagon, PS, PB, one owner. Long, 268-8429.

'65 VW, new brakes, sell for much less than blue book, can see all weekend. Atkinson, 298-1543.

'56 T-BIRD, removable hardtop, $1400. Rettig, 296-3635, after 5:30.

TRUCK w/8' camper. Maes, 855-9220.

Real Estate

ROBERSON 3-bdr., 1¾ bath, utility, kitchen, LR-DR, pitched roof, sprinklers, shaded yards, McGuckin, 298-8091.

LARGE CORNER LOT located at Comanche NE, 1 block east of Moon, all utilities available. Emery, 299-1675.

SELL or lease w/option to buy 3-bdr. 1¾ bath, large garage, fireplace. Clark, 268-4843.

MOUNTAIN CABIN, Deer Lake Estates, elevation 8400 ft., custom-built shell (unfinished), 2 bdr., LR, kitchen, room for full bath, 24x6' deck, Highway 126, 9 miles from Cuba. Holmes, 255-4722.

4-BDR. ROBERSON, 3 baths, paneled den, fp, carpet, $1000 below appraisal for cash to GI loan. Levesque, 299-1213.

3-BDR., den, dbl. garage, fp, 1¾ baths, workshop, corner lot, fenced, landscaped, near Sandia High and Cleveland. West, 299-5521.

3-BDR., 1¾ bath, SE heights, near base, schools, carpeting, AC, screened porch, auto. water softener, woodwork shop. Hawley, 255-0332.

TWO wooded acres w/3 large Ponderosa pines, NM. 10, 13 miles south, $2100 total; 10 acres Estancia Valley, $2900 total. Bruington, 255-6164.

2-BDR., garage, university area, 1037 Columbia NE. Mitchell, 268-3873.

LOT: 75' frontage, 1 block from Los Altos Grant school, all walled in, utilities, studs and sidewalk included, $3750, 1021 Glorietta NE. Cordova, 299-1652.

VACATION ACREAGE on the Blanco River, 9 miles from Pagosa Springs, Colo., 198 miles from Albuquerque. Dirnberger, 298-5172.

2-BDR., fp, garage, hw-carpet, drapes, cfa, AC, $480, qualify, take over payments $89/mo. Campbell, 1114 Princeton NE, 256-3214.

LARGE 2-bdr., den, fp, 1¾ baths, garage, near Base, $500 down, balance $10,600, consider trade. West, 299-6695.

3-BDR., many extras, negotiate price, terms, open house, 3505 Pitt NE, every day till sold. Sharp, 298-0402, 255-0048.

BELOW FHA appraisal, 3-bdr., den, 2 baths, DR, dbl. garage, pitched, fp, carpeted, disposal, dishwasher, AC, landscaped, sprinklers, walled, extras. Hoagland, 299-7097.

3-BDR., 1¾ bath, wbfp, disposal, drapes, carpet, AC, cfa, 18'x24' covered patio, garage, prof. landscaping, walled, near schools & shopping. DeWerff, 298-1029.

6 ROOMS, $8950, redecorated, carpet, paneling, patio, barbeque, carport, trailer-boat access, fenced, $80/mo., $200 down, Candelaria NE. Bascom, 299-1662, 299-9044.

MOUNTAIN LAND: 2 acres, $2500, one acre, $1500, large house, 4-bdr., w/five acres, $37,250. Harrington, 282-3188.

Miscellaneous

INTERNATIONAL LIBRARY of Music, for piano, 14 volumes, 1945 edition, $50. Magruder, 255-2078.

PUPPIES need good home, unregistered beagles and others. Hansen, 898-3173.

8 FT. x 15 in. wading pool and cover, $5; boy's 26" bike, $10; stroller, $10. Reinman, 256-9737.

FOUR semi-formals — pink, lavendar, blue & green, from size 10-12. Sigma Apts., 5801 Haines NE, Apt. 70, after 5. Rhodes, 299-6435.

26" BOY'S bicycle, 3 spd. English racer, front and tail lights, $25. Thayer, 299-3127.

CHEST OF DRAWERS, walnut, $30; Kroehler davenport, makes into bed, nylon burgundy upholstry, $15 or best offer. Collis, 255-0470 after 5.

FENDER Bassman amplifier & Fender precision bass guitar, $410 or best offer. Cordova, 298-2398.

14' ALUMINUM BOAT, 35hp electric start motor, trailer, skies, life jackets, other extras, $450. Flowers, 282-3458.

CAMP TRAILER, 15', w/brakes, $575; electric guitar, 3 pickups, $35; bicycle, girl's 24", $15. Bell, 299-4643.

BASSETT bedroom furniture: silver gray, triple dresser w/French beveled edge, ¼" plate 32"x 51" mirror, bookcase headboard, $75. Pass, 268-1845.

DARK BROWN 100% human hair wig, w/stand. Luna, 242-6409.

WURLITZER spinet piano, mahogany finish. Garcia, 298-3924.

20 SQ. YDS. used carpeting, Sear's 100% wool, beige, $35; portable room cooler, needs pump, $25; 2 pr. men's hockey skates, $4/pr. Harper, 256-1657 after 6.

TRAVEL TRAILER, 15', completely self contained, shower, stool, etc., $1750 or best offer. Brooks, 256-3920.

NEW ELECTRIC Sunbeam manicure set, never used, complete w/extra parts, make offer. Lucero, 243-7517.

FLOOR FURNACE, $35; single maple bed, $15; sliding closet doors, $10, mahogany door, $5. Schuster, 256-0029.

OUTBOARD 5hp Sea King, $44; station wagon top rack, $11. England, 299-0464.

SWING SET, 2 swings and glider, $7. DeZeeuw, 12512 Loyola NE, 296-1003.

.32 AUTOMATIC MAB; hand carved chess set, light and dark mahogany; reel type mower, Sear's walk and start. Gary, 256-7325.

'67 FORD ENGINE PARTS: 427 cu. in. cylinder heads (complete); power steering assembly. Reif, 265-7264.

GAS STOVE, 36" Hardwick, bought from Gas Co., used for 2 mos., w/5 burners, grill, burner with a brain, rotisserie, broiler, oven, timer, $125 or reasonable offer. Reilly, 296-1878.

6-YEAR-OLD sorrel gelding, will consider trade. Baldwin, 877-2901.

4 OR 5 HP 4-cycle engine w/horizontal shaft; folding music stand. Cave, 299-5066.

TV, Slimline console, walnut finish, new 23" picture tube, 1 yr. warranty. Kutzley, 255-3572.

2 AES HI FI speakers, 12 watt amplifier, DX 40 and VFO 500 watt phone CW transmitter, swap for CB, ham gear. Baker, 296-2190.

120 BASS Scandali accordion w/case, $180; formica counter top, new Celedon green, 22½"x58", $5. Stromberg, 255-6131, 1029 Calif. SE.

12 VOLT deluxe evaporative floor model air conditioner for car, has ice compartment, $20. Hodgden, 255-3191.

BICYCLE, 20" Spider, 3-spd. shift, hand brakes, $24; or 20" Spider without shift, standard coaster brake, $18. Duvall, 299-8744.

CANOPY BED, double, maple, sell complete w/Beautyrest mattress & box spring, canopy cover, matching dust ruffle, curtains, $100. Luna, 298-7337.

6-YR. Den-n-heir crib & Kantwet mattress, walnut, $18; 25hp outboard, $50; room cooler $20; pr. of 12" speaker baffles, corner type, walnut, $15. Longfellow, 299-7062.

21" CONSOLE, Packard Bell, black and white, Downey, 268-9993.

WEIMERANERS, AKC registered, excellent show & hunting bloodlines, males, $75, females, $50; sorrel mare, 7 yrs. old, gentle kids horse, $150. Hostetler, 898-3785.

ICE SKATES, Girl's size 3, $5; men's size 9½, $3; bicycles: girl's $8, boy's $10; men's bowling ball bag, $10. Tjeltweed, 299-0032.

SEAR'S 14 cu. ft. refrigerator; two-speed blender. Mottern, 299-8817.

IBM Executive typewriter, 18" carriage, carbon ribbon, low mileage, new $690, now $540 or make offer. Mick, 299-5814.

CAR air conditioner (Cool-Pack) from '62 Chevrolet. Phillips, 299-7074.

BICYCLE, boy's 20" Schwinn, just cleaned and painted, needs new tires, $10. Looney, 255-7349.

TEN CARTONS and two wardrobes, used once by Bekins, for moving or storage. Miller, 282-3189 after 6.

WAGON WHEELS, $1 ea., old, heavy, beat-up; 6 pieces of ¾" conduit. Pritchard, 268-9618.

COMPLETE Playtex nurser set; stroller; potty chairs; baby clothes; maternity slacks — tops, cocktails, size 12-14; Brownie uniform, size 7. Caudle, 298-9120.

1873 WINCHESTER RIFLE, $35; 1848 Harpers Ferry cap & ball rifle, $85; antique OG Weight clock, $79. Welker, 299-1179.

TWO SEWING MACHINES, one portable and one old-fashioned treadle, best offer. Simpson, 299-1895.

MOTORCYCLE, 1963 Honda 150cc, $200. Robert, 125 El Pueblo Rd. NW, 898-0491.

TIRES, set of 4, w/walls, size 8.25-14, $10. Johnson, 298-5286, after 5:30.

NYLON NET PLAYPEN, $10. Coleman, 299-8321.

MEMBERSHIP flying club: Flying 8 Cessna 172 $6/hr. wet, membership $700. Goettsche, 298-0902, 298-0768.

AKC Golden Retriever puppies, excellent for pet, show, field. Lewis, 299-0588.

TRAILER HITCH for '61 Chev., $3.50; lawn sweeper, $7; banana bike seat, $2.50. Wilde, 3925 Hermosa NE, 344-6079.

FRIGIDAIRE STOVE; child's bed, LR drapes; bathroom pole shelves. Uhler, 299-8271.

7.57 '93 MAUSER RIFLE, German made 7x57 Peruvian Mauser; 8x57 '98 Mauser, all with matching numbers; Collins ART-13 Autotune transmitter. Blackmon, 298-2095.

54" DOUBLE DRESSER w/30"x44" plate glass mirror; 85" oak bookcase headboard for two twin beds or one dbl. bed. Sundberg, 299-2177.

SCREEN DOOR, wooden w/hardware, 36" wide, $5 pickup, $10 deliver. Gels, 298-2059.

RAINBOW FLYERS, one membership, Cessna 182 Skylane, zero SMOH. Risse, 299-5002

BOAT, 14.5' fiberglass runabout w/trailer, 40hp Mercury motor, $600. Howard, 255-7846.

NORGE CLOTHES DRYER; large 2-burner Coleman stove; 2500 BTU tent heater; rollbar for sportscar. MacDougall, 299-8496.

TENT, 10x12 complete w/sewed in floor, $20; Coleman lantern, 2-mantle, $5; Coleman stove, $5. Chavez, 299-8194.

GO-CART w/WesBend engine and heavy frame; large sliding screen door, small (1'x3') window screen, both made by Plasco. Chandler, 296-3323.

2 HOUSE TRAILER FRAMES (chassis), $35 and $85. Chavez, 298-5091.

FOR RENT

ROOM with kitchen privileges, furnished, on Corp. and city bus line. Morgan, 299-8726.

ROOM in private home near University, garage available, meals if desired, room $40 per month. West, 242-4858.

WANTED

DEPENDABLE part time help, must be able to drive. Ganzerla, 296-1211 after 5:30.

RIDE from 2420 Marez SW to Sandia Base. Chaves, 877-0769.

CAMOUFLAGE PARACHUTE. Geibel, 299-0275.

LIONEL electric train set. Seay, 298-7227.

RIDE from vicinity Boatright & Constitution once or twice a week as passenger or in car pool. Devor, 298-9743.

RIDE to within 50 miles Kansas City, Mo., leave Tuesday, Aug. 15, arrive Aug. 16, will share expenses. King, 268-5681.

SMALL GIRL'S bicycle. Nelson, 264-1074.

GOOD 5-string banjo. Day, 265-0420.

WORLD BOOK encyclopedia set. Mickey, 255-8412.

TWIN BED SPRING; also youth bed w/mattress and spring. Peterson, 256-7514.

MALE w/car to join car pool vicinity of Indian School Rd., and Moon to parking North of Bldg. 880. Smith, 299-1264.

RAFT, 4-man or larger, inflatable; wardrobe boxes for moving clothes. Holzhauser, 242-7131.

RIDE from San Mateo and Kathryn to Bldg. 802. Bearden, 255-3842.

ORIENTAL lamp table and other items. Devor, 298-9743.

LOST AND FOUND

LOST—Realistic Jet Stream radio, key ring w/3 keys and clippers; road runner bolo tie; wallet, biofocal glasses in silver case, pocket knife w/silver handle in leather case. LOST AND FOUND, tel. 264-2757, Bldg. 610.

FOUND—Tie clasp, earring, block of silicone diode, pocketknife. LOST AND FOUND, tel. 264-2757, Bldg. 610.

AUGUST MOON BALL, a swinging far-out affair featuring a wine taste and prime rib dinner, is scheduled tomorrow evening starting at 6 p.m. at the Coronado Club. Kermit (2564) and Pat Goettsche invite you to try the moon music of Max Madrid. Tickets should be picked up by 9 p.m. tonight at the Club office.

Coronado Club Activities

New Board Organizes; Full Calendar Of Events Scheduled This Month

With the August Moon Ball scheduled tomorrow night, the annual Water Carnival and Golden Nugget Night coming up in a couple of weeks plus a Teenage Go-Go and some exotic buffets set for Social Hours, the remainder of the Coronado Club August calendar will wrap up the summer season in grand style.

Enthusiasm prevails. The Club is in a strong position with current membership at 2130. Attendance through the past year at a string of swinging social events has been outstanding.

At the annual meeting last Monday, the following were elected to the Board of Directors:

D. M. Olson (1510) and J. V. Durant (AEC) will serve for one-year terms.

Two-year terms will be served by G. O. Moe (5542), R. W. Mottern (7322), O. B. Tjeltweed (8159) and W. G. Weinbecker (4252).

August Moon Ball

The August Moon Ball, a semi-formal affair, gets underway tomorrow at 6 p.m. with a wine taste featuring a variety of vintages. A prime rib of beef dinner will be served at 7:30. Max Madrid's orchestra plays for dancing starting at 9 p.m.

Tickets, $3.25 for members, $3.75 for guests, must be picked up at the Club office by 9 p.m. tonight.

Teenage Go-Go

Sparks will fly when the Circuits plug into the bandstand for the monthly Teenage Go-Go, Thursday, Aug. 17. Livewire Carl Bell (KQEO Radio) will emcee the gyrations from 7:30 until 10:30 p.m. Member parents must pick up tickets (members 25 cents, guests 50 cents) by 5 p.m. Thursday, Aug. 17.

Water Carnival

Saturday, Aug. 26, is the date for the Coronado Club's annual Water Carnival. The event is family affair with swim races, diving competitions, and other special events for the kids, ages 6 through 17. For the parents, refreshments at special prices will be available. Recreational swimming starts at 11 a.m., the special events at 12:30. The fun runs all afternoon in the patio area. No tickets required, but members only please.

Golden Nugget Night

Following the Water Carnival, a Nevada-style carnival will continue in the ballroom. Golden Nugget Night will feature games of chance using play money. Real prizes go to the big winners. The excitement starts at 8 p.m. and continues until 12. Sandwiches and other goodies will be available. The Rio Ramblers will play for dancing at 9 p.m. Admission (no reservations required) is $1 for members, $2 for guests.

Social Hours

Mexican food, the kind New Mexicans like, will be spread tonight for the social hour buffet. Don Lesman will make the music in the ballroom while Pat Reich and piano entertain in the lounge. The buffet costs $1.50 for adults, $1.25 for kids.

On Friday, Aug. 18, the famous Coronado Club chuckwagon roast beef will be the buffet feature while Elton Travis makes the happy music. Pat and piano remain in the lounge. The buffet costs $1.75 for adults, $1.50 for kids.

Chinese food will be the featured buffet for social hour Friday, Aug. 25. Tom Kelly and his Hong Kong Combo will be on the bandstand while Pat Reich plays in the lounge. Cost is $1.50 for adults, $1.25 for children.

Fashion Show

Next Monday at noon, Norma Manson of Sears will present a fashion show called "Fall Fashion for Career People" for luncheon diners. Another style show called "Youthquake" will be presented during the noon hour Monday, Sept. 11.

Bridge

The duplicate bridge group will play an "Olympiad Fund" game Monday, Aug. 14 at 7 p.m. Ladies bridge meets at 1:15 p.m. Thursday, Aug. 17. Regular duplicate bridge will be played Monday, Aug. 21, at 7 p.m.

Dance Classes

A new 10-week series of basic and advanced dance instruction will be offered to Coronado Club members beginning Monday, Sept. 11.

The basic course from 7 to 8:30 p.m. will include instruction in both American and Latin dances.

The advanced course from 8:30 to 10 p.m. will include advanced material in the dances taught in the basic course plus swing steps and Bossa Nova.

Registration will be taken at the Club office prior to the first lesson, Sept. 11.

The American dances will be taught by Gail and Jennifer Ward and the Latin dances by Charles and Holly Balistrere. The fee per course is $20 per couple.

NMIM&T Metallurgy Classes Offered Here

Two advanced courses in metallurgy will be offered in the Albuquerque area this fall by New Mexico Institute of Mining and Technology.

The first class, Advanced Mechanical Metallurgy 543, is tentatively scheduled to meet Thursdays from 4 to 7 p.m. starting Sept. 14.

Advanced x-ray metallography, Metallurgy 545, is scheduled to meet from 4 to 7 p.m. Wednesdays beginning Sept. 13.

Both classes will meet in Rm. 120, Mitchell Hall, University of New Mexico.

It is possible that these courses may be rescheduled to accommodate interested students. For additional information call University Relations Division 3134, tel. 264-6989.

Dean Irvin Devotes Spare Time to Educational Functions of Reserve

As supervisor of Employee Benefits Division, Dean E. Irvin wears many "hats." The same is also true of his activities as an Army Reserve officer.

Dean is commandant of a new NCO Academy and is deputy commandant of the 4153rd U. S. Army Reserve School which is in session on Sandia Base from July 30-Aug. 12 for 375 Reserve and National Guard officers from many parts of the country.

This year is the first time the command and general staff college course has been offered on Sandia Base. "This is the highest level military training offered to Army officers and is required for promotion into the general officer rank," Dean explains. "It is also available to regular Army officers and Naval and Air Force Reserve officers."

Dean joined the Reserve in 1940 and saw five and a half years of active duty during World War II. In 1950 he joined the Army Reserve School, serving six years as infantry instructor, five years as director and instructor of the Civil Affairs Branch and, for the past six years, has been deputy commandant of the 4153rd school. He presently holds the rank of lieutenant colonel.

"I find this school the most rewarding of my assignments in the Reserves," he says. "Its mission is to provide a progressive system of military education for Reservists not on active duty. Its objective is to prepare individuals for duties they may be asked to perform in time of national emergency."

He developed the staff study which led to establishment of the Reserve Duty training here just a year ago and worked closely with Sandia Base Headquarters to obtain use of training facilities on Base.

In addition to the present course, the school also offers officer career-level common subject courses, and "hardskill" military occupation specialty (MOS) courses for enlisted men.

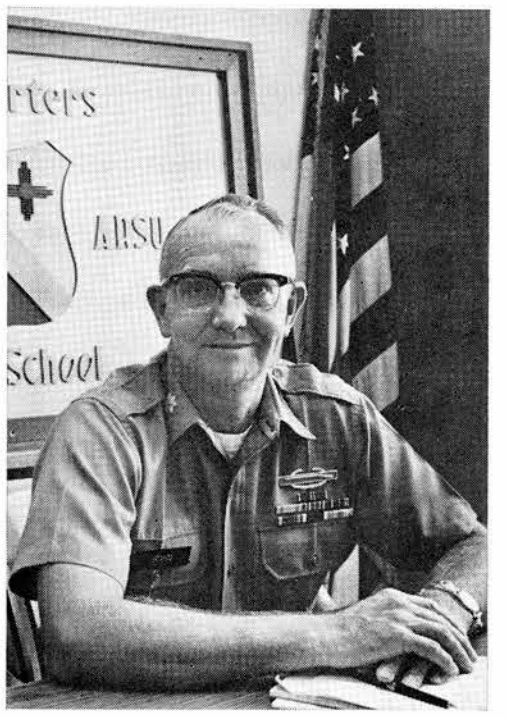
The local NCO Academy is one of a number being established in individual states by the Fourth U.S. Army. Their mission is to "provide career developmental instruction to potential and actual non-commissioned officers of the Reserve components (Army National Guard and Army Reserve)." Some of these men were previously trained at the regular Army non-com school at Fort Hood, Texas.

Starting in September, both the New Mexico National Guard units and Reserve units will send their high potential non-commissioned officers to Sandia Base for nine weekends of intensive classroom training and one week of field training. Upon "graduation," the participants will receive diplomas from the Fourth Army.

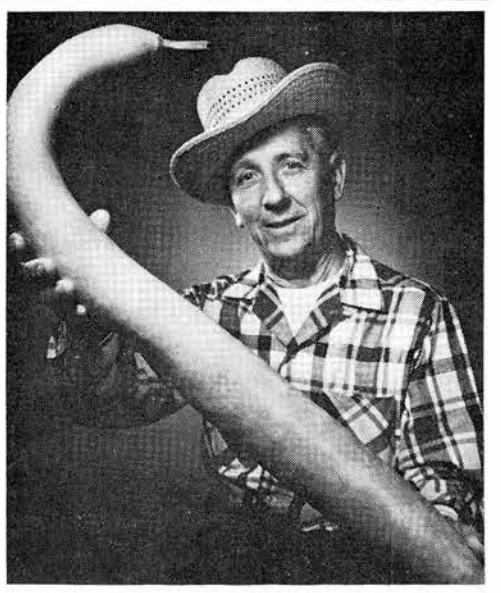
Significant subjects to be covered during the sessions include leadership, methods of instruction, map reading, weapons, tactics, organization and maintenance.

Other Sandians who are assisting Dean in arrangements include Porter Grace III (3414), director of leadership, and Robert J. Brown, Jr. (7344), sergeant major.

Between the two schools, Dean will be busy every weekend well into the fall—this, in addition to the regular Tuesday and Thursday night Reserve meetings. He explains his devotion to duty as "a matter of survival. If any of us are called up, my survival and that of others will depend upon success in performing our assigned missions. In addition, I feel that the capability and strength of the Reserve components are great deterrents to any aggressors."



THE "OTHER" DEAN IRVIN is commandant of a new NCO Academy and deputy commandant of the 4153rd U.S. Army Reserve School. At Sandia Laboratory, Dean is supervisor of Employee Benefits Division 3122.



A BEAN OR NOT A BEAN, that is the question. George Zimmerman (1524) holds a typical product of some plants that he was told were New Zealand butter beans.

George and the Beanstalk Or One Bean for Dinner

"Once upon a time" . . . or would you believe "George and the Beanstalk?"

Two years ago when George Zimmerman (1524) was visiting in Illinois, a friend gave him some seeds to plant. The friend said they were New Zealand butter beans—but that's all he told him.

This spring George remembered the seeds and planted them—three hills with two seeds each—in his wife's flower bed. George is a pretty good gardner but he isn't sure just what he has produced. Each plant is about 15 feet long and still growing—almost filling the flower bed and spilling out into the driveway. "Beans" have appeared and keep growing and growing and growing. . . .

Now George is going to write to his friend and find out what they really are. "I can't tell if they're ripe, I don't know how big they're going to get, I don't know if they're edible. What am I going to do with them?" George groans.

If George invites you to dinner these days, he may well say, "Come on over for dinner—we're having a bean."

Sandia Safety Signals

Gas Danger

Most hot water tanks built in the last 10 years have safety valves that close when the pilot light goes out, thus preventing an explosion by igniting gas from a spark or static electricity. According to the gas company, there is always a possibility of the valve malfunctioning, but if gas is escaping, the occupier of the residence should smell the gas and call the gas company immediately.

Incidentally, should you choose to turn off your furnace for the spring and summer, the gas company advises they have a "light-up season" in July or August. During this season, as announced in the newspaper, they will re-light your furnace free of charge.

Ladders

Extension ladders are good up to 60 feet — no more. Make sure there is enough overlap: Up to 36', overlap should be 3'; 36' to 48' — overlap 4', and 48' to 60', overlap 5'+. Two on a ladder is dangerous — and the extra load can weaken a ladder.