



SYSTEMS CHECK of the new PDP-10 computer is made by systems analysts Phil Eyre, left, and Larry Lane (both 9421). The new computer is now "on-line" and operating with 36 remote terminals throughout the Laboratories.

Timesharing System

New PDP-10 Computer Installed

Sandia's newest computer is called a PDP-10, a timesharing system. In operation for a month now, the new computer is located in the Central Computing Facility in Bldg. 880 but has 36 remote terminals in buildings throughout Tech Area I. Some 200 members of the staff have access codes to use the new system. The PDP-10 is manufactured by Digital Equipment Corporation.

There are a number of advantages to a timesharing system, according to Al Iacchetti, supervisor of Operating Systems Division 9421. First of all, the user can "interact" with the machine — feed his program into the system, line by line, and continuously check the results. He can add new data and delete or insert additional instructions into his program based on results just presented from the machine. The user works from a Teletype facility and at the speed of a Teletypewriter.

The computer, of course, works much more rapidly and for this reason can handle all of the remote stations simultaneously with what appears to be immediate response.

"The resulting rapid interplay is an extremely valuable feature," Al says. "In essence, timesharing eliminates the turnaround time encountered when using the larger batch computers. In a standard batch system the programmer submits his program, it is processed and results are sent back, he spots an error and corrects it, and then resubmits. On occasions as much as a day might elapse between steps.

"In addition," Al says, "the interactive capability is essential for certain operations. With proper program design the computer can be made to 'ask' the user questions and perform analyses based on the answers. Electronic circuit design programs are a prime example. In a sense, the computer actually designs the circuit by asking the engineer questions and manipulating his answers. Codes of this sort are on order and others will be developed by Sandia users.

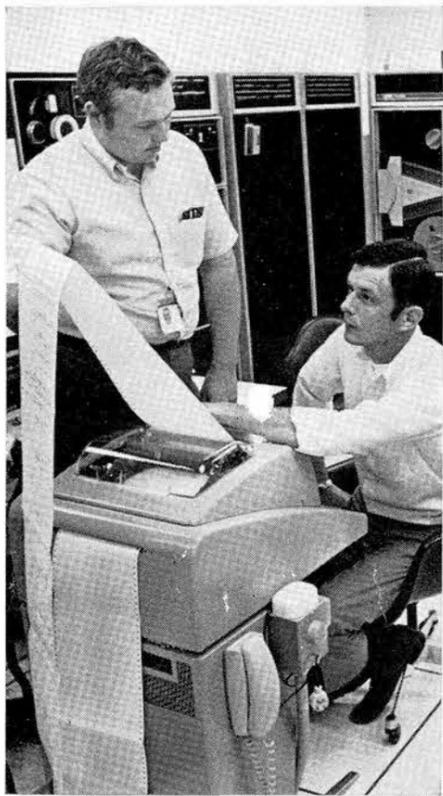
"A PDP-10 interactive program can be useful to management also," Al says. "With an interactive program, a manager can request summaries, determine trends in operations and costs, and select special data for use in decision making."

Normally, users store their programs with the PDP-10 on its magnetic disc file. An example of such a program would be one to process test data. The user identifies himself to the computer and calls for the needed program. The computer transfers it from disc storage to the active processor and informs the user via Teletype that it is ready. The user then plugs in his test data and receives his analysis immediately. If the analysis is in the form of a lengthy printout, the user can elect for it to be printed by the computer's main printer which is much faster than Teletype. This saves his time and frees the terminal for other activities.

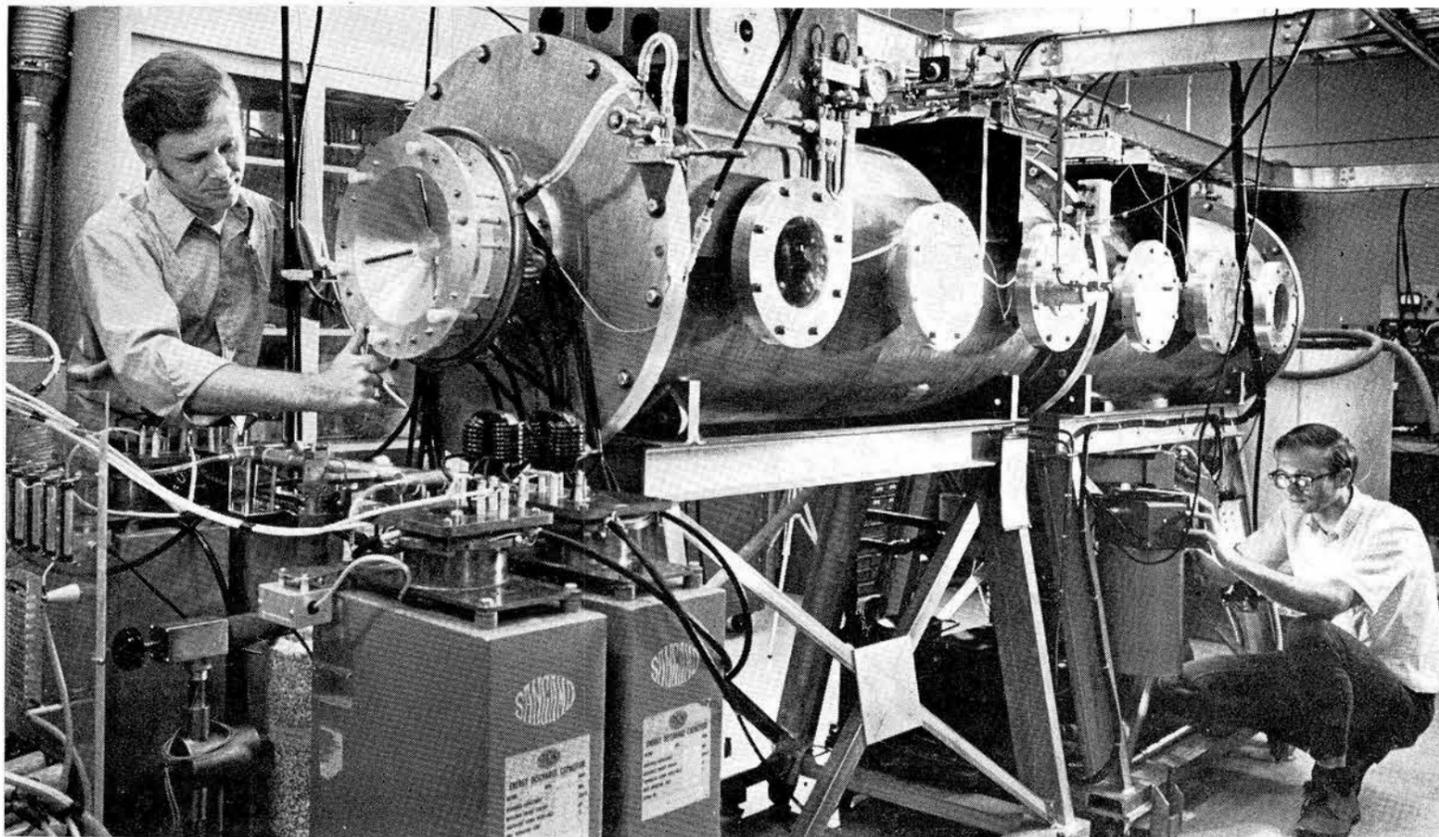
For the user's convenience several different programming languages are provided. These include FORTRAN, BASIC, AID, and TECO plus COBOL, soon to be added. Each has its advantage for a particular kind of problem — either scientific or business. TECO (for Text Edit and Correct) is a powerful program providing flexibility in changing source program statements, data files and output formats.

"In selecting and adapting the PDP-10 system," Al says, "we tried to tailor it to Sandia needs. The work is continuing under Larry Lane, Lyle McVey and Phil Eyre (all 9421). Larry and Lyle, computer systems analysts responsible for the entire

(Continued on Page Two)



PDP-10 SYSTEMS ANALYST Lyle McVey (9421), left, checks control operation of the new computer with operator Richard Orzel (9411). Remote terminal users can communicate with the computer operator via Teletypewriter.



HIGH ENERGY PLASMA GUN designed by Cliff Mendel of Weapons Effects Division 5235, right, has been operating in Bldg. 806 for three months. With Dave Zagar (5235), left, Cliff is striving to accelerate 10^{18} argon ions to 3×10^7 centimeters per second. Ion bursts at this speed simulate some aspects of nuclear

clear bursts. Results of Cliff's work will be useful for calibrating instrumentation used in underground nuclear testing. The gun presently achieves 1×10^7 centimeters per second with a 12-kilojoule capacitor bank. A 35-kilojoule capacitor bank will be installed soon.

LAB NEWS

VOL. 22, NO. 15

JULY 17, 1970

SANDIA LABORATORIES - ALBUQUERQUE NEW MEXICO & LIVERMORE CALIFORNIA

Attorney Ross Returns to New York; Replacement from Western Electric

Charles Ross, Jr., Sandia's General Attorney, Secretary and Treasurer, will return to Western Electric headquarters in New York on Sept. 1, where he will be Assistant General Solicitor of that company. He will be succeeded by Richard Partridge, an attorney in WE's legal and Patent Division.

Mr. Ross joined Sandia four years ago after serving as an attorney at WE headquarters since 1960. Prior to then he was a partner in the law firm of Ross and Ross. He holds a BS degree in business administration from Stetson University and a Bachelor of Laws degree from the University of Virginia.

Mr. Partridge graduated from Harvard College in 1952, served in the U.S. Army from 1952-54, graduated from Harvard Law School in 1957, then joined WE's legal di-



Richard Partridge

Charles Ross

vision. For the past three years he has been responsible for handling legal problems arising out of WE's government business, and legal matters involving company security.

Sandia Participated

Effects of Solids Under Pressure Subject of Meeting in Scotland

"Shock Waves and the Mechanical Properties of Solids" was the subject of a lecture presented recently in Aviemore, Scotland, by Orval Jones (5130) at the Third International Conference on High Pressure: Solids Under Pressure.

He was among 208 scientists from 17 countries at the meeting which was designed to bring specialists together for discussions on current work in engineering and metallurgical aspects of high pressure. Previous meetings were held in France and Germany.

Orval described the transient and permanent mechanical changes produced in solids by explosive or high-velocity impact loading. Examples of recent work at Sandia were presented and included his work on rate-dependent dynamic yielding in copper single crystals and results of Dick

Rohde (5531) on shock-induced hardening of Hadfield steel.

The meeting was held at Aviemore, a winter ski resort about 40 miles from Inverness. "The area resembles Taos and there was still snow on the 7000-foot rather rugged mountains," Orval said.

He was impressed by the clearness of the Ness River where it passes through Inverness, the long-haired brown Northern cattle, the lack of litter and billboards, and the friendliness of the people. "I was equally surprised by Englishmen's opinions of the United States: they commented on our fast pace of life, materialistic motivation, and our violent, frontier-type atmosphere. For my part, I was worried about carrying a very large amount of British pounds in my pocket in London!"



CHARTER of a new Equal Employment Opportunity committee within the AEC is discussed by Ray Powell (3000), second from left, with newly-appointed committee members Tony Toya (4611), left, Lorella Salazar (3433), and Bill Garcia (3233), right. The committee, composed of members from AEC contractors, will augment the AEC's Equal Employment Opportunity program as it relates to Americans of Spanish or Indian descent.



EMPLOYEE SERVICES DIVISION 3123 has arranged for a group of 10 singer-musicians to present a program called "Youthquake" during the noon hour Friday, July 24, in Theatre Bldg. 815. The group sings modern religious and folk songs. Admission is free and entrance is outside the Tech Area.

Take Note

A Sandia Laboratories team emerged the champion of a recent invitational slow-pitch tournament sponsored by Manzano Base.

Winning team members included Emory Chavez (7632), Arlin Cooper (2627), Larry Grube (7615), Pres Herrington (9226), Jim Lohkamp (2332), Chuck Looney (9241), George Luna (9411), Keith Mote (4253), John Murphy (3428), Don Overmeyer (5151), Dick Pewe (4121), Lloyd Salas (9411), Joe Santana (7651), Leo Webb (4252) and team manager Mike O'Bryant (7651).

A total of 84 Sandia Golf Association members braved the heat at Socorro to play in the Mid-Season Open tournament recently.

First flight winners were Ralph McClure (2452) and Ed Stang (9241) with 63. Also shooting 63 were Art Verado (9242) and Sam DeHaan (7633), second flight winners.

Best score was made by third flight winners P. K. Goen (9227) and Mel Vick (9425) who shot 61.

Any Sandia or AEC employee interested in joining SGA should contact Wayne Lathrop (9221).

Willis Whitfield, supervisor of Planetary Quarantine Applied Science Division 1742, presented the keynote address—"Contamination Control: A State of the Art Review"—at a recent European Symposium for Contamination Control in Stuttgart, Germany. During the meeting, Willis was presented an award honoring his development of the laminar flow clean room.

A meeting of the newly-organized Pennsylvania Club will be held at 7 p.m. Friday, July 24, at the American Furniture Co. Hospitality Room at Menaul and Carlisle. A dinner is being planned for Sept. 9, according to Louise Lewis (3421). Any ex-Pennsylvanian is invited to join the group.



JOHN WAHLENMAIER
Patrol Division 3523

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BERNICE
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and Scheduling
Division 4553



Never Want For Flavor

Cool, Quiet, Serene — Like to be Here?

One of the more vexing problems of the atomic age is what to do with the "hot" waste products, those radioactive tag-ends whose activity may persist for many years. Now, AEC has announced the tentative selection of a salt mine near Lyons, Kans., for demonstration of long-term storage of radioactive wastes. Over the next year additional studies will be conducted to confirm safety aspects of the operation.

Some 10,000 square miles of salt beds underlie the State of Kansas. Near Lyons the salt bed is some 300 feet thick and starts at a depth of about 800 feet. Radioactive waste will be placed in rooms mined in the salt formations approximately 1000 feet underground.

The desirability of bedded salt formations for long-term burial of radioactive wastes has been recognized for some time. In 1955, a committee on radioactive waste

disposal reported that "the most promising method of disposal for high-level waste at the present time seems to be in salt deposits."

Salt has many characteristics that make it particularly attractive. It is widespread and abundant, underlying about 400,000 square miles in portions of 24 states in the United States; it has good structural properties, with a compressive strength similar to that of concrete; it is relatively inexpensive to mine; its thermal properties are better than those of most other rock types; it occurs generally in areas of low seismicity. Most importantly, salt deposits are free of circulating ground waters and are isolated completely from underground aquifers by essentially impermeable rocks. Furthermore, any fractures which might develop are readily healed by plastic deformation of the salt.

Possible Solution To One Of Life's Little Problems

You meet a person, female gender, and the introduction is garbled and you're not really sure whether she's a Miss Brown or Mrs. Brown. This can be a delicate situation, but you'll be happy to know that the Congress of the United States — or at least one of its members — has addressed itself to the problem: (Rep. Jonathan Bingham, New York Democrat, in the Congressional Record)

"Mr. Speaker, there are an increasing number of American women who do not wish to be identified as Miss or Mrs. I sympathize with the way they feel and I suggest that they should start using the abbreviation 'Ms.', pronounced 'miz.'

"This may seem to some like a frivolous suggestion, but it is not. I know from many conversations with women, including my wife and daughter-in-law, that they resent being asked by strangers whether they are Miss or Mrs. They point out that men are called Mr. whether or not they are married. 'What business is it,' they say to me, 'of a sales clerk whether I am married or not?' I believe that a profound question involving the status of women is involved here.

"The form 'Ms.' is a useful one for another purpose, and I commend it to my colleagues in the Congress for their consideration. Many of you receive letters, as I do, signed with feminine names but with no indication of the writer's marital status. Until recently, we had a problem in my office deciding how to address these women in reply. On the envelope it was possible simply to use both names, but what to do with the salutation on the letter itself? For a while, we tried using both names — for example: 'Dear Jane Brown' — but this somehow seemed too intimate for a person I had never seen. Then the possibility of using the form 'Ms.' was brought to my attention — for example: 'Dear Ms. Brown' — and this seemed convenient. I noticed

that the women on my staff thought this was a good idea. Next, I came to the conclusion that this abbreviation and salutation could be widely used.

"Of course, it is really up to the women of America whether the idea catches on or not. Far be it from me to presume to tell them how they should be addressed.

"Whatever form of address the ladies choose, however, the U.S. Government should not contribute to the widespread practice of unnecessarily asking the impertinent question about marital status. Far too many forms to be filled out, including U.S. Government forms, require women to specify Mrs. or Miss when the question is totally irrelevant. I am today writing to the U.S. Budget Director who has responsibility for approving all forms put out by Federal agencies, urging him to see that this question is eliminated where it is not significant.

"The retailers of America should also wake up to the fact that many women do not like to be asked the question 'Miss or Mrs.' I am writing to 10 large New York department stores suggesting that they instruct their clerks not to ask this question unnecessarily. I will be most interested in their replies.

"Moving to a single form of address for women is not a new idea. The salutation 'Mistress' was formerly used to address both married and unmarried ladies. Oddly enough, as any dictionary will show, both Mrs. and Miss are abbreviations of the word Mistress."

It turns out that Sandia's own Personnel organization has been following the practice in its correspondence for some time.

Call LAB NEWS with your opinion of this idea. If we get more than three opinions we can call it a survey and we'll print the results.

Continued from Page One

New PDP-10 Computer

operating system, have been involved in all phases of the PDP-10 activity including the original studies which culminated in its selection. They are now developing new software and considering different kinds of terminals — such as plotters and cathode ray tubes for display purposes. Phil's assignment encompasses the implementation of various applications codes. Carl Bailey (9422) and the Math Library project group are developing a library of general purpose mathematical routines for use on the PDP-10. Gary Shepard (9427) has conducted a number of training sessions for users and will conduct more in the future. Carl Klecotka (9415) is responsible for the PDP-10 communication network including the remote terminals.

PDP-10 is the seventh major computer installed in the Computer Center in Bldg. 880. Others include two Control Data 6600 computers, a Control Data 3600, two IBM 7090 computers and a Univac 1108.

At Livermore Laboratories major computers include a Control Data 6600, Control Data 3600 and an IBM 1401.



AL IACOLETTI (9421) demonstrates use of a PDP-10 remote terminal. New system has 36 remote terminals for use by 200 members of staff.

LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer
ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA

Editorial offices in Albuquerque, N. M.

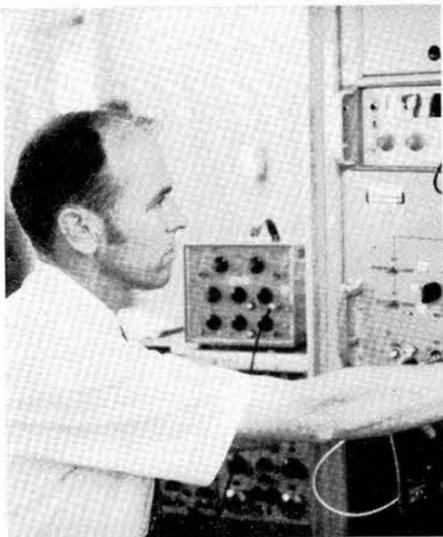
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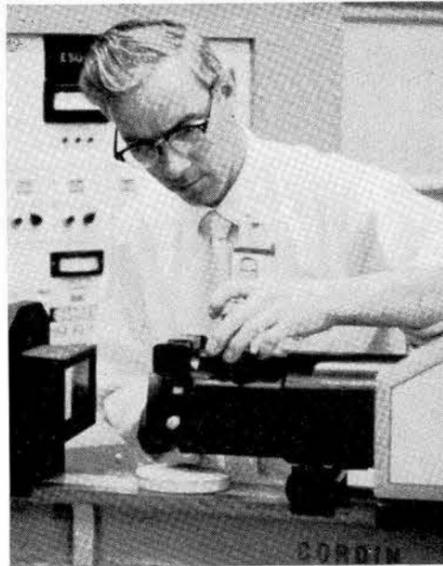
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ELMER SMITH of Acceptance Equipment Division 8136 and a co-worker have been granted a patent on a method of measuring pulse time intervals with an accuracy of plus or minus one nanosecond.



WIL VANDERMOLLEN of Experimental Mechanics Division 8122 is looking at the behavior of materials over and above dimensional changes.



KIRBY HAMMOND of Telemetry Development Division 8182, working in thin-film hybrid electronics, is co-inventor of a resistor trimming device.



DON BENTHUSEN of Instrumentation Development Division 8342 has designed a strain measuring system for use in a high electrical noise environment, in addition to an all-silicon, full-bridge strain gauge for use in stress analysis work.

Engineering Technicians Make Contributions to R&D Effort

Like other research and development facilities, Sandia has a great need for engineering technicians, and scientists and engineers at the Laboratories rely heavily upon them. Generally, the engineering technician works closely with the scientist or engineer, giving him direct assistance.

Areas of interest for technicians include electronics, computers, electrical and mechanical engineering, chemistry, and metallurgy. Because they need some knowledge of science and engineering, a high percentage are graduates of technical institutes or junior colleges. Others enlarge their technical knowledge through courses and on-the-job training.

A number of technicians at Livermore perform advanced technical work. Don Benthussen of Instrumentation Development Division 8342 works in the field of strain measurements — the measurement of very small dimensional changes in materials. "People ordinarily don't think of metals as being very compressible, but if you apply pressure to them dimensional changes occur which can be measured, and it's our business to measure these changes," he says.

Don has designed a strain measuring system for use in a high electrical noise environment. "There are extreme amounts of electrical interference associated with nuclear shots," he explains. "Usually, this interference masks the strain signal for as long as half a millisecond, but through refinement of our electronics systems, we have been able to significantly reduce this time. I've also developed an all-silicon, full-bridge strain gauge for which a patent application has been filed by the AEC, and is now coming into wide use in nuclear testing."

Wil Vandermolten of Experimental Mechanics Division 8122 explains his work: "Over and above dimensional changes, we're looking at other behavior — will the material withstand high energy shock waves, how much energy does it take to tear this material apart, or what was the amplitude and duration of the shock wave?"

Kirby Hammond of Telemetry Development Division 8182 is involved in thin-film hybrid electronics. "Engineers come up with a circuit which we arrange so that it will fit the thin-film package requirements," he says. "We completely fabricate and hermetically seal the package, and test and return it to the engineers. I am co-inventor of a resistor trimming device that operates on the principle of electrical deplating of resistor material."

Elmer Smith of Acceptance Equipment Division 8136 is responsible for the design and control of test equipment used at various manufacturing agencies for acceptance of system components. "In working with a variety of components, I've had the opportunity to become involved in many fields such as fast transient recording, lasers, neutron measurement, and so on," he comments.

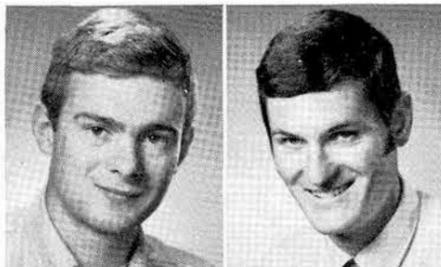
Previously, while working in the field of time interval measurement, Elmer and a co-worker developed an inexpensive but accurate method of measuring pulse time intervals with an accuracy of plus or minus

one nanosecond. They have now been granted a patent of this method.

Supervisors and staff members appreciate the work of engineering technicians. Some comments: "I don't believe I've gone into any project of any size where the engineering technicians concerned didn't make a considerable contribution to the project," and "Most of the technicians I have worked with have been very well trained and do an excellent job."

Two Master's Degree Recipients Under OYOC Return

Two engineers have returned to Sandia Laboratories Livermore after earning Master of Science degrees under the One-Year-



Bob Kee

Gary Clark

on-Campus (OYOC) Plan of Sandia's Graduate Education Program. Under the OYOC Plan, Bachelor-level technical people study full time while in residence for one academic year at an approved university.

Gary Clark and Bob Kee were both awarded MS degrees in mechanical engineering from Stanford University, majoring in design.

Gary is an engineer in Electrical Sub-Systems Division 8155 where he performs studies of hydrodynamics and shock vibration analysis. He joined Sandia Laboratories in June 1968 following graduation from the University of Idaho with a BS in mechanical engineering, and was assigned to a project engineering group working in thermal analysis.

Bob, an engineer in Advanced Projects Division 8175, works on thermal design studies. He joined Sandia Laboratories Livermore in June 1969, doing heat transfer analysis in a project group. He, too, graduated from the University of Idaho with a BS in mechanical engineering.

Sympathy

To Don Knaple (8161) for the death of his mother in Livermore, June 11.

To Frank Murar (8182) for the death of his father-in-law in Albuquerque, June 13.

To Joe Portolese (8322) for the death of his father in Seattle, June 4.

To Ken Bennett (8264) for the death of his father in Pueblo, Colo., May 26.

LIVERMORE NEWS

VOL 22, NO. 15

SANDIA LABORATORIES

JULY 17, 1970

Ray Rychnovsky Awarded MS Degree In Applied Mechanics



Ray Rychnovsky of Advanced Development Division 8176 received a Master of Science degree in applied mechanics recently from San Jose State College.

His thesis was entitled, "Survey of Stress Waves in Solids: Fundamental Principles and Current Developments."

Ray joined Sandia/Albuquerque in June 1957 where he worked as a mechanical engineer in Manufacturing Development until transferring to Sandia/Livermore in February 1963. At Livermore, he has had various assignments involving test vehicle design, advanced development, vulnerability, project engineering, and for the past two years advanced development and vulnerability analysis.

He received his BS degree in mechanical engineering from Iowa State University in 1957.

All of Ray's graduate work was completed under Sandia's Educational Aids Program (EAP).

Take Note

Jerry Wackerly, a budget analyst in Accounting, Budget, and Financial Division 8213, received a Bachelor of Science degree in business and industrial management recently from San Jose State College. All of his study was completed through evening classes over the past 10 years. Jerry received his AA degree in business administration from Chabot College in 1965. Since joining Sandia in March 1959, his various other assignments have included document clerk, stock control analyst, assistant buyer in Purchasing, and integrated contractor coordinator.

* * *

Recent elected officers of the Mount Diablo Section of the American Institute of Aeronautics and Astronautics include Sandians Roger Everett (8351), treasurer, and Terry Mattson (8333), secretary. Others elected were chairman Don Carter of LRL and vice chairman Bob Niccolls of John E. Lindberg, Inc. The Mount Diablo Section, with over 170 members in the East Bay, offers interesting monthly programs from September through May.

Congratulations

Mr. and Mrs. Vern Byfield (8274) a daughter, Shelly Ann, June 18.

Mr. and Mrs. Bill Landt (8139) a son, William Eric, June 16.

Mr. and Mrs. Bill Moore (8332) a daughter, Kerry Colleen, May 30.

Nancy Martin (8275) and Harold Hunt (8257) married in Livermore on June 25.



INVENTORS Ira McKinney (5153) and Cecil Land (5153) admire a new presentation folder of their patent of a transparent color controlling ceramic element. Future Sandia inventors will receive similar folders from Gene Newlin and Tom Marker, right, of the Patent Department 6010. Gene Haertling (2317) also shares the patent.



VACATIONERS Larry Tichenor (4222), his wife, and another couple were lucky to walk away from this plane crash in the Dominican Republic. Narrow curved beach wasn't much of a landing strip for



their powerless plane. Military man with rifle proved to be friendly. Plane remains on beach, probably indefinitely.

This Is Half The Fun?

Cool Pilot Crash-Lands Plane in Dominican Republic

The pilot was in radio contact with an Eastern Airlines plane. His voice was relatively calm when he said, "The situation is no longer minor, it is now major. We're headed down!"

And down they went from 11,000-foot elevation, where the engine of the Cessna 185 cut out, to a small beach in the Dominican Republic, where they crashed. None of the four occupants was hurt. They were Larry Tichenor (4222), his wife, Jean, Don Summers, the pilot and owner of the plane, and his wife Kathy (a former Sandian).

The vacationers were en route from Albuquerque to St. Croix in the Virgin Islands. They had made overnight stops in New Orleans and Nassau. During an earlier fueling stop in Florida, life jackets were rented for use during the island-hopping part of the trip and Don instructed his passengers in what to do in case of a crash at sea.

After a fuel stop in South Caicos, all were asleep except Don when the engine developed a miss. Then suddenly the engine stopped. The passengers had time to re-tighten their seatbelts and shoulder harnesses and stow loose objects under the seats during the long glide to land.

In the forced landing one of the plane's wheels was broken and a wing buckled. The Eastern Airlines plane continued to circle overhead for a half hour until the U.S. Coast Guard rescue plane from Puerto Rico arrived.

Meanwhile back on the ground, as soon as the four climbed out of the plane, and Kathy had placed emergency beacons on the plane's wing, they were approached by a half-dozen natives from a nearby village and three military men. "Several of the men carried guns, apparently as signs of authority," Larry recalls, "but at no time were the weapons pointed at us."

The natives spoke only Spanish, and the Americans only had a slight knowledge of that language, but they did know when they were offered coffee. "The coffee was served in china-demitasse cups with sterling silver spoons for the sugar," Larry says.

By the time they finished their refreshments and unloaded personal belongings

and the radio from the Cessna, the Coast Guard plane arrived and by radio instructed the Americans to lie on the ground if they were injured or stand in a straight line with arms outstretched if they were okay. The Coast Guard pilot later said, "We were darned glad to see you all standing. So often in crashes in the West Indies, we don't even find a trace of the plane in the water."

Fifteen minutes later a Coast Guard helicopter landed in the village and about an hour later an official helicopter of the Dominican Republic also landed. The latter escorted the U.S. whirly bird and the four Americans to the San Ysidro air strip, near Santo Domingo. There the Americans were confined to the Dominican Republic officers' club until authorities arrived to give them authorization to leave the country — they were considered to have entered involuntarily, but illegally.

Even then there were more complications. Both Coast Guard planes were almost out of gas, the civilian airport was closed for the night, and there was the problem of finding the gasoline tank attendant. Finally, the four stranded vacationers boarded the Coast Guard plane for the flight to San Juan, Puerto Rico (a member of the group turned out to be a graduate of Manzano high school).

"We were on the island a little over eight hours after the crash and I can't praise enough the efficiency of the Coast Guard. This was a standard rescue crew and they really took over when they arrived. One enlisted man was fluent in Spanish and assisted in our contact with Dominican Republic officials," Larry says.

In San Juan, the vacationers were taken to a motel and the following day left for St. Croix via commercial plane. Even this was an experience for Larry — he'd never been on a commercial plane before.



ARTIST CECIL KINNEY (3417) can see the humor in most situations—including a plane crash. The "long one" refers to Larry Tichenor, who towers above his flying companions.

LAB NEWS

PAGE 4

JULY 17, 1970

Sympathy

To Gus Krause (2651) for the death of his mother in Canton, Ohio.

To Mary Pasko (7415) for the death of her father in Phoenix, July 8.

Authors

R. P. Clark (2343), "Electrical Conductance of the System LiCl-KCl-CaCrO₃," Vol. 15, No. 2, JOURNAL OF CHEMICAL AND ENGINEERING DATA.

L. C. Beavis (2613), "Real Leaks and Real Leak Detection," Vol. 20, No. 6, VACUUM.

G. W. Gobeli (5110), "The Observation of Neutrons Produced by Laser Irradiation of Lithium Deuteride," Vol. 188, page 300, PHYSICAL REVIEW.

A. B. Campbell (7281), "A Practical Method for Optimizing S-Band Transmitter Deviation," June-July issue, TELEMETRY JOURNAL.

J. A. Halbleib (5223), "An Exact Analytic Solution for First Order Fluorescent Buildup in One Dimension," Vol. 41, No. 5, page 2155, JOURNAL OF APPLIED PHYSICS.

A. D. Swain (1644), G. C. Shelton (former Sandian), and L. V. Rigby (1644), "Maximum Torque for Small Knobs Operated With and Without Gloves," Vol. 13, No. 2, ERGONOMICS.

F. W. Muller (7425), "Sub-System Requirements," Vol. 3, No. 1, PROCEEDINGS OF THE ANNUAL SYMPOSIUM ON RELIABILITY.

Big Contest

Brown Baggers Unite—You Have Nothing to Lose But Your Peanut Butter & Jelly.

According to a recent hallway poll by LAB NEWS, 68.3% of Sandians are brown baggers—they carry their lunch. Now this may not seem a very significant statistic, but consider that day after day most of these are subjected to the stupefying monotony of the same old fare: American cheese on white, salami on whole wheat, tuna fish on rye, and so on. They have the kind of lunch that's not so much enjoyed as endured.

But there dwell among us a few who have broken out of this cruel dietary regimen, and these manage to achieve a kind of noontime haute cuisine. Samples:

- Home-made barley soup (carried in thermos)
- Lox (smoked salmon) and cream cheese on Russian rye
- Kosher Pickle
- Cheese cake

- Vichyssoise (also called cold potato soup)
- Leftover barbecued spare ribs
- Potato chips
- Jalapeno peppers (mucho caliente)
- Fresh cherries

Have you had any goodie brown bagger lunches lately? Then write them down and send them to us—LAB NEWS will run them in future issues as a service to suffering baloney sandwichers. In fact, we'll make it a contest. Prize for the best entry is fairly obvious: one free lunch at the Coronado Club.

Events Calendar

July 17, 24, and 29—"Le Rossignol" and "The Globolinks"; July 18 and 22, "The Marriage of Figaro"; July 25 and 31, "Anna Bolena," Santa Fe Opera.

July 17-19—"Futz," "Cockanear," and "Doing a Good One for the Red Man," three one-act plays at Old Town Studio, 1208 Rio Grande NW.

July 17-19, 24-25—Albuquerque Civic Light Opera presents "Guys and Dolls," UNM Popejoy Hall.

July 17, 24, and 31—Forest Service natural history series lectures on the Sandias, UNM Anthropology lecture hall, 7 p.m., free.

July 18-19—Outing in the Cabresto area, near Questa. N.M. Mountain Club, leader Bob Babb, tel. 256-9016.

July 21—"Ballet Africana of Zambia," UNM Popejoy Hall.

July 25-26—Puye Cliff Ceremonial, near Espanola.

July 25-26—Corn dances at Tacs, Acoma, and Santa Ana Pueblos.

July 31-Aug. 2—N.M. Arts and Crafts Fair, State Fairgrounds.



RECENT COLLEGE GRADUATES selected for Sandia's One-Year-on-Campus (OYOC) Plan include (l to r) William Guy (9413), Dale Hawley (2622), Thomas Petty (2652), Michael Rogers (7262), and Gary Phipps (7514). Not present, Robert Bernard (9341).

One-Year-on-Campus Class for Fall Selected

The third class of Sandians to participate in the One-Year-on-Campus (OYOC) Plan has been named by University Relations Division 3134, which administers the program.

The plan is limited to recent college graduates with majors in engineering, mathematics, chemistry or physics, who will spend one calendar year at a selected university to complete a Master's degree curriculum.

Those selected for the program this year include: Robert Bernard (9341), an aerospace engineering graduate of Mississippi State University who will study applied physics at Stanford University; William Guy (9413), a mathematics major from the University of New Mexico who will do graduate work in computer science at Purdue.

Electrical engineers who will be continuing their studies are Dale Hawley (2622), a graduate of the University of Arkansas, and Michael Rogers (7262), a graduate of Lamar State College of Technology, both of whom will attend Oklahoma State University; Thomas Petty (2652), a University of Illinois graduate, and Gary Phipps (7514), a Purdue graduate, both bound for Stanford.



RECENTLY selected for the 1970-71 Computer Science Development Program are (l to r) Robert Croll (9322), Lynne Dehghanmanesh (1224), Don Doak (1544), Robert Isidoro (7422), Leo Klamerus (2635), and Thomas Starr (2444). Not present, Lynn Ritchie (1724).

Seven Named for Computer Program

Seven Sandians have been appointed as participants in the 1970-71 Computer Science Development Program, which was designed to produce technical specialists in computing with backgrounds in mathematics, engineering, or physical science.

Participants in the program include newly-recruited BS and MS degree graduates in mathematics, engineering, or physical science, and on-roll staff members with educational backgrounds in these disciplines. They are offered part-time graduate study at the University of New Mexico as a way to meet the growing need for professional personnel thoroughly trained in the uses and techniques of digital computers.

Those named to participate in the program are Robert Croll (9322), Lynne Dehghanmanesh (1224), Don Doak (1544), Robert Isidoro (7422), Leo Klamerus (2635), Lynn Ritchie (1724) and Thomas Starr (2444).

The program was originated in 1968 and is administered by University Relations Division 3134.

Service Awards 20 Years



Lloyd Barnes 4371 Frank Daut 2534 George Horne 9413



Leroy Huensfeld 4373 Charles Mayer 7611 Vaughn Nogle 9228



David Winner 3524 Billy Yates 7623

15 Years



Jean Lanston 5200 Don Munro 8332

10 Years

Oscar Oren 1911, Jimmie Buzman 8121, Don Knapp 8161, George Stone 9513, Owen Berg 1555, Kenneth Paul 4613, Jon Barnett 2355, Robert Gentsler 7251, and John Simchock 7612.

Speakers

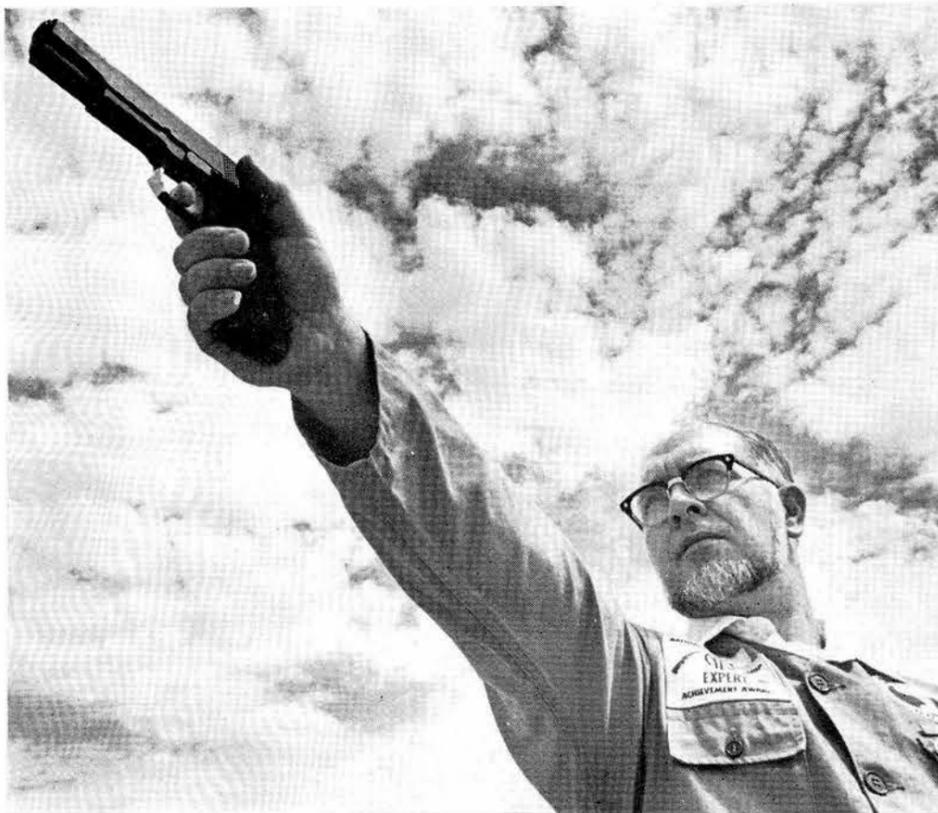
L. A. Harrah and R. C. Powell (both 5514), "Dose Rate Saturation in Plastic Scintillators," International Conference on Organic Scintillators and Liquid Scintillation Counting, July 7-11, San Francisco.

C. R. Prohaska (3414), "Taking the Clerking Out of Classification: A Data Processing Approach to Classification Management," National Classification Management Society Seminar, July 15, Los Angeles.

T. L. Pace (7260), "Engineering Aspects of Testing," High School Science and Math Teachers, June 27, Las Cruces.

gional first team trophies in both pistol and rifle competition. They are Curtiss Moses (1548), Don Bliss (7533), Ken Nowotny (2442), James Linn (1752), Dick Vivian (1611) and Al Smaller (4510).

Sandians Take Top Spots In NIRA Shooting Matches



RAY MOSTELLER (9132) took second place in the pistol shooting competition in a recent NIRA tournament and led a group of Sandians to top spots in national and regional rankings.

Ray Mosteller (9132) picked up another trophy recently to add to his already impressive collection. Ray is a pistolshooter and, according to the results of a recent National Industrial Recreation Association tournament, he is number two in the country.

The contest was conducted on the local level by participating companies under NIRA rules. Resulting scores were then compared on a regional level and regional winners were forwarded to the national level. A total of 679 shooters participated.

Ray's high score of 197 was made in the CO₂ pistol competition. Ray also shoots .22, .38 and .45 caliber pistols and, since 1963, he's earned more than 20 top trophies in competition matches.

His best year was 1966 when he earned the First Sharpshooter award in the Nevada state tournament (he was commuting to the Nevada Test Site at the time), took two top awards in the national NIRA competition, and won a spot on the New Mexico team which competed in the National Tournament at Camp Perry, Ohio, where he won three match awards in expert class.

Ray is also president of the Sandia Gun Club which uses the Sandia Base pistol range for target practice. Ray invites inquiries from anyone interested in shooting. The Club will offer instruction to novices in the near future.

Trailing just behind Ray in third place in the national CO₂ pistol competition was W. A. Stephenson (2611). Dave Overmier (9116) took third place in the national CO₂ rifle tournament and first place in the regional .22 rifle shoot.

Other Sandians participating in the NIRA tournament took a number of re-

SHOPPING CENTER

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

RULES

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

FOR SALE

MISCELLANEOUS

- MOVING SALE: trumpets; clarinet; VW snow tires; appliances; many unused wedding gifts. Hansche, 296-1387.
- 14' SAIL BOAT & trailer, complete \$300. Roberts, 255-9527.
- DINING SET, Spanish Mission style, table 45"x60" plus 3 leaves, 6 chairs, buffet 66" long. \$175. Beard, 298-9441.
- ARABIAN reg. 5-yr.-old gelding, English or Western pleasure, intermediate rider, \$500. Sharp, Placitas 857-2815.
- QUICAT 100cc, bad shape, \$40. Wigley, 299-3138 after 5.
- BASSET HOUND, 5-yr.-old neutered male, affectionate pet, free to loving home. Switendick, 265-0345.
- DISHWASHER, Frigidaire front-loading, \$30; 1 pr. drapes, custom made, blue print, approx. 79"x54 1/2" long, \$15. Widenhoefer, 298-2510.
- OAK BUFFET, dining table, 6 chairs, \$75; 2 occasional chairs, \$25 ea.; Birds-eye maple bedroom set, \$25. Bedeaux, 344-6277.
- GOLF CLUBS, 3 woods, 5 irons. Porter, 298-3623.

- SORREL GELDING, 5-yr.-old, well trained for pleasure roping, gentle. Cherino, 865-9588.
- 600 SHARES of Computer Consultants, Inc., stock at 90c per share. Shepherd, 299-9066.
- LAWN MOWER, hand, push type, \$8 or best offer. Marchi, 299-8516.
- GEN. ELECTRIC PROGRESS line high band, narrow band, 30 watt dual channel FM transceiver, \$175. Erni, 268-1721.
- COLEMAN 2-mantel lantern, \$5. Henry, 256-2467.
- TYPEWRITER, Royal, Elite type, 14" carriage. MacGibbon, 256-3107.
- LABRADOR RETRIEVER puppies, AKC litter reg. from champion stock, males \$50, females \$35, be ready about Aug. 10. Morrison, 855-6244.
- ALUMINUM CAMPER SHELL, \$25; '62 19' self-contained trailer, stove, heater, refrig., extra bunk bed, \$1000. Chavez, 299-8194.
- WALNUT coffee table, \$30; toy spring horse, \$8. Husa, 298-3335.
- CLOTHESLINE POLES, pair 8 1/2" long, 3" diameter, 5 wire lines, each 25' long, \$10. Daut, 255-2529.

- AIR CONDITIONER, Frigidaire 8000 BTU, 110v, quiet running model, used 3 months, \$150. Webb, 298-3460.
- DESK, blond w/7 drawers, 18"x40" top, & matching chair. Vance, 255-6946.
- TOY POODLE, black, 6 mos., male, \$150. Johnson, 298-7356.
- LADY KENMORE port. dishwasher, \$110; gas range; refrigerator; 9x12 pink shag carpet; 6-chair chrome dinette. Gain, 299-5271.
- REMINGTON ENFIELD 30-06, model 1917. Lohkamp, 298-6494.
- WEIMARANER puppies, AKC reg., 6 wks. July 21. Elliott, 265-0630.
- MINOLTA 9° viewmaster CdS lightmeter w/soft carrying case, \$25. Knox, 255-3145.
- MALE silky Terrier, 7 mos. old, champion quality, house trained. Thatcher, 242-7870.
- RELAXACISOR, portable case, originally \$300, now \$100. Harris, 265-6356 after 5:30.

- FURNITURE, appliances: elec. range, refrig., LR suite, occasional chair, dresser & bed, recliner chair, lg. TV, smoking stand. Jones, 255-7924.
- AIREDALE PUPS, purebred, born June 7, \$35 or trade for guns or tools. Pritchard, 268-9618.
- '68 HONDA 450 Scrambler, low mileage. Garcia, 265-3827 after 5.
- HARP, \$50; typewriter, \$20; amplifier, \$40; boxing gloves, \$10; softball glove, \$2. 154 Chama NE. Gallegos, 268-0271.
- PUREBRED black miniature poodle, male, 8 mos., all shots, perfect pet for kids, playful, funny & affectionate, must sell. Gardner, 344-2547.
- GIVE AWAY male black & white Border Collie, good w'children. Eads, 1906 Saturn Ct. NE, 296-4660.
- BELT SANDER, Wem model 910, cost \$45, sell for \$17. Fite, 255-6943.
- '69 BENNELLI CYCLE, 250cc, 3200 miles, trail sprocket, \$250 or best offer. Copeland, 344-1133.
- CRAFTSMAN 18" hand lawn mower, \$15. Smith, 299-6875.
- '68 YAMAHA 100 Twin Jet motorcycle, custom red paint, less than 4500 miles, \$275 or offer. Duvall, 299-8744.

CARS & TRUCKS

- '68 MERCURY Cougar, V8, AT, PS, low mileage, below book. Kluehert, 298-8057.
- '64 OLDS Dynamic 88 2-dr. HT, PS, PB, AT, \$850. Farness, 299-2132.
- 1929 MODEL A FORD, good condition. Taylor, 299-5559 after 5.
- '70 3/4-ton DODGE Powerwagon & '70 Coachman Lamplighter, 11', self-contained camper, together or separately, 6501 Northland Ave. NE. Muir, 296-2252.
- '63 FORD convert., AT, V8, PS, PB, bucket seats, \$500. Bagg, 298-4035.
- BISCAYNE 4-dr. sedan, V8, factory air, radio, PS, \$975. Magee, 256-1358.
- '69 FIREBIRD Trans-Am, 400 cu. in., ram air, PS, PB, mags, new wide ovals, \$2750; '66 GTO, std., wide ovals, new paint, \$1250. Domme, 255-0135.

- '59 STUDE. 6, 4-dr., OD, R&H, '57 truck engine, 4 new tires, uses oil, \$110. Leisher, 282-5258.
- '63 PORSCHE 356B normal coupe, new clutch, Michelin XAS tires, Koni shocks, best offer. Thomas, 256-7775.
- '68 DODGE custom sportsman, seats 8, 318 V8, AT, AC, available in Aug., \$2695. Lusk, 296-5145.
- '60 PEUGEOT 403, 68,000 miles, \$350 or best offer or trade. Anderholm, 255-6835.
- '55 FORD PU, 1/2-ton, 6-cyl., 4-spd. trans., \$175. Bump, 299-8960.
- '66 VW sq. back wagon over \$100 below book, \$1300. Pewe, 255-3518.
- '69 DODGE Charger 500, 383 engine, 4-spd., all gauges & tach. Davis, 268-0724.
- '58 CHEVY Nomad wagon, PS, PB, AT, \$325 or best offer. Weldon, 255-5855.
- '65 FORD Galaxie 500 4-dr. sedan, white over blue, mag rims front, R&H, PS, AT, Hughes, 299-6674.
- '69 SPORTSTER XLCH. Newlander, 255-2454.
- '69 CORVETTE coupe, 427 CID, 390 HP, AC, AM-FM radio, 4-spd., low mileage. Bennett, 298-1142.
- '60 PEUGEOT Model 403, 4-dr. sedan, sun roof, radio, \$300. Swiss, 265-5346.
- '57 CHEVROLET 1/2-ton pickup, 3-spd., 6-cyl., rebuilt en-gine, new brakes, recently painted, \$275. Rathke, 299-4944.
- '67 MUSTANG, 8-cyl., 289 engine, AC, disc brakes, PS, other extra trim & accessories, \$1750; or '65 Olds 88, AC, PB, PS, \$400. Sinnott, 299-1300.
- '59 VW twin bed, youth bed, sell or trade for: cement mixer, dishwasher, desk, filing cabinets. Ross, 265-4990.

REAL ESTATE

- 3-BDR., 1 1/2 bath, den w/fp, dbl. garage, 1/2 acre, Los Lunas, \$600 down. Skelley, Rt. 1, Box 1177, Los Lunas.
- BUILDING LOT near Taos, west side Rio Grande in Carson Estates, \$50 total price. Hiitunen, 6500 Cochiti Rd. SE.

- MOSSMAN brick, 3-bdr., den, Pullman kitchen, covered patio, camper space, 5/4 note, 7508 Gladden NE. Bourgeois, 298-2346.

- 3-BDR. MOSSMAN, paneled den, 1 3/4 baths, carpeting throughout, 5/4 FHA mort., min. \$5500 cash. \$22,500. Lamb, 256-7343.
- 3-BDR., hw/floors, pitched roof, landscaped, chain link fence, garage converted to living quarters, \$12,000. Sisenos, 2420 Oro Vista NW, 344-7339.
- 4-BDR., pitched roof, \$17,500, \$2000 down, 5 1/2% . \$180 mo., 14-yr. payoff, 1700 sq. ft., 9221 Shoshone NE. Shunney, 265-1620.

WANTED

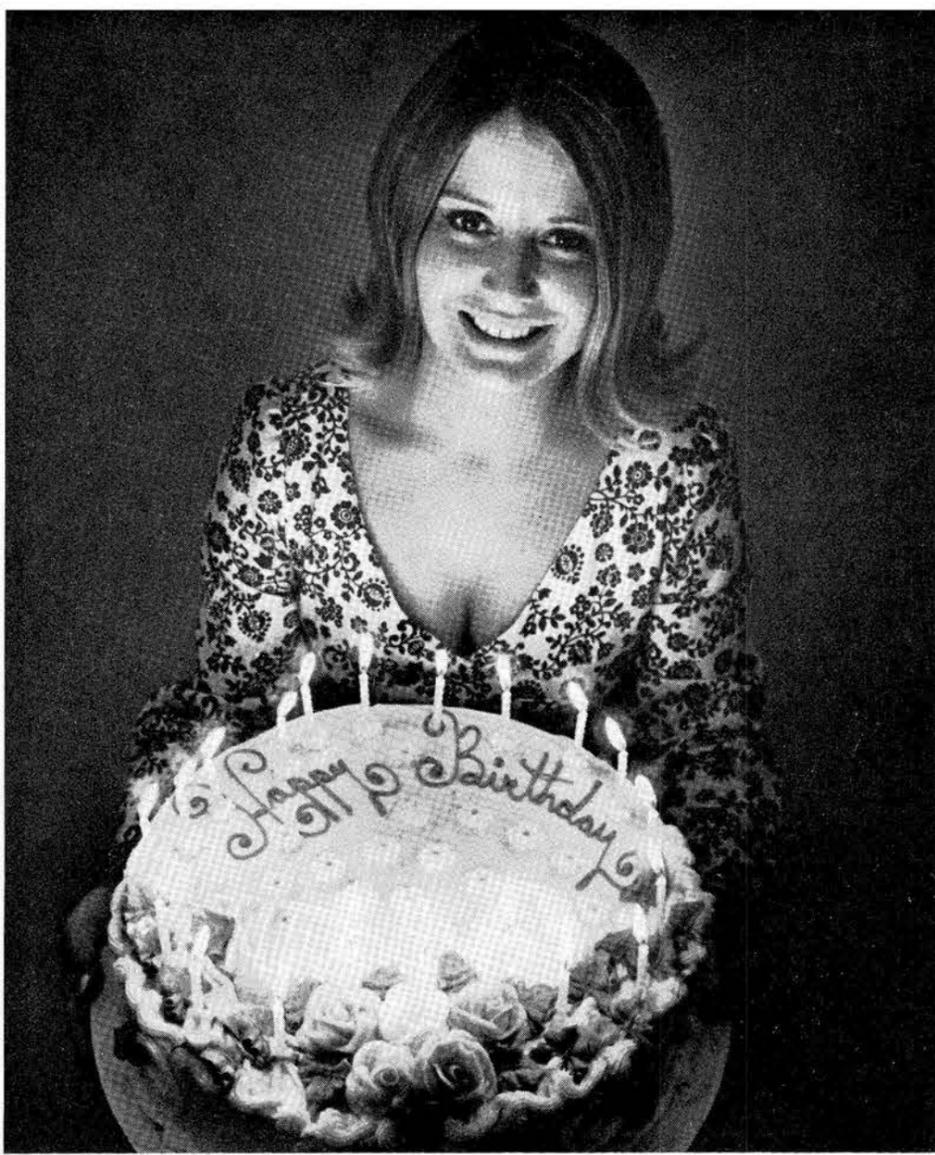
- BALALAIKA in good condition; tons of rotten hay or straw; cider press; hammer mill. Maak, 282-3482.
- TO TAPE Sinatra's "Stardust." Zownir, 256-3717.
- '61, '62, or '63 Volkswagen sedan. Perea, 255-6902.
- 3-BDR. HOUSE for 1-yr. lease, drapes, carpeting included, NE area, starting Aug. 1. Gottlieb, 298-9859.
- MILLING ATTACHMENT for lathe, small horizontal or vertical milling machine. Laskar, 299-1024.
- DOUBLE BED MATTRESS & springs, firm or extra firm; hide-a-bed, dbl. bed size, 72" sofa length maximum. Stevens, 299-6086.

FOR RENT

- 4-BDR., den, 5 mins. from Base, near school, shopping center, available Sept. through Dec. Roache, 268-4266.

LOST AND FOUND

- LOST—SC safety dual-bifocal glasses w/brown frames in case, man's Bulova watch, black horn-rim Rx glasses in black case, circular silver pin, blue swim trunks. LOST AND FOUND, tel. 264-2557, Bldg. 832.
- FOUND—"Senior 70" red & white charm bracelet, silver pin w/ig. pearl on each end. LOST AND FOUND, tel. 264-2757, Bldg. 832.



WISHING HAPPY BIRTHDAY to the Coronado Club is Helen Payne (2632). The Club will mark 20 years of service to Sandia people with a festive party tomorrow night.

Supervisory Appointments



LLOYD SANDGREN to supervisor, Mercury Instrumentation Section 9124-1, effective June 1. Lloyd was employed by Sandia in September 1956 as a staff assistant in the development shops. He transferred to the field test organization in 1958. Although headquartered in Albuquerque, Lloyd's work has been the occasion of frequent travel to the Nevada Test Site, where he will now be permanently assigned.

Before coming to Sandia, Lloyd was with Minneapolis-Honeywell for five years. He attended Montana State University for a year, and served in the Air Force from 1943-46.

Lloyd and his wife Ginny have four children and one grandchild. They reside at 4304 Fortune, Las Vegas, Nev.

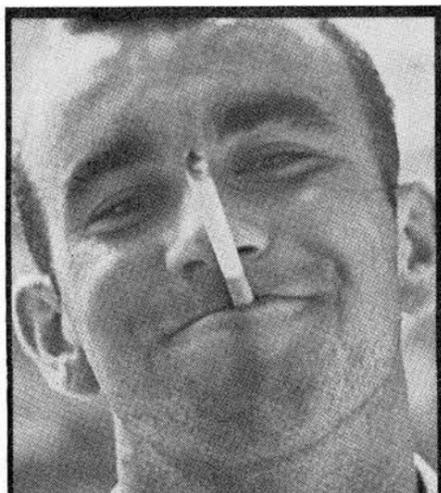


HERMAN MAUNEY to manager, Systems Development Department II 1530, effective July 16. Herman joined the Laboratories in July 1953 as a staff member in a weapons project group. His work since that time has essentially been in the weapons systems area. In March 1965 he was promoted to supervisor of a special systems division, and later also became responsible for a vulnerability analysis group. Since March 1969, Herman had headed a preliminary systems design division.

Before joining Sandia, Herman attended North Carolina State College where he received a BS degree in electrical engineering. He has also finished course work at UNM for a Master's degree in business administration. He is a member of the American Institute of Aeronautics and Astronautics and served in the U.S. Army from 1954-56.

Herman, his wife Emily, and their three children live at 3100 Texas NE.

The Smoking Breed



ME-TOO

Smokes because his friends do. Doesn't know whether he likes it or not.

Cigarettes kill - why go up in smoke?

Club Travel Package To Grand Bahamas Rapidly Filling Up

Some 55 persons have signed up for the Coronado Club's seven-day travel package to the Grand Bahamas scheduled Dec. 9-15.

"Indications are that we will easily fill the 141 minimum needed for the package," says Chet Fornero (4335), Club travel director. "Reservations are still on a first come, first served basis. Deadline for final payment is Oct. 15 but anyone seriously considering the trip should make the \$25 deposit right away."

The package includes first class jet travel to the island, six nights at the plush Kings Inn resort hotel, breakfast and dinner each day, a welcoming cocktail party, and unlimited swimming, golf and tennis. The Kings Inn has two 18-hole championship golf courses, multiple swimming pools, lounges featuring name entertainers, and a casino.

Cost of the trip is \$315. Only Coronado Club members are eligible.

Coronado Club Activities

Club Marks 20 Years Tomorrow

Tomorrow night the Coronado Club celebrates its 20th birthday. A crowd of about 400 will mark the occasion by dancing to the music of Ray McKinley and the Glenn Miller orchestra. They will enjoy a super buffet of barbecued baron of beef and lobster newburg plus a giant birthday cake. Past presidents of the Club will officiate at the cake cutting ceremony.

Work on the Club building, started in 1949, was finished the summer of 1950. Through the years many improvements have been made to the physical plant, but the Coronado Club is still two things — a building and an organization.

As the Club marks its 20 years of service to the employees of Sandia Laboratories and the AEC, it is in the strongest financial position of its history. Membership totals more than 2300 and regularly scheduled events are more numerous than ever.

In addition to day-to-day restaurant and lounge service, the Club features weekly social hours, at least one special party per month, a monthly soul session, a monthly teenage dance, a family movie night once each month, weekly game nights, seasonal swimming and many special events.

One of the important parts of the Coro-

NATO Advisory Group Hears Papers on Underwater Optics

Two papers co-authored by Sandians were presented by Prof. A. H. Lagrone of the Antennas and Propagation Laboratory, University of Texas, during a recent meeting on "Electromagnetics of the Sea," held in Paris.

The meeting was sponsored by the Electromagnetic Wave Propagation Panel of the NATO Advisory Group for Aerospace Research and Development.

Keith Hessel (7211) was co-author of "Monte Carlo Calculation of Light Transmission," and Sam Varnado (7261) was co-author of "Measurements of the Spatial Coherence of a Laser Beam Propagating Through Water." Both were part of the session on optical properties of sea water.

The interest in underwater electromagnetic propagation is based upon increased activity in investigating ocean resources. The four-day meeting was divided between military and commercial use of optics for identification, recognition, and salvage purposes, and use of very low radio frequencies for underwater communication and remote control.

nado Club program is the sponsoring of special interest groups — Sanado Woman's Club with its many sub-group activities, ski club, bridge club, bowling (for adults and juniors) and the impressive program for the Coronado Aquatic Club which trains youngsters for competitive swimming.

"The Coronado Club is one of the finest facilities of its kind in the city," Bob Banks (5100), Club president, says. "And the Club operation is one of the few of its kind in industry. It provides a special fringe benefit to members."

Soul Session

Rod King and the Soul Knights will be back on the Club bandstand Saturday, July 25, for another Coronado Club Soul Session. The music goes from 8:30 to 12:30 and happy hour prices are in effect all evening. It's free to members, 50 cents for guests.

Social Hours

Tonight the Bob Banks trio will play for dancing from 6 to 9 p.m. and the Club kitchen staff will wheel out the southern fried chicken buffet. Happy hour prices are in effect until 9 p.m. Yolanda Adent will conduct a sing-along in the main lounge from 9 until midnight.

On Friday, July 24, a group called The Good Times will make the happy music while Mexican food will be the buffet feature.

Phil Graham and the orchestra will be on the bandstand on Friday, July 31. The Club's famous chuckwagon roast beef will be spread for the buffet.

Bridge

Duplicate bridge meets Tuesdays at 7 p.m. On July 28 the group is holding an open pairs tournament with trophies and master points to be awarded to the winners. Anyone interested in duplicate bridge is urged to contact Virgil Bailey (2492), 299-5460, for information.

Annual Meeting

Annual meeting of the Coronado Club membership will be held Monday, Aug. 3, at 8 p.m. Reports from current board members will be presented and new board members will be elected.

Candidates for the board are Max Newsum (1213), Dick Coughenour (4143), Don Hosterman (3134), Herb Filusch (9228), George Kinoshita (1221) and Jake Gonzales (4253).

Following the meeting free refreshments will be served. Only members may vote.