



L. R. Cook

P. E. Hogin



SANDIA LAB NEWS

VOL. 20, NO. 18, SEPTEMBER 6, 1968

Changes Announced On Sandia Labs Board of Directors

The Sandia Board of Directors has accepted the resignation of L. Ray Cook as a Director and Alternate Member of the Executive Committee, effective Sept. 30. Philip E. Hogin, Executive Vice President of Western Electric Company, Inc., has been elected to fill the unexpired term.

Mr. Cook will retire the end of September after more than 40 years with WE and the Teletype Corporation. He was elected to Sandia's Board of Directors in April 1963 and also is a director of Bell Telephone Laboratories and Teletype Corporation. For the past five years he was Vice President of WE in charge of the Engineering Division.

During his years with Western, Mr. Cook was instrumental in establishing WE's Graduate Engineering Training Program and also played a large part in setting up the WE Engineering Research Center, which conducts research and development on advanced manufacturing technology for the production of communications equipment.

Mr. Hogin, who will succeed Mr. Cook on Sandia's Board of Directors, began his Western Electric career in May 1942 as an assistant engineer at the Kearny (N.J.) Works. He spent two years with Bell Telephone Laboratories as a member of the technical staff developing the crossbar. Later WE assignments were in New York and Hawthorne (Ill.) Works. He assumed his present position in charge of corporate staff activities (including finance, purchasing and transportation, personnel, and public relations) a year ago and became a director of WE shortly thereafter.

Mr. Hogin has a BS degree in administrative engineering from Cornell University and a MS degree in industrial management from Massachusetts Institute of Technology. He is also a director of Teletype Corporation and Bellcomm, Inc.

For Significant Military Contribution

D. R. Cotter Honored by Defense Chief

The Secretary of Defense Meritorious Civilian Service Medal was awarded Donald R. Cotter in ceremonies in Washington, D.C., prior to his recent return to Sandia as director of Exploratory Systems Studies 1800.

The citation by Clark Clifford, Secretary of Defense, was for "exceptionally distinguished service" as Special Assistant to the Deputy Director, Office of the Director of Defense Research and Engineering (Southeast Asia Matters) from August 1966 to July 1968. Mr. Cotter was on leave of absence from Sandia to carry out this assignment.

The citation further stated: "Mr. Cotter's outstanding technical and managerial abilities and his dedication in the performance of duty led him to make a significant contribution to the military effectiveness of the U.S. and free world forces in the war in Vietnam.

"Most important amongst his contributions in this area was participation in the design and management of a highly significant classified project for the Secretary of Defense.

"Additionally he contributed to such diverse problems as the uses of tactical air power in the counterinfiltration and interdiction roles, and the need to involve the U.S. scientific community in the war."

Before his appointment as Special Assistant, Mr. Cotter spent four months as consultant to the Department of Defense and visited South Vietnam, Thailand and Malaysia for briefings by military organizations. He was also a member of a special survey team on problems of the Middle East.



SECRETARY OF DEFENSE Meritorious Civilian Service Medal was presented D. R. Cotter (1800) by John S. Foster, Jr. (left), Director, Defense Research and Engineering, during recent ceremonies in Washington, D.C. Looking on are the Cotter children, Elaine, Jeff, and Doug, and Mrs. Cotter.

A Sandia Vice President in Siberia?

S. J. Buchsbaum Attends International Conference in Russia

What's a Sandia vice president doing in Siberia?

Well, S. J. Buchsbaum (5000), was there recently as one of two U.S. official delegates of the International Atomic Energy Agency (IAEA) to the Third International Conference on Plasma Physics and Controlled Thermonuclear Fusion Research held this month in Russia.

The week-long meeting was attended by some 600 scientists representing 14 countries. Sessions were held in the "science city" built 10 years ago some 15 miles from Novosibirsk in Siberia. The USSR Academy of Science's Institute of Nuclear Physics, Siberian Department, is located there.

Mr. Buchsbaum has been a member of the U.S. Atomic Energy Commission's Standing Committee on controlled fusion research since that group was formed two and a half years ago.

"We visited some of the Novosibirsk facilities for plasma physics and controlled fusion. Here, the emphasis is on the study of shocks in plasmas under a variety of conditions; but, there is also work on other devices, such as stellerators. The highlight of the visit was the inspection of an operating electron-positron storage ring, the first of its kind in the world. We also viewed the site where huge proton-anti-proton storage rings are being built," he said.

Mr. Buchsbaum explained that the Soviet effort in hot plasma research is probably twice that of the U.S. in terms of manpower, money and equipment. However, the American scientists presented the larger fraction of papers.

As one of three summary speakers (the others were from Russia and Western Europe), Mr. Buchsbaum discussed progress in open-ended systems for confining plasmas and methods of heating plasmas.

His summary will appear in the forthcoming Proceedings of the conference.

"Although there has been no spectacular breakthrough in the field," he said, "I feel there has been very substantial progress toward controlled fusion. There is considerable optimism that the problem will eventually be solved.

"Several different approaches are being pursued, each with its own advantages and disadvantages. It is still too early to settle on one approach, but it may not be too many years (perhaps 5 to 10) before this is possible."

The conference, scheduled every three years, had previous sessions in Salzburg, Austria, and at Culham Laboratory, Abingdom, Great Britain.

Mr. Buchsbaum noted that workmanship on the accelerators he saw was of high caliber, in sharp contrast to building construction and mass-produced items. "I had to loan my pen to the immigration official before I could leave the country — his broke down," he said.

The Soviets also have trouble with mechanical problems.

Novosibirsk is normally a four-hour flight from Moscow, but between mechanical problems and paper shuffling, the trip took nearly 10 hours. Simultaneous translation was available in Russian, English, French and Spanish (the official UN languages), but the system didn't work too well the first day of the meeting.

Since the meeting spanned a week-end, their hosts sponsored an outing on the "Ob sea"—actually a large body of water on the Ob River behind a hydroelectric power plant. The outing included a stop at an island to swim and boat and a Russian-style picnic with fish soup instead of hot dogs.

The American scientists were entertained at the home of G. I. Budker, director of

the Institute of Nuclear Physics, and had additional opportunities to mingle with the other delegates. Mr. Buchsbaum reads Russian and understands the spoken language to a degree. He found the Russian scientists extremely friendly and hospitable. Most of them who work at "science city" live in government-subsidized apartments.

Some of the foreign visitors lectured before classes at an experimental high school for training future scientists. Enrollment is possible only after passing competitive entrance exams. The speakers reported great interest in things American.

They were asked by the students for autographs, certainly an indication of status.

"I was amazed at the number of working women," the Sandian said. "Any woman—regardless of her husband's position—is expected to work if she is physically able. It's part of the system, and you don't buck the system in Russia. Children are sent to state-operated day nurseries unless there are relatives able to care for them."

In case you have the chance, August is a good time to visit Siberia. Novosibirsk is cold and snowy from October to May.

New Weapons Colloquium Starting

A new Weapons Technology Colloquium series is underway at Sandia Laboratories to keep technical staff members informed on research and development activities related to nuclear ordnance.

The first speaker on Sept. 4 was W. J. Howard, vice president 1000, who discussed "Sandia's Role in National Defense." He outlined Sandia's long range planning in weapons technology and the laboratories' ability to originate new weapons systems.

Most of the speakers will be members of Sandia's technical staff; however, there will be some visiting lecturers on related topics.

Criteria for attendance at the classified meetings is the need to understand the material in order to carry out Sandia duties and/or the individual's potential ability to contribute to the possible solution of a problem being discussed.

"We feel this coincides with our goal of acquainting and keeping our technical staff informed and at the same time retrieving resource information from our audience," says Richard T. Meyer (5272), chairman of

the new colloquium committee. Other members of the committee are G. A. Carlson (5424), C. H. Mauney (1548), R. A. Damerow (9114), L. D. Tyler (9341), C. M. Tapp (2613), and A. V. Engle, Jr. (1211). C. W. Moses (1548) and K. J. Touryan (9340) are alternates. T. M. Burford (1700) is the director in charge.

While the existing Research Colloquium is of immediate interest and directed to the scientific research staff, the Weapons Technology Colloquium is intended for both engineers and scientists within technical organizations engaged in pertinent R&D activities. Cooperative scheduling of speakers for the two series will avoid overlapping of time or subject matter. Presentations will be recorded on video tape for replay as needed.

The weapons colloquium will average one speaker every three weeks. Notices and distribution of security passes will be handled by Loyce Gambrel (3131). Security passes are distributed to department managers according to a formula defined by the colloquium committee.

Editorial Comment

Sight-Saving Month

The September sight-saving month campaign of the National Society for the Prevention of Blindness deserves the cooperation and support of all citizens throughout the nation.

Primary aim of the Society's 19th annual campaign is to alert the total community to the many causes of blindness before they strike. The Society maintains that half of all blindness is preventable.

According to latest data from the Public Health Service's National Health Survey, more than 40 percent of the accidents causing vision impairment in the U.S. today occur in the home. This represents a greater number than the combined number of at-work and automobile accidents in which eye injuries are sustained.

Most of these injuries could be prevented if people took the safety habits learned at work home with them. All-purpose safety goggles should be worn when mowing lawns, burning trash, pruning bushes, spraying plants or while using any chemical spray or paint.

Everyone who wears glasses should wear safety glasses, especially children and senior citizens who are exposed to more and more home-eye-accident hazards.

If we put to full use the scientific and safety knowledge already available, half of all accidental blindness can be prevented. By following these eye-safety recommendations, you and your family can be safer at home.

Take Note



HELICOPTER LIFT to Anchorage is one of the few ways to leave Whittier, Alaska's only open port. William Jackson (4253) was stationed there for two weeks on Army Reserve active duty.

Twenty-two years ago William Jackson (4253-2) was stationed in Whittier, Alaska, with the Air Force for eight winter months. When he returned last month, it was as a member of an Albuquerque Army Reserve unit.

"In '46, we were testing B-29's in the extremely cold climate. This time, we were operating the eight-inch petroleum pipeline which runs 60 miles from Whittier to Anchorage," he said.

One thing hadn't changed. Whittier can still only be reached by air, rail or water. It is the only port in Alaska which is open the year 'round.

New Great Books discussion groups will be organized at a meeting Sept. 10 in the Community Room of the Albuquerque Federal Savings and Loan Association building at Menaul and Wyoming. The meeting will start at 8 p.m.

The Great Books Foundation is a non-profit organization whose members pursue a program of continuing education through a discussion of the world's great literature.

At the meeting, a demonstration of discussion techniques will be presented. Further information about the program is available from David Judd (7331), tel. 282-3346.

* * *

R. C. Maydew (9320) has been appointed a member of the Technical Program Committee for the AIAA 4th Aerodynamic Testing Conference to be held April 28-30 in Cincinnati.

* * *

The New Mexico Hockey League is organizing for a coming season of thrilling competition. Any experienced player is invited to tryout for the senior amateur teams on Sept. 10 at 8 p.m. at the Iceland Arena. A minor hockey league for boys from 6-15 years of age will be organized later.

There is also a need for interested persons to serve as officials, coaches, etc.

For further information call Rol Hewitt (9252), tel. 256-6483.

* * *

The annual "ASM Smoker" of the Albuquerque Chapter of the American Society for Metals will be held Thursday, Sept. 19, starting at 6:30 p.m. at the Coronado Club. Following social hour, dinner (cost \$2) will be served at 7:30.

Featured speaker will be Harold C. Donnelly, manager of the AEC's Albuquerque Operations. He will discuss "Second-Stage National Growth."

Non-members are welcome to attend. Call Hal Gregory (8173), tel. 264-1634, or Keith Mead (5424), tel. 264-2458.

* * *

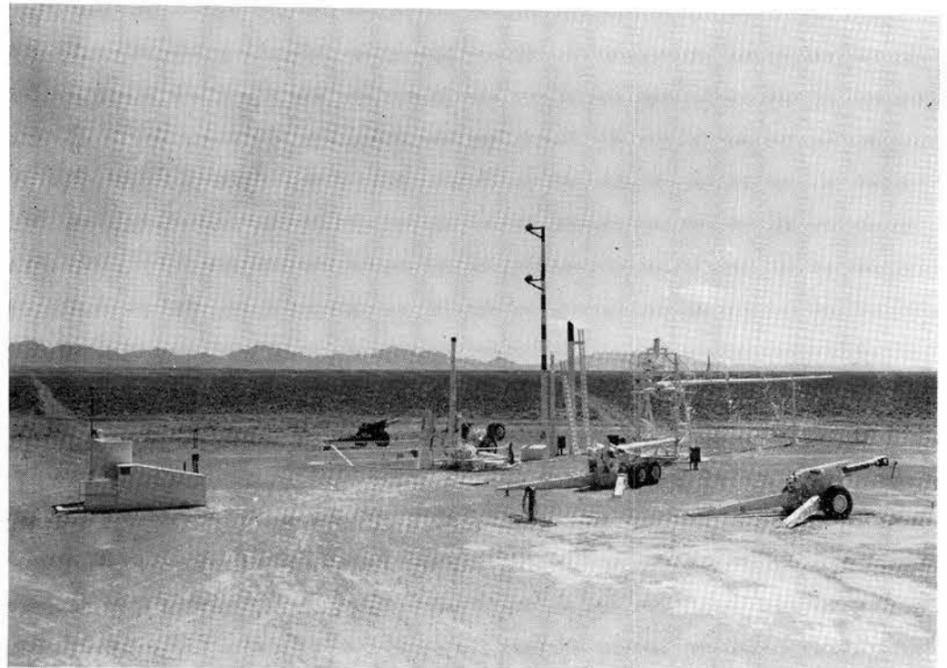
The New Mexico Section of the Society of Mechanical Engineers will open the 1968-69 season with a social meeting Sept. 18. Guest speaker Phil Cooke of the State Parks and Recreation Commission will show slides and discuss the state parks of New Mexico. Mr. Cooke is a well-known writer and publisher of Southwest lore.

The ASME meeting will be held at the VFW Hall, 4510 Lomas Blvd. NE.

Dinner will be served following the social hour which begins at 6:30. Tickets are available from Jerry Jercinovic (3350).

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TEST AREA and overall view of the 155mm gun facility at Tonopah Test Range is shown in this photograph. The control bunker is in left foreground. The facility provides shock and acceleration testing for components encased in 155mm howitzer shells.

Three 155mm Howitzers

Gun Facility at Tonopah Test Range Provides Unique Testing

The Tonopah Test Range has a unique gun test facility providing a low-cost means of accomplishing high acceleration shock and destruct tests on experimental devices, components under development and instrumentation hardware.

Test components are encased in 155mm shells and fired from specially adapted artillery pieces. Three 155mm guns are available—an M-1 howitzer and two M-2 howitzers (commonly called Long Toms). All guns have firing elevation capabilities from 0 to 45 degrees, though one M-2 is attached to a special base, devised by R. E. Zumwalt (7233), for firing at elevations of 45 to 89 degrees.

The facility is the responsibility of Range Staff/Rockets and Ordnance Division 7233 under H. J. Bowen. R. C. Holland, supervisor of Section 7233-1, is operations supervisor.

An underground control bunker, located near the gun site, houses all instrumentation and data recording equipment needed for the tests. Final arming, firing and all control is accomplished from the bunker by Cecil Lang, Tom Laws or Jim Weber of 7233-1.

Normal instrumentation consists of breech pressure measurements, muzzle velocity, photographic coverage of test vehicles in flight, and the environmental conditioning of test devices.

Environmental conditioning is accom-

plished in an assembly building located in close proximity to the guns. Two climatic chambers are capable of conditioning devices over a temperature range of -100°F to +350°F. Test units are consistently removed from the climatic chambers, assembled and fired in less than five minutes so that temperature drift of the devices is held to a minimum.

Breech pressure measurements are made by two methods—a piezoelectric "quartz crystal" transducer installed in the breech block of the gun provides an electrical output which is recorded on magnetic tape and on polaroid as an oscilloscope trace picture. Two or more ball-type crush gauges are installed in the breech block of the gun and, after firing, the gauges are measured and the readings averaged. The crush gauge reading is used as a backup for the piezoelectric method of breech pressure measurement. Much of the instrumentation has been developed by H. E. Gipson and C. D. Northam (both 7233-1).

Photographic coverage of vehicle behavior in flight consists of high-speed 35mm Fastax for documentary coverage and image motion cameras for muzzle velocity measurements. In-flight photographic coverage of test vehicle has been achieved at distances greater than 500 feet from the muzzle and at velocities greater than 3000 feet per second.

All camera starts emanate from an event timer, with one millisecond resolution, located in the control bunker. Standard range (IRIG) timing is recorded on all film so that world time may be read and correlation made to zero time, peak breech pressure and sequence of events. Flash bulbs can also be fired from the event timer to enable the necessary high-speed photography of the test vehicle as it emerges from the muzzle.

Requirements of a forthcoming test series will make it necessary to photograph the test vehicle just before it emerges from the muzzle. Division 7233 is perfecting a system of mirrors to provide an optical path for a Fastax camera to accomplish this task. The requirement is complicated by the fact that the gun barrel must be nearly vertical for these tests.

Muzzle velocity is also measured, in addition to photographic coverage, by firing a test vehicle through two solenoid coils near the gun muzzle. By measuring the time lapse, velocity can be determined. The coils are positioned on a 90-foot-long rotating boom, accessible to all guns.

Recent Sandia developments in telemetry instrumentation have made it possible to telemeter information from the test vehicle during its travel through the barrel. These data can be recorded on high-speed tape recorders located in a portable instrumentation trailer adjacent to the gun.

The flight of high-altitude projectiles (40,000 feet and above) is tracked by an MPS-25, C-band radar to obtain trajectory data and assist in recovery of test units. In addition to radar, ME-16 tracking telescopes are used on high-altitude tests for documentary camera coverage.



"LONG TOM" 155 mm howitzer is elevated for near-vertical firing at Tonopah Range.

SANDIA LAB NEWS



SANDIA LABORATORIES
ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

Operated for the United States Atomic Energy Commission by Sandia Corporation

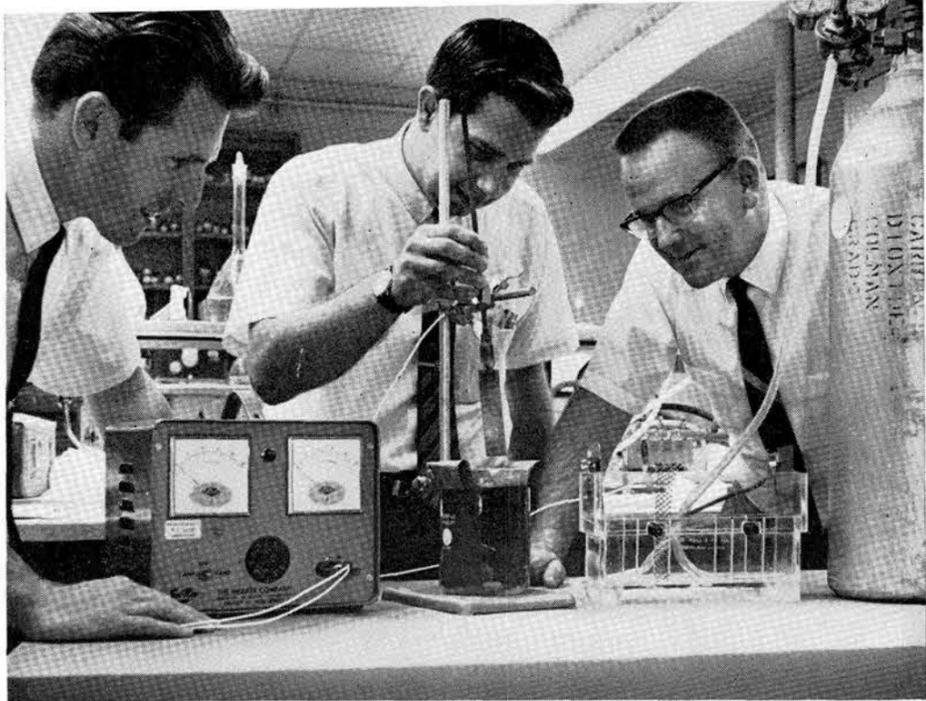
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CO-AUTHORS OF AWARD-WINNING PAPER ON COPPER PLATING are shown with the modified Haring cell apparatus used in their experiments. (Left to right): J. R. Helms, J. W. Dini, H. R. Johnson (all 8311) received individual plaques for their paper entitled, "Effect of Some Variables on the Throwing Power and Efficiency of Copper Pyrophosphate Solutions." They received the John J. Hanney Memorial Award from the American Electroplaters' Society for the best paper on copper plating presented during the Society's annual convention in Dallas, Texas. The paper appeared in the December 1967 issue of PLATING.

Sympathy

To Dora Bowers (8242-1) for the death of her brother in Oakland, Aug. 20.

To Lyla Duey (8232) for the death of her mother in Livermore, Aug. 13.

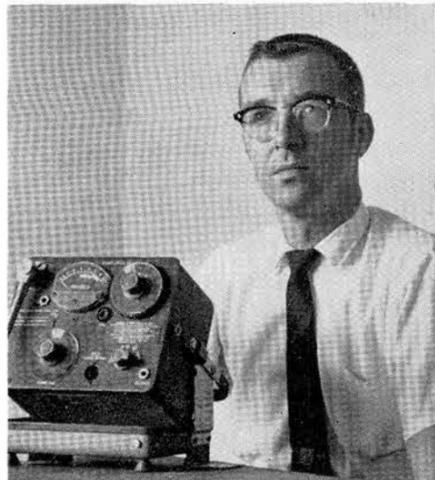
To Jim Wimbrough (8161) for the death of his brother in Lebanon, Ind., Aug. 8.

Welcome . . .

Newcomers

Aug. 17 - Aug. 26

California		
Marlene A. Ballou, Livermore	8243	
Joseph G. Brazil, Jr., Livermore	8242	
Washington		
Aldis L. Andrejevs, Seattle	8153	



DECIBEL METER used by Bruce Held (8215) at a Livermore high school dance measured sound intensities of rock 'n' roll music ranging from 110 to 118 decibels. Such noise levels exceed maximum standards established by industrial and medical acoustical authorities. Local school and recreation authorities as well as students now agree that less volume helps prevent hearing damage without affecting the musician's artistry.

Checked by Decibel Meter

Rock 'n Roll Music Can Be Deafening--Literally

There's more to chaperoning a high school dance than observing the conduct of the young people present. This fact came through to a Sandia employee and his wife "loud and clear" when they chaperoned a Livermore high school social event several months ago. Literally, the dance music could have been deafening.

Recognizing a potential problem, the employee asked Perry Lovell, supervisor of Environmental Health and Medical Services Division 8215, to come and listen to the music. Perry came, listened and agreed that it was beyond safe industrial standards.

As a result, Bruce Held (8215) was asked to monitor the music the following week using a decibel meter.

Noise levels recorded by Bruce at the next dance exceeded the "safety" standards established by the State of California, the U.S. Air Force, the American Medical Association and the U.S. Public

Health Service in many frequency areas. The electronically-amplified instruments produced sound intensities ranging from 110 to 118 decibels. (A decibel is an arbitrary unit based on the faintest sound a man can hear. The scale is logarithmic, so an increase of 10 db means a tenfold increase in sound intensity; a 20 db rise a hundred-fold increase.) Readings were taken in all areas of the auditorium from 15 feet in front of the amplifier to the far corners.

The noise level was 100 times louder than the standard recommended by the U.S. Public Health Service; 40 times louder than the level set by the American Medical Association.

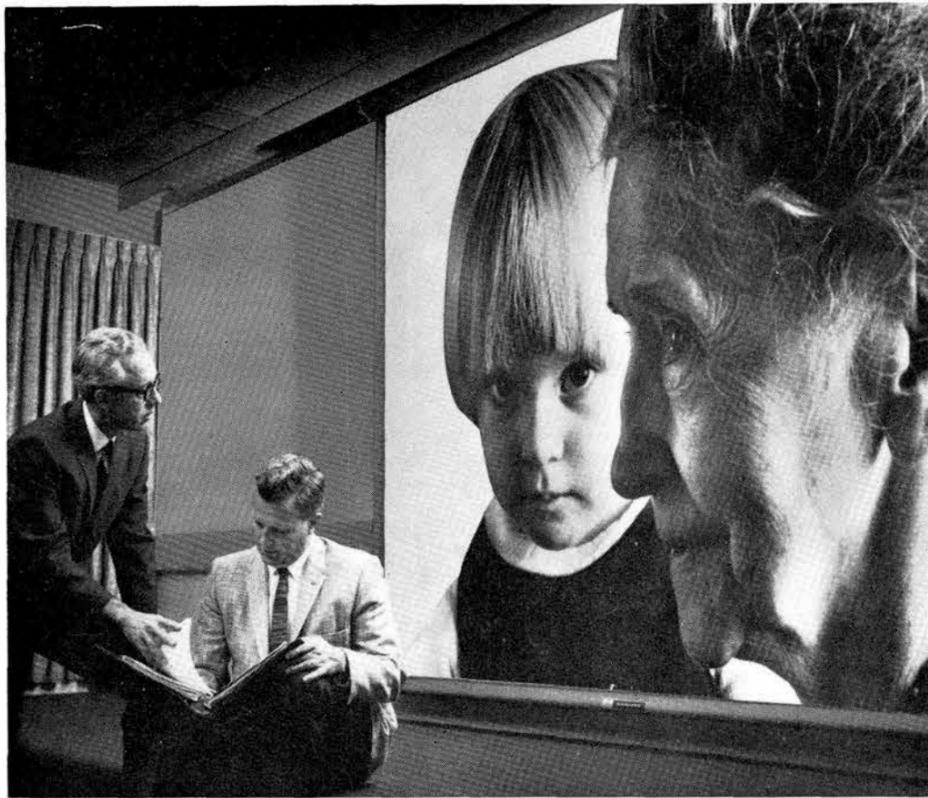
Acoustical experts maintain that prolonged exposure to noise levels above 85 db (normal conversation measures 60 db) will eventually affect hearing ability in the frequency range most important for human speech (about 250 to 2400 cycles per sec-

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CRUSADE CAMPAIGN POSTER—United Bay Area Crusade chairman at SCLL Bob Johnsen (8161), right, and vice chairman Bob Norvill (8233) discuss this year's campaign poster and theme "People Need Help." The forthcoming UBAC drive will be conducted at SCLL Sept. 23 through 27.

1968 United Bay Area Crusade

Chairman Announces Plans for UBAC Drive at Livermore Lab

Sandia participation plans for the 1968 United Bay Area Crusade are announced by R. H. (Bob) Johnsen (8161), chairman of the campaign committee at Sandia Laboratories Livermore. The week-long drive starts at SCLL Sept. 23.

Bob says a target of \$26,500 in total employee contributions has been established by the committee as this year's goal.

"Our efforts will be aimed at increasing employee participation," he says. "If everyone contributes, we at Livermore Laboratory can easily achieve our goal."

"Many employees are not aware that there is a total of over 170 health, welfare and youth service agencies in the five-county Bay Area which are wholly or partially supported by Crusade funds," Bob notes. "Even if employees do not use these agencies, the services they provide affect and influence the life of each Sandian, his family, friends and neighbors."

Bob feels that the Crusade serves as a most important tool in our society because it unites into one coordinated effort the various aspects of raising and distributing funds for voluntary charitable endeavors.

Without the yearly United drive, each of the agencies would have to raise all their needed money in separate campaigns, and employees would be called on almost daily.

"Through 'United' giving and budgeting, waste and duplication of services are reduced—so, the Crusade campaign is really a money-time-saving economy," he says.

Assisting Bob as vice chairman is Bob Norvill (8233). Others serving on the campaign committee include Doris Guntrum (8213), treasurer; Joe Ambrulevich (8213), auditor; and Matt Connors (8242), publicity.

Congratulations

To Mr. and Mrs. Michael Rogers (8151), a daughter, Lisa Pauline, Aug. 13.

Mrs. and Mrs. Noel Cooley (8181), a son, Noel Hazen Jr., Aug. 2.

Mr. and Mrs. Jim Williams (8252), a son, James Edward, July 30

Mr. and Mrs. Jim Wright (8172), a son, John Conrad, July 25.

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MEMBERSHIP in the Wise Owl Club of America is awarded by Dr. S. P. Bliss, Sandia Medical Director 3300, left, to Robert L. Ledgerwood (7341), center, and James E. Hesse (2317).

Bob Ledgerwood, Jim Hesse New Members of Wise Owl Club of America

The Wise Owl Club of America is an organization you wouldn't join if you had your druthers. The exclusive membership is made up of persons who have had very close calls with accidental blindness. Fortunately, however, they were wearing safety glasses or some other form of eye protection and thus became "wise owls."

Two more Sandians were awarded certificates of membership recently. They are Robert L. Ledgerwood (7341) and James E. Hesse (2317).

Bob's close call came when he was mounting a test component on a shock machine, using Allen bolts to secure the device. A ratchet handle fitted with an Allen head adapter was being used to tighten the bolts. During the final tightening, the adapter slipped from the bolt head and the end of the ratchet struck the right lens of Bob's safety glasses. The lens was knocked from the frame, but Bob suffered only a slight bruise on his nose. Wearing those safety glasses made him a very lucky wise owl.

Jim's brush with blindness occurred when a chemical experiment he was working on exploded. His eardrums were ruptured, both eyes were irritated and he received a wound on his forehead. The safety glasses he was wearing most probably saved his sight.

Since the Sandia chapter of the Wise Owl Club was established here in March 1965, three other members have previously "joined." They are Florentine Gabaldon (1546), Raymond F. Drury (formerly 1413, now in Livermore's Division 8128) and Donald A. Quayle (4232).

All five agree that safety glasses saved their sight.

The Wise Owl Club of America is sponsored by the National Society for the Prevention of Blindness, a non-profit agency dedicated to the prevention of blindness through a comprehensive program of professional and public education, research and industrial and community services.

Delivers Light Plane to Missionary

Ken Cordes Flies a 7000-Mile Favor for a Friend

As a favor for a friend, Ken Cordes (9224) and his wife Liola flew a single-engine light plane 7000 miles across the Pacific to the Philippine Islands.

The friend, a missionary headquartered in Manila, needed the airplane for his many trips around the Islands.

Ken, who flew P-38's over Italy during WW II and weather reconnaissance missions from Hawaii during the Korean conflict, felt qualified to fly the Piper Cherokee Six to Manila. Still, it is not a flight that one approaches lightly.

Ken had taken a Cherokee out-of-hours astronomy course which helped with the navigation. He bought a used sextant, studied an Air Force navigation manual, and practiced. He boned up on FAA regulations and renewed his instrument rating.

He also instructed Liola on the basics of navigation. For the flight, since FAA regulations do not allow passengers for this kind of private flying, Liola was listed as "official navigator."

"She performed well," Ken says. "We worked out our computations independently and then checked the results with each other. That, plus the radio beacon, gave us a good confident feeling."

The decision to go was made in February and the flight started July 5. The period in-between was filled with planning.

"We tried to think of everything," Ken says. "We went over every detail of the trip many times. This is the only way you can build confidence for such a flight. It worked. Everything went smoothly, and we enjoyed it. It turned out to be a great vacation."

The plane was fitted with extra auxiliary

fuel tanks which cramped the space inside the cabin. This plus their standard tanks gave 18 hours of flight time.

After flying from Albuquerque to Los Angeles for final outfitting of the aircraft, they flew to Oakland, departure point for Hilo, Hawaii. Oakland to Hilo took 15 hours and 40 minutes.

Although the distance from Hawaii to Wake Island is about the same as the first leg of the flight, their flying time was 14 hours 50 minutes. Ken had a good tail wind for this one.

Normally, a Cherokee cruises at 160 mph. With extra fuel, their speed was considerably less for the first few hours in the air. Ken cruised at 6000 feet and reported his location by radio every two hours. They carried two life rafts and other emergency equipment on board.

"But we didn't have a worry," Ken says. "We had beautiful weather all the way. We encountered only one rain squall as we approached Hilo."

From Wake, the couple flew to Guam in 11 hours, rested and saw the sights for two days and then flew on to Manila in 10 hours.

With their friend, they spent several days in the Philippines and then returned home by commercial airline. They made overnight stops in Hong Kong, Tokyo, Taiwan, Anchorage, Seattle and Denver.

At Denver, the couple picked up their children who had been staying with relatives, and then Ken drove by automobile to Albuquerque.

"That was the most dangerous part of the trip," Ken says.

Marv and the Tomato Stalk

Giant Tomatoes Grow in Albuquerque

Marv Daniel astounded co-workers in Division 2442 recently by showing them three of his home-grown tomatoes with a combined weight of more than five pounds. An ordinary tomato weighs about 8 or 10 ounces.

Marv professes to be a down-to-earth PhD. Every evening, every weekend, he's on his hands and knees in the backyard where every available square inch is cultivated. In addition to tomatoes and other garden vegetables in great quantities, he grows flowers, particularly exhibition dahlias.

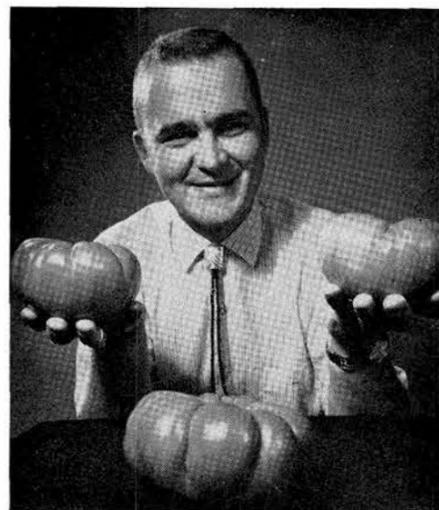
"But we're talking about tomatoes", Marv says. "As you can see, these are special. Feel that texture. That's solid tomato. Very firm. Hardly any juice. Greatest thing in life on hamburgers."

Marv, his mathematician wife Sharon (1722), plus hamburger and tomatoes share a long and close relationship.

"The two and a half years we spent working on advanced degrees at Oklahoma State University were lean years," Marv says. "Then the garden was a necessity. I grew the tomatoes and Sharon kept coming up with new recipes for hamburger and tomato sauce — spaghetti, ravioli, soup, stew, hash, chili, plus tomato juice, tomato salad and tomatoes stuffed with tomatoes. After all of this, we still love tomatoes."

Marv grows plenty. He starts in February by planting the seeds in planter boxes inside the house. He experiments with some eight varieties.

Seeds for the big ones he displayed last



MARV DANIEL (2442)

Would you believe that three tomatoes weigh five pounds?

week came from Germany. A neighbor back in Oklahoma gave them to Marv. He doesn't know the name of the variety.

Marv has no secrets accounting for his success as a gardener. He believes simply in lots of fertilizer and lots of water. He says a brown knee makes up about 90 percent of his green thumb.

"I garden to relax," Marv says. "It's amazing how much hostility you can get out of your system chopping weeds."

Data Exchange Program

IDEP Saves Sandia Time, Money

Richard A. Poe of Test Data Division 7216 recently used the IDEP (Inter-agency Data Exchange Program) service center in Bldg. 828 to find information which eliminated the need to conduct at least eight tests, shortening another necessary test and saving more than 48 manhours.

He was seeking information on computer and recording elements for a technical project of Division 7216.

IDEP is sponsored by the Army, Navy, Air Force and NASA, and is a joint effort among government services to enable technical personnel to keep abreast of progress, recent developments and test results by others in allied fields of endeavor.

Through IDEP, more than 170 major DOD-NASA contractors (including Sandia) exchange reports and information on components, materials, processes, test equip-

ment, computer programs, mathematical techniques, design techniques and many other subjects of interest.

Mr. Poe is one of many Sandians who have found IDEP an effective tool for conserving time and money. It helps eliminate redundant technical and engineering research efforts.

IDEP coordinator for Sandia Laboratories is H. B. Young of Product Acceptance Division II 7415. He believes that the IDEP service center could be used to a greater extent if all technical personnel were aware of the wealth of technical information available.

He invites anyone interested to contact him, tel. 264-5841, for additional information on IDEP. A report, "How to Use IDEP at Sandia," is available.



SEVEN THOUSAND MILES over the Pacific were flown recently by Ken (9224) and Liola Cordes to deliver a single-engine light plane (similar to the one in background) to a missionary friend in the Philippines.

Committee Announces Plans

ECP Drive Starting Sept. 30; Fair Share Contribution Is Goal

Sandia's Employees Contribution Plan committee is wrapping up plans this week for the forthcoming ECP campaign. Committee chairman Hank Willis (3130) indicates that the goal of the ECP continues to be having all employees make a fair share contribution (one hour's pay per month).

The drive will start at Sandia Monday, Sept. 30.

"The campaign will resemble the one conducted last year," Mr. Willis says, "... soft sell. Our employees are aware of their community responsibilities and have responded generously through the years. Everyone will receive a payroll deduction card in the mail and a letter from the committee urging a fair share contribution. Those 2810 employees are already giving their fair share will not need to return the card."

Sandians will contribute a total of \$280,000 to ECP this year on pledges made a year ago. Eighty-two percent of the total goes to the 29 agencies of the Albuquerque United Community Fund. The remainder is allocated on a percentage basis (based on community fund-raising performance) to eight national health or welfare organizations.

The eight national agencies are the American Cancer Society, Bernalillo County Heart Association, Cerebral Palsy Association, Muscular Dystrophy Association,

Arthritis Foundation, Multiple Sclerosis Society, New Mexico Society for Crippled Children and Adults, and Cystic Fibrosis Association.

Eighty-six percent of Sandia Laboratories employees contribute to ECP. Average gift per contributor is \$45.79. Of the total, 39.7 percent of Sandia employees make a fair share contribution. Some 5895 employees participate in ECP with a contribution of at least \$1 per month (the minimum for ECP participation).

Theme of this year's drive is "Share a Little Sunshine" which is the same as the downtown UCF drive, Mr. Willis says. This is to call attention to increased goal of the local community. The 1968 UCF goal is \$1,350,000 — increased \$102,000 from the \$1,248,000 raised last year.

"The need for this increase locally is valid," Mr. Willis says. "The 29 agencies which share UCF funds have increased work loads and are in dire need of new equipment and facilities, and in many cases, replacement of equipment."

"Sandians have responded generously to community needs previously. We live here. We're responsible citizens. We meet our obligations. This year's ECP drive will give those Sandians who are not fair share contributors a new opportunity to join in meeting the ECP goal. I urge you to respond."

'The Big Boys' Have Competition

Sandia Duo Fields New Racer

A modified Indianapolis race car, rebuilt by M. L. Heisler (7332) and driven by Bud Leonard (7321), hit the racing circuit recently at Phoenix's Manzanita Speedway and gained a fourth, fifth and ninth place.

M. L. is jubilant. So is Bud.

The Phoenix race was sponsored by the California Racing Association and had some of the top-ranked racing cars and drivers in the nation competing.

"This was our first time out with 'the big boys,'" M. L. says, "and we weren't expecting to place. We wanted to check out the car and get some experience."

Bud has had plenty of experience driving modified stock cars at Speedway Park in Albuquerque. He's been racing for more than 10 years. Last year he was fourth for the season in points. But he had never driven a car like this one before.

The car is classified as a "Sprint." Before it was shortened 11 inches and narrowed 8 inches, it was an Indianapolis

roadster which came in fourth in the 1961 "500."

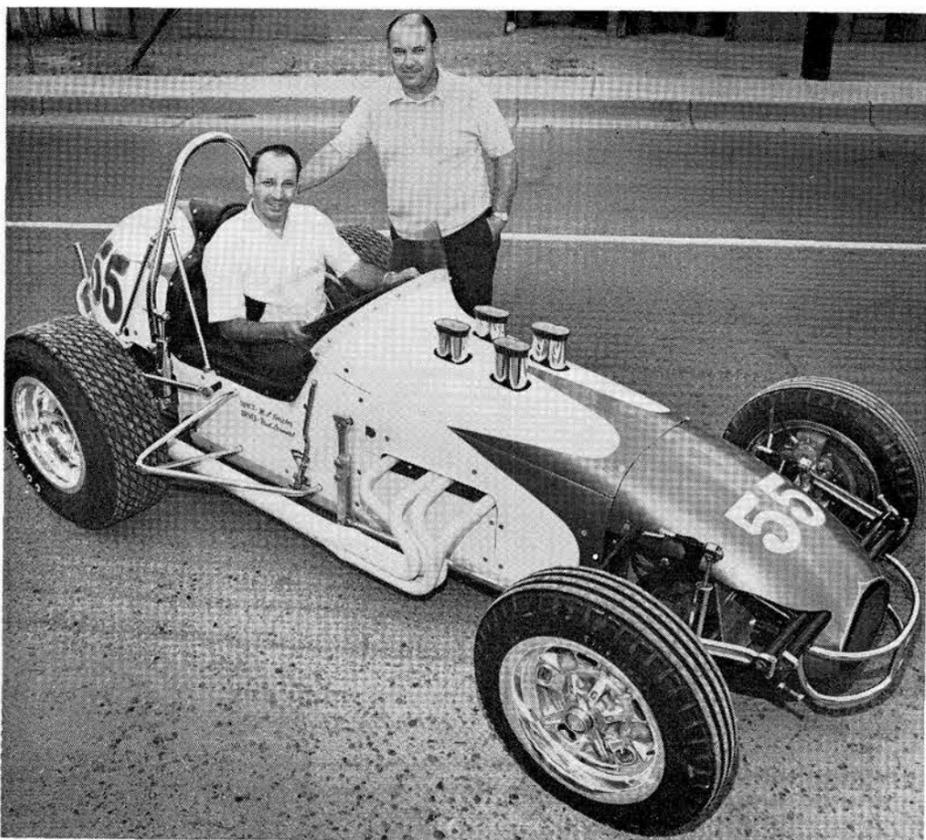
M. L. (with some help from Ken Cahill, 7214) spent almost two years converting the car. It is now powered by a 327-cubic-inch Chevrolet motor and has a new body plus other extensive modifications.

"This is a Cadillac of race cars," Bud says, "beautiful to drive. We were hitting 100 to 110 at Phoenix, and it wasn't completely opened up. Wait 'til the next time out."

The Sandians plan to enter the car at a meet in Hutchinson, Kans., as part of the State Fair there in late August.

Big-time racing has been M.L.'s dream for a long time. Locally, he has driven his own cars in various classes—micro-midgets, modified stock cars, and super-modified. A back injury (not from racing) ended his driving days. Now he concentrates on the mechanics of the car.

"We have to solve a heating problem," he says, "and a few other minor things. Then we will roll."



"SPRINT" RACING CAR, rebuilt by M. L. Heisler (right) and driven by Bud Leonard, entered the racing circuit recently. The men plan to compete with the top cars in national races.



CRATED EXHIBITS are removed from the Sphere of Science for shipment to the Hall of Science in New York City. Leroy Fifer, a loader for the van lines, checks the bill of lading in the moving van as (l to r) A. J. Landis (3433), J. O. Waddels (4623) and George Lucas, van driver, guide a crated exhibit on a fork lift. In the background are (l to r) Joe Chavira, C. W. Dunn and T. J. Chavez (all 4623).

Sandia Sphere Exhibits Move to Hall of Science Display in New York

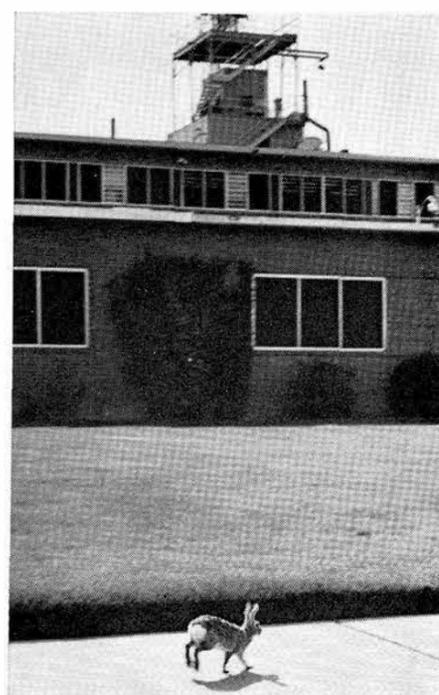
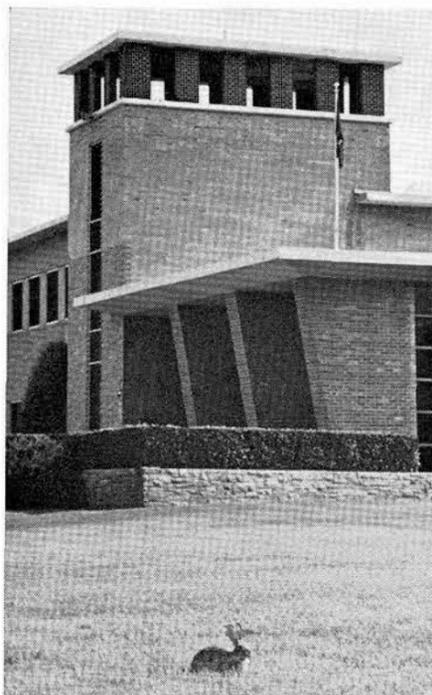
Sandia's role in the Vela satellite program and the craftsmanship of laboratory glassblowers are among the subjects of the Sandia Laboratories exhibit soon to be installed at the City of New York's Hall of Science. The exhibit will run for a year starting about Oct. 1. The 12 exhibits in Sandia's Sphere of Science will be located near the AEC's permanent display, named "Atomville, USA."

Located on the site of the 1965 World's Fair, the Hall of Science has 3000 visitors daily. The U. S. Space Park, a three-acre outdoor display of space hardware, is located north of the building.

Subjects of the Sandia exhibits are electronics, solar cells, natural radiation, radiation effects, physics, scientific glass, telemetry, nuclear batteries, mathematics, microelectronics, aerodynamics and Vela satellites. The National Aeronautics and Space Administration and the Advanced Research Projects Agency of the Department of Defense are among the other agencies having exhibits.

New exhibits are being prepared for Sandia's Sphere of Science; the Sphere will be closed for remodeling until about Nov. 1.

A Hare in the Grass



ANOTHER DAY at the weapons laboratory. This rabbit is not for hunting! Gaining sanctuary on the front lawn of Bldg. 800, Sandia's rabbit usually makes his appearance around 9 a.m.

Sandians Participate in Canadian HE Experiment



FOR 20 MILES along the Canadian prairie, Sandians strung lines and placed 18 sensors to detect airblast waves from a 500-ton high-explosive experiment. Six camper-trailers housed the recording

equipment. Three smaller explosive charges were fired at 15-minute intervals before and after the main test event to provide statistical comparison on any atmospheric irregularities.

Canadian, U.S. and British scientists and technicians were pleased when 500 tons of TNT detonated Aug. 9 leaving a crater 212 feet in diameter at the test site near Suffield, Canada.

The experiment, named "Prairie Flat," was scheduled by the Canadian Defence Research Establishment. There was one day's postponement due to unfavorable weather conditions.

Sandia personnel were stationed at two locations in Alberta, Canada, to make microbarograph measurements of airblast waves, of interest to the U. S. Atomic Energy Commission Plowshare Project (peaceful applications of nuclear explosives). A. B. Church (9132) was project leader and J. W. Reed (9111) was scientific advisor.

B. J. Perry, CDRE's acting director-general, pronounced the \$4-million experiment a complete success. Sandians who participated also called the shot "a very successful operation" and added that they were "impressed by the assistance given to us by the Canadians."

Canadian newspapers in Calgary reported that the stack of explosives sent a mushroom-shaped cloud 10,000 feet into the sky. The shock wave was felt distinctly at the official observation areas about two miles away.



SANDIA CREW in front of a microbarograph camper in the Brant, Alberta, Canada, area included (l to r) Don McFadden (9132), Toby Montoya (Eberline Instruments), Jim Clark (7322), Bert Neumon (2641), Gene Hansen (7223), Jack Reed (9111), Bill Talley (2356), and Glenn Morehouse (7332). All photos are by Allen Church (9132).



WHILE Bert Neumon (2641) unrolls the line, Glenn Morehouse (7332) starts to bury it. The 20-mile line was removed after the HE-explosion.

Tech Writers Present Course At UNM Community College

University of New Mexico Community College will again offer a course in "Technical Writing and Publishing" during the fall semester starting Sept. 16.

The dozen instructors are all members of Albuquerque Chapter of the Society of Technical Writers and Publishers and are practicing professionals in the subject matter they will discuss.

Subjects include writing and editing technical reports, instruction manuals and programmed instructions plus discussions of audio-visual presentation, composition, technical illustrating and printing reproduction.

A new feature in this practical survey course will be one or two workshop classes with several instructors on hand to assist in individual writing problems.

The class will meet from 7-9 p.m. on Wednesdays over a 12-week period. Registration will be Sept. 11-13. Further information may be obtained from Vern Gibbs (1622), tel. 282-3639.

Supervisory Appointment



ERIC D. JONES to supervisor of Optical Effects in Solids Research Division 5114, effective Sept. 1

Eric has been engaged in solid state physics research since joining Sandia in April 1965. Previously he worked

three years for Bell Telephone Laboratories in the same field at BTL's Murray Hill location.

He earned his PhD in physics in 1962 at the University of Washington in Seattle. He completed his MS in physics there in 1959 and received his BS from Oregon State University in 1957.

He is a member of the American Physical Society.

Events Calendar

- Sept. 12-22—New Mexico State Fair.
- Sept. 14-15 — Jicarilla Apache encampment near Dulce.
- Sept. 14 — Football, UNM vs. Colorado State, 8 p.m., university stadium.
- Sept. 19—Fiesta at Laguna.
- Sept. 19-22. 26-29—"Bell, Book and Candle" at Old Town Studio.

Congratulations

- Mr. and Mrs. R. L. Courtney (5412), a daughter, Diana Lynn, July 27.
- Mr. and Mrs. D. L. Hurt (1613), a daughter, Dita Louise, Aug. 29.
- Mr. and Mrs. James F. Desler (on leave), a daughter, Aug. 13.

Authors

C. R. Hills (5422) and J. E. McDonald (5410), "Interactions of Mercury-Thallium Alloys with Solids," July-August issue, ELECTROCHEMICAL TECHNOLOGY.

P. J. Roache (9325), reply to A. Michalke's comment on "A Combined Visual and Hot-Wire Anemometer Investigation of Boundary Layer Transition," August issue, AIAA JOURNAL.

Welcome . . . Newcomers

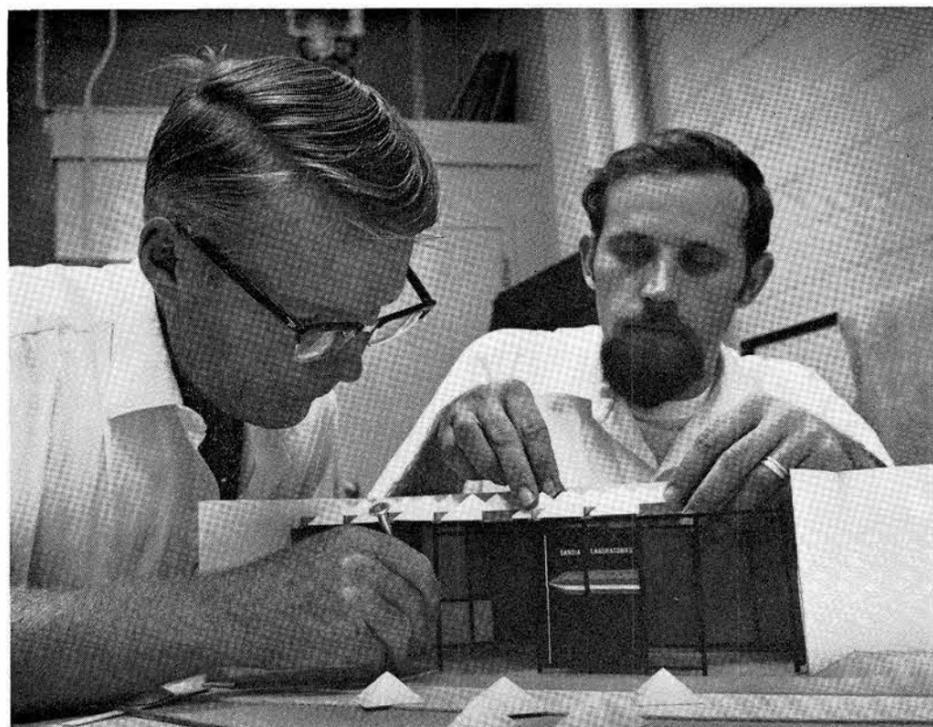
Aug. 19-30

Albuquerque	
Cheryl J. Bame	3126
Leonard Casaus	7452
Joseph H. Cowham	4233
*Virginia S. Gillespie	3126
*B. Jean Jeffs	3126
Carl T. Kerstetter	4574
*Joetta C. Miller	3126
Emma D. Quintana	4233
Judith A. Schulze	4211
*Adelina Waid	4315
Jude A. Worden	4253
District of Columbia	
Lawrence A. Bruckner, Washington	1711
Kansas	
Terry L. Bisbee, Hutchinson	7611
Robert E. Parks, Hutchinson	7612
Mississippi	
James A. Cooper, Jr., Columbus	2631
Nevada	
*Allen L. Hobbs, Las Vegas	3311
North Dakota	
*Grant G. Summers, Bowbells	2635
Texas	
Charles M. Mika, Lubbock	4111
* Rehired	

Sympathy

- To George T. Kupper (3114) for the death of his infant daughter, Aug. 22.
- To Bartolo and Jose Castillo (4574) for the death of their sister, Aug. 13.
- To Fermin Nieto (4574) for the death of his brother in Placitas, Aug. 9.

Sandia State Fair Exhibit in Preparation



MODEL OF SANDIA'S STATE FAIR EXHIBIT is arranged by (l to r) R. H. McHarney, exhibit designer, and K. R. Miller, graphics designer, (both 3463-3). The exhibit containing nine displays will be in the Industrial Building on the State Fairgrounds Sept. 12-22. Community Relations Division 3433 personnel will assemble and man the exhibit.

Retiring

Service Awards 20 Years



E. G. Baca
3522



Sue Borbely
9411



E. D. G. Clenney
4643



B. M. Folks
8182



W. A. Gardner
1500



H. B. Goldenberg
7413



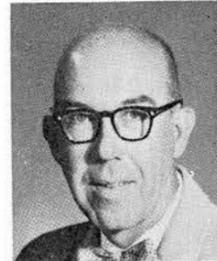
P. S. Hamilton
4252



G. M. Haughness
7351



P. C. House
3463



G. L. Miller
7223



T. B. Morse
9122



W. T. Perea
1211



K. F. Schooley
4254



D. M. Smith, Jr.
4213



W. G. Vander Laan
2352



L. H. Bressan
7452



Ruth Kresge
4131



F. A. Stake
7612



M. J. Vigil
7611

15 Years

10 Years



James J. Schenck will retire Sept. 30 after more than 15 years in the Plant Maintenance Department at Sandia. Jim, who is assigned to Mechanical Systems Section 4511-2, was employed by Sandia in March 1953. Until

that time, the Sandia Base Fire Department had handled the maintenance of all fire extinguishers at the Laboratory. Jim was hired to take over this function for Sandia. He had lots of experience in the field—23½ years with the New York City Fire Department.

Mr. and Mrs. Schenck have four children and eight grandchildren. They will spend a month with two of their children in Maryland and Virginia following Jim's retirement. They will also visit with friends and relatives in New York.

"We haven't made any definite plans for retirement," Jim says, "except that I'm not going to go to work. We're involved in a number of activities and are interested in volunteer charity work. We'll just sort of play this retirement by ear."



Marie C. Bowers, a report clerk in Safety Education Division 3352, will retire the end of this month. She joined Sandia in July 1956 as a secretary in the safety division. Since December 1962, Marie has been in her

present job where she handles accident reports.

Mr. and Mrs. Bowers moved to Albuquerque from Indiana 15 years ago. Marie worked for a patent attorney in Indianapolis for 25 years and later helped her husband with a meat market and grocery store.

The Bowers purchased a mobile home last March and Marie says she is very

happy living in it. "We have all the conveniences of our former home," she says. "In fact, our living room is larger than our other one—and the yard is smaller."

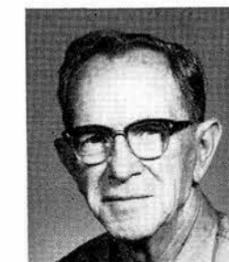
Marie's retirement plans are indefinite. "I'll manage to keep busy," she says. "I'll have more time for yardwork, knitting and sewing." The Bowers do plan a short trip to Carson City, Nev., later this fall.



Norma L. Carlson, a service clerk at Sandia for 10 years, is retiring Sept. 30. Her most recent assignment has been with Engineering Services Section 7631-1. Before coming to Sandia, Norma worked for Civil Service for 32 years—11 years with the Treasury Department in Washington, D.C., and 21 years with the Albuquerque Post Office in postal transportation service.

Norma expects to remain in Albuquerque. She says that housework and yardwork will take up a lot of her time. However, she will have more time for her hobbies of needlework, contests and reading. Norma's mother lives with her and they plan to take an occasional trip to Colorado and to southern New Mexico to visit relatives and friends.

"I have enjoyed working at Sandia these past 10 years," Norma says, "but I'm retiring early while I still have good health and can enjoy my retirement for a longer time."



Joe R. Smith of Shops Section 4514-2, is retiring Sept. 30 after 18 years with Sandia. He has worked almost the entire time in the "box shop." Before coming to Albuquerque, Joe was a farmer in Hunt County, Texas.

Mr. and Mrs. Smith reside at 2420 Elizabeth NE, but may decide to make their retirement home in Kentucky.

Joe says he has no definite retirement plans. "I'll find some odd jobs to keep busy, fish a little and maybe take a short trip."

SHOPPING CENTER

CLASSIFIED ADVERTISING

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

RULES

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

FOR SALE

MISCELLANEOUS

- DINETTE SET, lg. formica-top table w/leaf & 6 chairs, \$30; several electronics textbooks, make offer. Allen, 256-3234.
- SILVERTONE electric guitar, 2 pickups & vibrato, \$60. Benton, 877-2473.
- NEW MEXICO Military Institute uniforms. Nogle, 299-3863.
- 7-YEAR BLACK MARE w/5-wk-old colt, \$175; saddle, bridle, etc., \$75; package deal, \$225. Netz, 282-3607.
- 135MM F3.5 Vivitar, 200mm F4.5 Spiratone, preset lenses for 35mm SLR cameras, \$19 ea. Gunderson, 298-2135.
- '58 EDITION World Book encyclopedia, Childcraft and dictionary, all for \$75. Salazar, 877-0998 after 6.
- JOINTER, Sear's 4 1/8", \$35. Schuetz, 282-3486.
- BUNK BEDS, honey maple w/one spring & mattress, \$55; studio couch, \$20. Peterson, 256-7514.
- GE solid state stereo-FM console, walnut finish, \$150. Stanton, 268-6684.
- BICYCLES, two 26". Hudson, 255-1091.
- SINGLE BED, mattress & box springs, \$85; dinette set & 6 chairs, \$40. Heath, 255-5418.
- 5-PIECE DRUM SET, 6 mos. old, worth \$300, sell for \$175. Mordhorst, 255-0504 after 5.
- '67 21" fully self-contained camper, \$2395. Wagner, 268-7868 after 5.
- ROTARY MOWER, 21" cut, 2 1/2 HP B&S engine, w/grass catcher, \$22.50; 17 sets hinges & handles (knobs), polished copper, for kitchen or bath cabinets, \$7.50. Browning, 299-6384.

- 12 CU. FT. GE refrigerator, 40 lb. frozen food section, turquoise; gold contemporary chandelier, five lamps. Larsen, 299-3496.
- RABBITS, 2 mos. old, domestic, all different colors, \$1 each. Romero, 344-0302.
- ASTRONOMICAL telescope w/altazimuth mount; 700 MMFL, 2 eyepieces 20-180 power; tripod, used 1 yr., \$45 cost for \$30. Jercinovic, 255-8027.
- HO GAUGE train layout, 3 1/2'x7' table, folding legs, freight, 2 engines & cars, buildings, 45' track, switches, transformer, \$60. Hawn, 299-7835.
- '66 MOTORSCOOTER, Twin Jet Yamaha, 8000 miles, \$250. Houghton, 299-6230.
- 8' SLIDING GLASS DOOR; McIntosh power amplifier. Murfin, 268-7636.
- 14' BOAT, 25hp motor, trailer, tows skiers. Erdman, 256-6620.
- STANDARD lavatory, white, complete w/fixtures, medicine cabinet w/glass shelves, mirror & light fixture. Beeson, 255-3249.
- MAN'S sport coat, 38; dresses: 13 & 14; maternity dresses: 12, 13 & 14; baby clothes; drapery hooks; double rabbit hutch. Lohkamp, 298-6494.
- DINETTE SET, 4 chairs & table, light pink, purchased at Kays, \$75. Hungate, 298-5176.
- VIOLIN & Drum, full sized, \$150; student violin & case, \$65; Gretsch snare w/pad, stand & case, \$30. Tiefa, 299-2763.
- UNICYCLE, \$15. Fimple, 296-2925.
- HARLEY DAVIDSON Sportster, 63, rebuilt transmission, overhauled engine, rewired, new paint. Domme, 255-0133.
- HOOVER vacuum cleaner, deluxe model, all attachments, \$40. Rea, 299-9315.
- FRIGIDAIRE appliances: color-coordinated, stove, refrigerator, dishwasher. Talley, 842-1046.
- TWIN SIZE light mahogany bookcase bed, Simmons springs & mattress, \$65; occasional chair, brown, \$20; sturdy outdoor table, \$6. Brown, 255-0566.
- BICYCLE, girl's 26" Schwinn Fiesta, thorn-proof tires, \$25. Binder, 299-2937.
- JOINTER, Craftsman, 4"; pool table, 4 1/2'x8'; ironer, Bendix cabinet model; 35mm slide projector, \$70. Bell, 299-4643.
- RABBITS: all colors, sizes, ages, & sex; 30-gal. fish aquarium; single roll-away bed, \$20. Sullivan, 344-7547.
- TWIN SIZE foam mattress & box spring, \$40 or best offer; small tricycle, \$3.50; 6 hp rotodigger & garden plow, \$50. Everett, 636-2544.

- USED fluorescent lights, \$2 ea.; pickup box, \$10; auto radio, \$4; trailer parts: axels, wheels, & springs; misc. stuff. Villella, 298-7955.
- CHINESE MODERN ENSEMBLE, ebony, TV-AM-FM-stereo console, end tables, lamps, wall clock, candle holders, make reasonable offer. Merewood, 299-1344.
- MODERN style walnut finish desk. Waldorf, 242-8303.
- ACCORDIAN, Hohner, semi-professional, 120 bass, 7 switches, color black. Fisher, 268-6633.
- 3/4 SIZE VIOLIN, case included, \$40. Williams, 299-9150.
- 3-BAND RADIO, Hallicrafter, electric & battery operated, standard & short wave broadcast, make offer. Weems, 268-1702.
- OLYMPIA deluxe portable typewriter w/hard carrying case, \$40. Maxon, 255-3134.
- .30-06 AMMO, 9c ea.; mens' 10 1/2 ice skates, \$8; Boy and Cub Scout shirts w/neckerchiefs, \$3. Brammer, 265-8194.
- WINCHESTER MODEL 94 30/30, best offer or trade for Model 336 Marlin 30/30, Young, NMIMT, Socorro, collect.
- TRAILBREAKER, 2-wd. trail bike, sell or trade for motorcycle, 250cc or larger. O'Connor, 296-2355.
- WALKER Turner heavy duty tilting arbor table saw w/1/2hp motor, \$120. Rohrer, 299-4377.
- 3-SPD. bicycle w/light, \$15; 30 power spotting scope, \$10; detachable guitar microphone for Spanish guitar, \$10. Shurtleff, 255-6635.
- PIANO, Spinnet, blonde oak, \$300. Campbell, 299-8071.

CARS & TRUCKS

- '61 PORSCHE, 1600 super., rebuilt engine, new tires, will sell under book. Begeal, 299-8022 after 6.
- '56 OLDS, original owner, best offer takes it. Maciolek, 299-1696.
- '65 VW, less than 31,000 miles, \$875 cash, will consider older car as trade. Mares, 296-4550.
- '66 DODGE Coronet 500 Sport, 4-on-floor, less than 34,000 miles, Blue Book \$1820, sell for \$1600. Navalesi, 344-0598.
- '64 BUICK Le Sabre, PS, std. brakes, 4-dr., best offer. Farmer, 255-9840.
- '59 FORD 4-dr., less than 50,000 miles, one owner, V8, AT, \$300. Moody, 282-3466.
- '65 TRIUMPH roadster, baby blue w/black top and royal blue interior, Michelin X tires. Gerst, 296-2777.
- '65 MERCURY Montclair, white, 4-dr. HT, 390 V8, PS, PB, R&H, AT, factory air. Hills, 255-0585.

- '65 JEEP Wagoneer, 4-wd, hubs, PB, auxiliary fuel tank, trailer towing equipped, many extras, \$1995. Appel, 299-3776.
- '61 LARK 4-dr. sedan, V8, AT, \$350. Cooper, 299-7157.
- '65 CORVAIR 500, 4-dr., std. shift, \$800 or best offer. McCleery, 243-7467 after 5:30.
- '59 CHEVY, 4-dr. Belair, R&H, AT, 6-cyl., \$200. Kohler, 299-0819.
- '67 SHELBY w/427 Ford engine, headers, Isky cam, Hurst shifter & others. Reif, 296-2179.
- '62 FORD Fairlane, 260 cu. in. V8, AT, R&H, 4-dr., white, safety belts front & back, \$450. Drago, 247-2506.
- '60 MERCURY Parklane, PS, PB, R&H, \$350. Bridge, 842-1286 after 5.
- VOLKSWAGEN camper w/chuck box, sleeps 6. Stixrud, 298-0478.
- '66 CHEVROLET ENGINE, 327 V8, 275 hp, 15,000 miles, rebuilt PowerGlide trans. in a slightly damaged body of '60 Chev. Impala 2-dr. HT, AC, PS, PB, radio, \$325. Fry, 298-1613.
- '66 SHELBY MUSTANG GT-350, American mag wheels, new wide treads. O'Keefe, 299-4632.
- '68 1/2-ton CHEVY pickup, 4-spd. trans., 307 engine, lwb. Alderette, 877-2772 before 4.
- '66 PONTIAC LeMans, \$1400; '16' '62 Terry camper trailer, \$850. Campbell, 299-9195, 11212 Apache NE.
- '62 GMC Suburban, 9 pass., AC, \$1050. Johnson, 255-5427.
- '65 FAIRLANE, sation wagon, PB, PS, factory air, all tinted windows, one owner. Bartlett, 299-4861.
- '58 IMPALA, 301 engine, hydro cheater cam, PowerGlide, 378 positraction, \$195. Schafer, 299-4634 after 5:30.
- '62 RAMBLER Ambassador, PS, PB, auto., R&H, \$250. McKnight, 282-3377.

REAL ESTATE

- LARGE 3-bdr. house, LaJolla Park Addition, 7004 Ottawa NE. West, 299-5521 after 6.
- 4 1/2% LOAN, \$105 monthly, 3-bdr., 1 1/4 bath, family kitchen, dbl. garage, new wool carpet, consider refinancing, 1421 Gretta NE. Bagnett, 299-0658.
- MOSSMAN 3-bdr. red brick home, 1 1/4 bath, den hw/floors, fp, total \$24,650, 6 1/4% loan, \$5000 down. Thomas, 296-1128.
- CABIN on 18 acres in Manzano mountains, near Chilili; also 5 acres same area, unimproved. Luehring, 299-6031.
- CABIN, furnished, Pecos Area, on Windsor Creek 1 mile above Cowles. Wader, 298-3385.

- 3-BDR., 1 1/4 bath, AC, carpeted, dbl. garage; 2-bdr. brick, AC, redecorated, walled yard, fruit trees, \$9750; both near schools. Mitchell 299-3487 after 6.
- 2 1/2 BDR., hw/floors, corner lot, new roof, covered patio, entrance boat & trailer, \$79 pmts., T&I included, assume \$6800 mtg., w/substantial down. Fisher, 265-0626.
- 3-BDR. ROBERSON, carpet, drapes, AC, landscaped, NE heights, equity & assume 5 1/4% loan. Clark, 299-6410.

WANTED

- LARGE gear drive chain saw; band saw w/minimum 6" depth cut capacity. Schuetz, 282-3486.
- HIDE-A-BED couch which sleeps two. Sherwood, 299-2169.
- RECENT SET of Childcraft, cash. Rudolph, 298-0941, after 7.
- PLANE RIDE to central Illinois, share expenses. Stone, 268-5948 after 5.
- CONTRACTOR'S wheelbarrow. Illing, 298-7189.
- BUTANE TANK, 30-gal. minimum. Garcia, 298-8450.
- FARMALL CUB TRACTOR, condition not important. Sinsner, 344-3864.
- CIVIL AIR PATROL recruiting new members. Piper Super Cub for all pilots. Beech T-34 for those over 200 hours. Roberts, 242-2026 or Jacobson, 296-1420.
- WILL CARE for 3 to 4-year-old-child Monday through Friday, companion for 3-year-old boy. Bliss, 255-7980.
- WANT TO BUY A HIDEBED. Detorie, 299-1868.

FOR RENT

- 3-BDR. HOME, 1 1/4 baths, paneled family rm., convenient to schools & shopping centers. Murfin, 268-7636.
- 2-BDR. HOUSE, 514 Girard Blvd. SE. Gabaldon, 255-8274.
- PRIVATE ROOM w/private entrance, refrigerator, bath & living area, utilities paid, near Sandia Base North gate, \$50/mo. Villella, 298-7955.

LOST & FOUND

- LOST—Zippo lighter, nurses pin, gold cluster pin, clip-on glasses, off-white sweater, Polaroid sunglasses, brown sweater, dangling earring, check book. LOST AND FOUND, tel. 264-2757, Bldg. 610.
- FOUND—Black umbrella, tobacco pouch, chain & cross. LOST AND FOUND, tel. 264-2757, Bldg. 610.

Coronado Club Activities

Bevy of Beautiful Girls Will Perform for 'Theatre Night'

A bevy of beautiful ladies, members of the Albuquerque Light Opera, will present a special program for tomorrow's gala "Theater Night" at the Coronado Club.

The women will sing a selection of Broadway show songs about men. The show is called "Variations on the HIM" and will feature Fran Billings, who recently appeared in the star role in the Albuquerque production of "Funny Girl." Others in the cast include Melba Shelby, Marji Tucker, Ginny Clifton, Mary Smith, Margaret White, Cathryn Counsell, Sonja Williams, Sally Harrington and Robin Hubert. Michael McDaniels will be accompanist with settings designed by Melinda Ward.

The evening will start with cocktails at 6 p.m. at social hour prices. A burgundy beef dinner will be served at 7 p.m., the show starts at 8:30 p.m. and dancing to the Rhythm Masters follows. Tickets (\$2.50 for members, \$3 for guests) should be picked up by 9 p.m. tonight.

Social Hours

Tonight, the Mexican food buffet (Coronado Club style) will be served while Max Apodaca makes the mood music. The buffet costs \$1.25 for adults, \$1 for kids.

On Friday, Sept. 13, the Coronado Club famous southern fried chicken will be the buffet feature while Tommy Kelly and the smiling Irishmen hold the bandstand.

Seafood, the kind New Mexicans like, will top the buffet Friday, Sept. 20. The Aristocrats will play for dancing.

All Friday evening social hours feature Pat Reich and piano entertainment with a sing-a-long in the main lounge from 9 until midnight.

Football Bus

Two buses will leave the Coronado Club at 7:30 p.m. Saturday, Sept. 14, bound for the clash between the Lobos and Colorado State. After the game, social hour prices will prevail in the main lounge. The transportation is free to members.

Teenage Dance

Teenagers will live it up Saturday, Sept. 14, with a bash to observe back-to-school days. The Circuits will be plugged into the bandstand from 7:30 until 10:30 p.m. Carl Bell will be emcee.

Special Classes

Dance instruction, both basic and advanced, starts at the club Monday, Sept. 9. Enrollment (\$20 per couple) may be accomplished any time prior to the first class meeting.

A Sanado Charm School for girls aged 15 to 18 starts at the Club Sept. 11. Information is available at the Club office.

Bridge

Duplicate bridge meets Mondays at 7 p.m. Ladies bridge meets Thursday, Sept. 19, at 1 p.m.

Sanado Club Sherry Luncheon

Sanado Women's Club meets Tuesday, Sept. 10, for a sherry luncheon and a fashion show from Mi-Leon. For reservations, call 298-4546.



Marcella Luna (3126)

Take A Memo, Please

Freedom Shares now pay five percent interest, and the interest rate on E Bonds has also been increased.



SPEAKERS at a Youth Opportunity Campaign conference last week in Bldg. 815 included (from left) W. G. Funk, manager of Personnel Department 3250; Tom E. Robles, regional director, Equal Employment Opportunity Commission; Dr. Richard J. Griego, UNM assistant professor of mathematics; and Dr. George P. Springer, vice president for research and dean of the UNM graduate school.

Summer Employment Ends

YOC Conference Urges Trainees To Continue Their Education

"Continue your education" was the message delivered last week to approximately 140 Youth Opportunity Campaign (YOC) trainees at Sandia Laboratories as the summer of work here drew to a close.

Speakers at the YOC conference conducted in Theater Bldg. 815 included W. G. Funk, manager of Employment Department 3250, who reviewed objectives of Sandia's Youth Opportunity Program; Dr. George P. Springer, vice president for research and dean of the UNM graduate school, who discussed "Education is the Answer"; Dr. Richard J. Griego, assistant professor of mathematics, UNM, who presented "Education is Freedom"; and Tom E. Robles, regional director, Equal Employment Opportunity Commission, who discussed "Equal Employment Opportunity for All."

Alice Miner of Personnel Division II 3232 conducted the program.

Mr. Funk commented that Sandia was pleased with the results of this summer's program. "We believe that your summer's work in the industrial environment was worthwhile, both for you and the company," he said, "and we also hope that it accentuates and reinforces your determination to continue your education."

He reviewed the objectives of the YOC program at Sandia, saying that motivation and academic ability to continue education had been one of the major factors in their selection for summer employment, and that the money earned this summer should now make that next school year possible. "Good luck," he said, "when you return to school."

The 150 trainees at Sandia Laboratories, 14 at Livermore and one at Tonopah Test Range were assigned as Laboratory helpers whenever possible with the remainder helping on clerical and manual labor jobs. The summer at Sandia provided valuable experience for the trainees, and, in so far as possible, assignments were consistent with the student's educational goals. In most cases, the employment at Sandia made possible the student's return to school.

A unique feature of this summer's program was the enrollment of many of the trainees in Sandia's out-of-hours training courses. About 90 of the trainees enrolled in 21 courses ranging from a special Student Problems Seminar to Basic Computer Principles.

Bell System Sponsors TV Special on Cities

America's troubled cities and the causes underlying their unrest will be the subject of an in-depth documentary, sponsored by the Bell System and presented in color Saturday, Sept. 14, at 9 p.m. MDT on KOB-TV (Channel 4).

This program is the first in a series called "White Paper—The Ordeal of the American City." Future programs will include a two-hour report in December and a 90-minute special scheduled for broadcast on the NBC network early next year.

(Livermore Laboratories employees should check their area TV schedules for a possible change in date and time.)

Speakers

G. L. Eggert (9122), "Kinetics of Retained Austenite to Martensite Transformation in Hardened Steels," Industrial Sponsors Meeting, Dimensional Stability Program, National Bureau of Standards, Aug. 14, Gaithersburg, Md.

G. P. Steck (1723), "Identities Relating the Distributions of Kolmogorov Smirnov Statistics to the Joint Distribution of Ranks," annual meeting of the Institute of Mathematical Statistics, Aug. 25-30, Madison, Wis.

R. W. Roberts (2454), "Automatic Programming and Recording, Multiple Application Controller, and Computer Operated Test Equipment in Production Test Equipment," New York University School of Engineering short course on factory and depot test equipment, Aug. 27.

L. M. Barker and R. E. Hollenbach (both 5161), "Compressive and Rarefaction Wave Propagation in Fused Quartz"; P. J. Chen (1721), "The Growth of Acceleration Waves of Arbitrary Form in Homogeneously Deformed Elastic Materials"; W. E. Warren (1721), "Geometrical Stress Singularities in the Linear Theory of Electrostriction"; J. N. Johnson (5161), "Dislocation Dynamics and Steady Plastic Wave Profiles in Metals," 12th International Symposium of Theoretical and Applied Mechanics, Aug. 26-31, Stanford, Calif.

Albert Goodman (1224), "Some Things that the Future May Bring," Albuquerque Breakfast Lions Club, Aug. 29.



U.S. DELEGATION to recent American-British-Canadian Conference on Unification of Engineering Drawing Practices held in Ottawa, Canada, included P. A. Nicovich (7612), second from right. Opposite him is R. F. Francoise of General Electric, secretary of the U.S. group. Attendees reported "thorough understanding of all items and agreements on some."

Sandia Safety Signals

In an Emergency

If you don't know the emergency numbers needed, such as the Fire or Police Department—dial "Operator" in any emergency and say, for example, "I want to report a fire at - - -" or "I want a policeman at - - -." If you cannot stay at the telephone, tell the operator the exact location where help is needed.

What to Wear

When hunting, wear clothing which makes you easily visible. Red or orange is generally recommended. White may be mistaken by another hunter for a deer's tail. Shoes with corrugated rubber soles are safest in the woods.

Crossing Crashes

In an average year, 1500 people are killed in vehicle-train crashes. In 40 percent of the accidents the drivers disregarded mechanical protection, flashing lights they could see, even watchmen who tried to flag them down. In California there were 1330 crossing gates smashed in one year.

Suggestion: Drive so you can stop in time.