



LAB NEWS

VOL. 23, NO. 15

JULY 30, 1971

SANDIA LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV

New Faces at Sandia

Bob Kraay, Exec. VP: A 36 hour Decision

The LAB NEWS editor recently talked with Bob Kraay, the Labs' new Executive Vice President. The question was, "Were you surprised when you were asked to take the Sandia assignment?" The reply: "Frankly, yes. And it took me longer to decide — 36 hours — than I had ever taken before when considering a possible move."

For most New Mexicans, the decision to leave Kansas City probably wouldn't take 36 hours. But for the Kraays, the roots were pretty deep. Bob was General Manager of the WE Kansas City Works employing over 6000 people and was a leading figure in community projects. Kansas City really was home. So this time decision-making was a little tougher.

But transfers within Western Electric were old hat for the Kraays. In 25 WE years, Bob, Mrs. Kraay (Pearl) and two sons Dan (18) and Brad (17), have lived in or near Chicago, New York, Allentown, Pa., Reading, Pa., Boston, Kansas City, and, now, Albuquerque. Rarely have they stayed in one location for more than two or three years. "Sort of sounds like being in the service. . ." we noted. "Well, you

might say it's been a moving experience," Mrs. Kraay replied.

We were at the Kraay's new homesite in Four Hills. Appropriately enough, Mr. Kraay was directing the work of two telephone installers. "We've found in all those moves it's wise to assume you're here to stay. That's what we're doing now and we're delighted at the prospect. You know, back in the 50's, Western sent us to White Sands for a few months and Pearl and I concluded then that someday we wanted to live in New Mexico. Just look at that view. . ."

Bob Kraay is in his mid-forties, graying only slightly, looks trim, smiles broadly and readily, and is an easy person to talk with. He came out of the depression with the resolve to get an engineering degree because he enjoyed technical subjects and it would provide the best chance of getting a job. From a small junior college in Illinois in the early 40's he went on to Purdue and his EE degree in 1944. "The college education was a big thing for me.

(Continued on Page Two)



ROBERT KRAAY

WE Hits Top 10

Sandia Labs' parent company, Western Electric, became one of the top 10 industrial corporations in the country in 1970, according to the May issue of FORTUNE magazine.

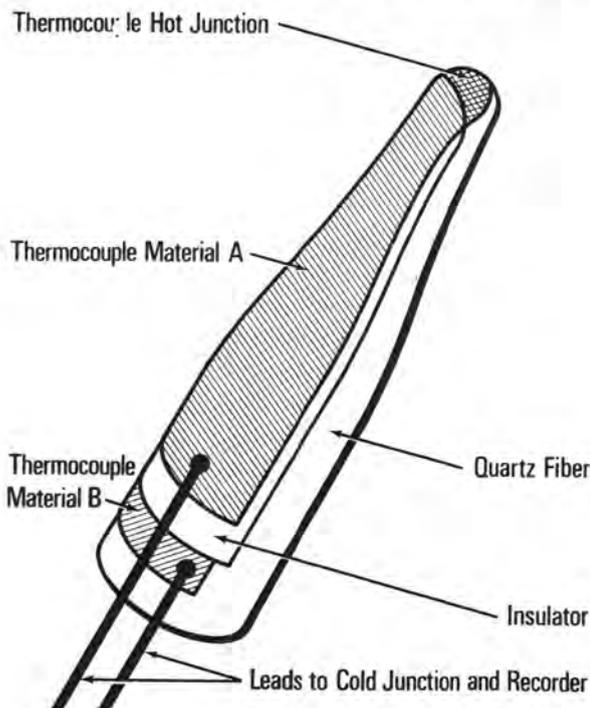
The annual Fortune 500 list shows Western Electric captured 10th place on the basis of gross sales. Gulf Oil Corporation fell to the 11th spot vacated by WE.

Sales in 1970 totaled \$5,856,160,000 with a net income of \$253,447,000. The number of employees rose to 215,380, making WE the seventh largest private employer in the country.

Other companies in the top 10 are General Motors, Standard Oil (N.J.), Ford, General Electric, IBM, Mobil, Chrysler, International Tel. & Tel. and Texaco.

Tiny Heat Sensor Aids in Biological Research

A thin-film temperature sensor smaller than most living cells has been produced by scientists of Sandia Laboratories and the University of Texas, Austin. Together with Professor E.A. Ripperger of the Univ. of Texas, Ray Reed developed the novel "thermometer" while working on his



doctorate at that institution. Although designed for biological application, the sensor may have applications as well to the work of Ray's present division — Measurements Development Division II (9116).

Though the thermocouple has been made as small as two microns in diameter — less than one twenty-fifth the diameter of a human hair — its temperature sensitivity is comparable with that of larger thermocouples. And its small size enables it to respond to boundary temperature changes occurring in less than a millionth of a second. Response time is limited by thermal characteristics of the medium being measured.

The thermocouple temperature sensors and similar sensing devices are fabricated in a high vacuum by depositing dissimilar metals, on a fine pointed filament of fused quartz, separated except at the tip by an insulating material. Where the materials overlap at the tip of the probe, they form a temperature sensing area. Relative to a reference junction maintained at a constant temperature, this "hot junction," utilizing the Seebeck effect, generates a voltage potential which is proportional to its temperature, so that voltage is a measure of temperature.

Temperature is one of the most important

variables in living systems. Thus temperature studies of minute parts of living plants and animals are of great interest to scientists investigating, for instance, the process by which living organisms maintain body temperatures or the parts of the brain which perform different functions. In other research, scientists are using microthermocouples to learn the effects of laser light upon the eye and to uncover the phenomena associated with thermal burns. In some instances, it is important to measure rapidly changing temperatures within individual cells smaller than 100 microns in size.

Details of the new devices were described in three papers presented June 21 by Reed and Ripperger at the Fifth Symposium on Temperature at Washington's Sheraton-Park Hotel. The symposium, held June 21-24, 1971, was co-sponsored by the American Institute of Physics, the Instrument Society of America, and the National Bureau of Standards.

The papers were titled "High Resolution Thermometry in the Biological Context: Some Problems and Techniques," "The Transient Response of Embedded Thin Film Temperature Sensors," and "Deposited Thin Film Thermocouples of Microscopic Dimension."

Bob Garcia Returns From Venezuelan Mission

Bob Garcia, manager of Personnel Department 3230, recently returned from a six-week Trade Mission to Venezuela. As a representative of U.S. management he was one of three people making the trip at the request of the Bureau of International Labor Affairs of the U.S. Labor Department, to meet with Venezuelan government officials, labor leaders and representatives of industry. Their purpose was to explain United States labor/management relations, and to exchange ideas and promote goodwill.

"We visited seven cities during the Mission," Bob says, "where we were introduced by the U.S. Ambassador to both the Minister of Labor and the Minister of Communications, national labor leaders, government officials — those currently in power and the two other party hopefuls — representatives of major U.S. firms doing business in the country, and local business leaders. Our reception was always very cordial and the Venezuelans showed a deep interest in our Mission."

The group conducted seminars and answered questions, and exchanged ideas. They were escorted on tours of oil fields and refineries, a sugar plantation, a tobacco factory, an automobile manufacturing plant and a visit to fishing and pearl industries on the island of Margarita.

"I found the people to be extremely bright, inquisitive, willing to express their opinions and pose questions with insight and knowledge about the United States," Bob says. "Remarkably progressive, this country has a young population — about 40 percent under age 18. The impact of the U.S. is quite obvious — an abundance of U.S. products, and similarities in dress, food and other customs."

Bob's background and language capabilities made him an excellent choice for this mission. He has worked in Sandia's personnel organization for 17 years, heading Sandia's Affirmative Action, equal employment opportunity, and personnel placement programs. He spent a year in Washington, D.C., as a corporate loaned executive with the national Plans for Progress program and received a citation from Vice President of United States in recognition for his outstanding work for extending equal employment opportunity to all Americans. Prior to returning to Sandia, he managed several national minority migrant programs for an international management consulting firm.



The Kraays are building a house in Four Hills.

Continued from Page One

Bob Kraay, Executive VP

The rest of my family was denied the opportunity because of my parents' modest means," he states.

Six days after the Kraays were married in 1945 in San Pedro, Calif. (Pearl lived near his hometown of Munster, Ind.), Ensign Kraay was heading for Japan as radar maintenance officer on the light cruiser U.S.S. Astoria for a nine month tour. But then the hostilities ended, the ship turned around, came back, and not too long after, Western Electric had a job applicant who had worked with their equipment (and was impressed) on board ship. Bob Kraay started his WE career at the huge Hawthorne Works in Chicago.

Along the way he's picked up another

degree, an MS in Industrial Management from MIT, and five patents, mostly related to communications hardware.

The Kraays are golfers, one reason for locating in Four Hills. His once-a-week game gives him a respectable 12-handicap. They also like to hike and look eagerly to the trails of the Sandias. And they look forward to the concert season here. Their two sons, out of town for the summer, will soon be graduating from high school. "What are their plans?" we asked. Bob replied, "The younger is going on to college." And then, with a little fatherly pride and a trace of wonderment, "But Dan says he's not going to college yet and wants to go into the service. He's a real flag waver."

A & C Fair—Where The People Are As Much Fun To Watch As the Exhibits

You *can't* go out of town this weekend. Why? You'd miss the annual Arts and Crafts Fair at the Fair Grounds. And you wouldn't be able to gawk at all the characters (and vice versa), have a picnic lunch, lose a kid or two, run into friends and maybe even buy or anyway handle: jewelry (handcrafted), wood sculpture, macramé (look it up), textiles, pottery, sand-cast candles, oils, watercolors, fabric belts, leatherwork, weaving, furniture, ceramics, welded and cut steel, puppets, batik and, our perennial favorites, quilling and stoneware cookie molds (booths 166 and 70, respectively).

Dick Strome (3155), who is on the Board that runs the Fair, tells us that this year some

500 New Mexican artists applied for booth space. One of the more excruciating jobs for the Board is selection of those artists who get booth space — and those who don't — since there are only 213 spaces. "The winnowing process leaves a few bent noses," Dick comments. Other Sandians on the Board are Joe Laval (3213) and Joe Rivera (4154). Quite a few Sandians are among the exhibitors, incidentally.

This is the 10th anniversary of the Arts and Crafts Fair. It started out in Old Town Plaza, but quickly outgrew that and has been at the State Fair Grounds for six years. Head for the Fair this weekend — it's a lot of fun.

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TWO MILLION DOCUMENTS in the Central Technical Files in Bldg. 880 occupy a large room. Deluvina Montoya (3142) has worked with these files for almost 18 years. This entire room full of paper is currently being reproduced on microfilm. Resultant 420 reels occupy table-top amount of space, presided over by Nettie Jones (7632-1) in the photo at right.



JOHNNIE JOHNSON (9000) demonstrates rapid process of reducing documents to microfilm with a portable automatic unit. The equipment is available by calling Section 7332-1. After microfilming, original documents are destroyed thus reducing need for bulky file cabinets.

Ed Hirt Is Microfilm Missionary

Ed Hirt, supervisor of Section 7632-1, is a smiling man who works in the basement of Bldg. 802 among some marvelous microfilming equipment. Ed smiles because (1) he's a nice guy and (2) he's kind of a missionary for microfilming because he feels it solves problems and makes life easier for a lot of people.

"Microfilm technology has progressed to the point where microfilm files are easier to keep than standard filing cabinets full of original documents," Ed says. "And it's less expensive," he continues. "Retrieval is a rapid process and hard copies can be produced at the press of a button."

For these reasons, the Central Technical Files in Bldg. 880 which contain almost two million documents are currently being microfilmed — a job which will reduce a room full of paper to 500 reels of microfilm which can be stored in a couple of cabinets. The task should be completed by Dec. 1.

"Automatic microfilming cameras can photograph documents as fast as an operator can load the automatic feeder and change film

reels," Ed says. "A single operator can average the filming of 10,000 documents a day."

A smaller version of the equipment is a table-top model for use by a secretary. This small machine is automatic in operation and exposes two reels of film at a time. After processing, one reel of microfilm can be archived (just in case) and the other used as a working file. A phone call to Ed's office will get a machine delivered with an operator to demonstrate its extremely simple operation.

Johnnie Johnson, secretary to Vice President Glenn Fowler (9000), is an enthusiastic user of microfilm. She systematically microfilms all files except the current year's working documents.

"I'd be surrounded by and submerged in file cabinets if I didn't," Johnnie says. As it is, all of the VP's files are contained in two cabinets.

"One of the particular advantages of the microfilm system," Johnnie says, "is that a reel of microfilm can contain a number of classified documents but I need to keep only one accountability card for the entire reel."

Supervisory Appointments

JOE PELLETIER to supervisor, West Coast Section 1832-1, of Quality Operations Department, effective July 16.



When Joe joined Sandia in February 1956 as an inspector in the quality assurance organization, he worked out of Springfield, Mass. He later transferred to San Antonio's Modification Center, then to Albuquerque where he was assigned to test equipment qualifications. In July 1968 he became a field representative for the West Coast area.

From 1952-56 Joe was in the U.S. Air Force, assigned to the Special Weapons Group.

Joe and his wife Eulalia have one son, and reside at 7844 Sedan Ave., Canoga Park, Calif.

GIL WEAVER to SUPERVISOR, Vehicle Maintenance Section 4514-2, effective July 1.



Gil was employed by Sandia in February 1951 as an electronics assembler. He later worked as a scheduler, expeditor, mechanic in Reclamation, and in 1959 became a mechanic in the Motor Pool. Before joining the Laboratories Gil worked for six years in Albuquerque as a mechanic.

Gil says he is "almost but not quite a native" after living in Albuquerque for 40 years and graduating from Albuquerque High School. He served in the U.S. Navy from 1943-46 as a diesel mechanic aboard a ship assigned to both the north and south Pacific.

Gil and his wife Anita have four children, and live at 1565 Dennison SW.

Recreation Notes

FUN & GAMES

On July 10 a Ladies Golf Tournament for members of the Sandia Golf Association was held at the UNM South Course. Winners were: Mollie Ellis (5643), low gross; Pat Anderson (9425), low gross runner-up; Betty Chappell (AEC), low net; Rose Hainlen (4152), low net runner-up.

In the nine-hole tournament for new golfers, the winners were: Jo Sena (10), low gross, and Dolores Streater (4140), low net.

The next regularly scheduled tournament will be a 36-hole event played on the Los Altos par 3 course on Aug. 14 and 31.

* * * *

The Sandia Labs Bridge Association is conducting a novice duplicate bridge game the first Thursday of every month starting Aug. 5. Games will be held at the Coronado Club at 7 p.m. All bridge players are invited to come out and try duplicate bridge. For more information call George Arnot (5642), ext. 6600.

—Norma

Variable Annuity Unit Value

Aug. 1971	1.692
July 1971	1.688
Average 1970	1.417

Credit Union Reporter



SANDIA/LIVERMORE CREDIT UNION — Over 2500 Sandians with their wives or husbands enjoyed Credit Union festivities at Sunol Country Club marking the beginning of a full-service operation at Livermore. Larry Borella (8274) and his wife Mary, lower left, won the door prize, a portable color TV set. At lower right, Janis Krueger assists Mel Brown (8333) in the Credit Union's new facilities in Bldg. 911.



Molly Hits 15

Molly Raisen, Credit Union Office Manager, completed 15 years of service on July 23, thus becoming the first Credit Union employee to receive a 15 year service award. Molly is well known by Albuquerque



MOLLY RAISEN



members, and she recently met many Livermore members while helping the Livermore staff open the branch office.

"I enjoyed meeting all the nice people at Livermore and I think it's great the Branch there can now offer full service operation to members," Molly stated.

* * * *

CU Bulletin Board

Heads-I-Win, Tails-You-Lose Auto Contracts — When buying an auto, it is not uncommon for the purchaser to sign a contract form presented by the car dealer. This becomes a valid offer by you to purchase the car. But too often the car dealer does not "accept" the contract, i.e., he does not sign the form himself. If you later want to withdraw, the dealer may accept the contract by merely signing his copy. In all probability, you then find yourself obliged to complete the terms of the purchase. However, if the dealer should not want to honor the agreement, all you have is your copy of the form with your signature only — not a contract at all. Before you sign any paper, read it, seek competent counsel, make sure everything required is properly entered on it, and that the other party signs it as well.

LIVERMORE NEWS

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LIVERMORE LABORATORIES

JULY 30, 1971

Touring Northern California

The August schedule of special events planned by the naturalist staff of the East Bay Regional Park District includes the following:

Each Sunday in August, Lake Chabot Regional Park will offer a boat tour from 12 noon to 2:30 p.m. Families will explore the lake with a naturalist, discover the forms of life that exist there, and assist in using scientific tools to test temperature and water clarity. Call 524-1034 for registration. Fee 60 cents per person.

On Sunday afternoons a program on particular wildlife interests will also be held at Lake Chabot Park from 4 to 5:30 p.m.: Aug. 1 and 22, snakes; Aug. 8, plants; Aug. 15, birds; and Aug. 29, bugs and creepy crawlers. Meet at picnic area.

Each Sunday in August from 1:30 to 4 p.m., Sunol Valley Regional Park will feature "The Watery World of Alameda Creek." The strange creatures which live unseen beneath the algae will be caught and examined. Wear bathing suit and old tennis shoes.

Any Saturday in August, join a park ranger from 8:30 to 9:30 p.m. at the campfire circle in Del Valle Regional Park for one of a number of varied campfire programs. On Sundays, meet at the same place from 9:30 to 11 a.m. for a discovery walk with a naturalist.

On Aug. 21 there will be a "star party" at Del Valle Park. Meet at dusk at the dead end of Del Valle Road above the campground.

Take Note

Ron Musket of Metallurgy Division II 8313 and Dick Fortner (LRL) were coauthors of a technical article, "Observation and Interpretation of the Auger Electron Spectrum from Clean Beryllium," which appeared in a recent issue of PHYSICAL REVIEW LETTERS.

* * * *

Bob Krenzer of Metallurgy Division 8312 presented a technical paper, "Martensite Reversal in an Fe-Ni-Mn Alloy," at the AIME spring meeting held in Atlanta. He is also a coauthor, with Prof. M.J. Pool of the University of Cincinnati's Metallurgy Department, of an article, "A Thermodynamic Investigation of the Ag-Mn System" which appeared in the April issue of METALLURGICAL TRANSACTIONS.

* * * *

Jack Wilson, supervisor of Standards and Calibration Section 8121-1, was guest speaker at a recent meeting of the Pleasanton Chamber of Commerce. He discussed "Metrication."

* * * *

Mike Baskes and Bob Krenzer, both of Metallurgy Division 8312, presented a materials seminar recently at the University of Cincinnati's Metallurgy Department. Mike discussed "Phase Stability Calculations" and Bob "Magnetic Measurements of Martensitic Transformation."



NEW LOBBY and main entrance to Sandia Laboratories Livermore is the result of recently completed addition to Building 911. The 2400-square-foot area provides space for a receptionist, interview rooms, a guard post and the communications center for guard force personnel. Engineers for the project included Jim Harter, Dick Wilhite, Jim Smith (all 8251) and Al Ducharme (8254).

Retiring



DOROTHY FONES
(8275)



BOB SIGLOCK
(8254)

Marshall Meyer (8311) placed first and Bob Klinger (8177) second in their respective classes at the Olympia Sprints national race held recently at the Laguna Seca Raceway on the Monterey Peninsula. Marshall drove his Triumph Spitfire, a production car that has been modified but still runs on gas, in Class G Production. Bob raced in Class Formula V, an open wheel, single seat car based on Volkswagen components. Points won in this race will count in the Sports Car Club of America run-off to be held in Atlanta, Ga., at the end of the year.

* * * *

Bill Wilson of Physical Research Division 8331 and Charles Bisson of Numerical Applications Division 8321 were the authors of a technical article, "Inert Gases on Solids: Interatomic Potentials and Their Influence on Rare-Gas Mobility," which appeared in the June 15 issue of PHYSICAL REVIEW, Vol B3.

Bill also presented a paper (co-authored with R.A. Johnson of the University of Virginia) entitled, "Rare Gases in Metals," at the sixth Battelle Institute Science of Materials Colloquium on the topic of Interatomic Potentials and Simulation of Lattice Defects held in Seattle and Harrison Hot Springs, Canada, June 14-19.

* * * *

As a convenience for evening students, Chabot College is inaugurating a registration-by-mail service. All new and returning students may register by mail between now and Sept. 3 for autumn quarter evening classes. Write or call the Chabot Admissions and Records Office in Hayward, tel. no. 782-3000, ext. 269, 270, or 333, for an application. More than 300 classes are being offered in the evening schedule (available in Benefits Division 8236, MO No. 3) at the Hayward campus and the expanded program in the Livermore-Amador Valley, including classes at Granada High School in Livermore and the newly developed program of classes for Dublin-Pleasanton-Sunol residents at Amador High in Pleasanton. Classes start Sept. 20 and end Dec. 8.

Earle Paxton Awarded Master's Degree in Librarianship

Earle Paxton of Library Classification Division 8232 received an MA degree in librarianship recently from San Jose State College. His thesis was entitled, "Selective Dissemination of Information: A Case Study."



Earle joined Sandia/Albuquerque in February 1954 and transferred to Sandia/Livermore in December 1956, where he has held various administrative assignments. He was a Personnel representative for a year, supervisor in Reproduction and Drawing Files for about two years, and since February 1959 has been primarily involved in reference and cataloging work and establishing the selective dissemination of information program in SLL's technical library.

He received his Bachelor's degree in business administration from the University of New Mexico in 1954.

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

Sympathy

To Wes Hodges (8261) for the death of his mother in Des Moines, Iowa, July 7.

Congratulations

Charles Mauck (8175) and Joanne Wilkinson married in Las Vegas, Nev., July 2.

Mr. and Mrs. Dwight Soria (8257), a son, Jeffrey Devon, May 22.

Gene Aas (8181) and Vera Wooldridge married June 26 in Boston, Mass.

Mr. and Mrs. Jack Casey (8181), a daughter, Kimberly Colleen, June 24.

Mr. and Mrs. Jim Rego (8272), a son, Timothy James, June 24.

Mr. and Mrs. Pete Witze (8176), a son, Eric Scott, June 24.



KUDOS FOR SANDIA GOLFER — In recent play, Al Derby (8264) shot a hole-in-one on the 160-yard, par 3, second hole of the Walnut Creek Public Golf Course. He narrowly missed (by the width of a golf ball) dropping a 130-yard approach shot the same day. Skill? Of course. It's the second hole-in-one in Al's golfing career. He is also a three-time winner of the monthly Sandia Employees' Golf Club tournament, as well as the winner of their 1970 Golfer-of-the-Year Award.

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JOHN FACKELMAN
(4512)



ROBERT LITTLE
(7514)



DOROTHEE DRURY
(3151)



C. R. BAXTER
(4518)



SAM RODOCOVICH
(3520)

Got A Horse?

LAB NEWS plans a feature on the horsey set at Sandia, and one statistic we'd like to have is the number of Sandians involved with horses. If you've got one (or more) nags, how about sending us a 3 x 5 card with your name, organization, and details about your animals? We'll keep the cards in a file so that you can come over and see who else has similar tastes in horse flesh. Send the card to Org. 3212.

Sympathy

To Onella Allen (9243) and her brother Bill Lynch (1323) on the death of their father in Albuquerque, July 1.

To Mary Swartz (6020) on the death of her mother in Raton, July 11.

To Loran Anderson (1523) on the death of his father in Denver, July 15.

Congratulations

Mr. and Mrs. Don Goodrich (7133), a son, Christopher Michael, June 27.

Mr. and Mrs. Jim Kennedy (5133), a daughter, Tracy Lea, July 9.

Mr. and Mrs. Gary Peterson (5132), a son, Donovan David, April 24.

Mr. and Mrs. Frank Zanner (5535), a son, Frank Matthew, July 15.

Mr. and Mrs. Allen Stanley (3313), a daughter, Christine Ann, July 19.

Take Note

Art Eiffert (7140) would like to thank the person who sent him ten dollars in cash for the St. Jude Express (which flies in medical supplies and the like to needy people in remote areas). No name accompanied the donation.

* * * *

Wilma Salisbury (3134) was recently re-appointed to a 27-member Comprehensive Health Planning Council by Governor Bruce King. She was one of 10 members appointed who were on the previous council.

Duty of the Council, established by federal law, is to advise the State Planning Office on matters relating to federal grants in the health care area. Wilma represents Sandoval County on the Council.

* * * *

Found: Two fishing poles and a flashlight. LAB NEWS had a recent call from a nice lady who said that on a July 10th trip into Santa Barbara Canyon she ran into a family with five kids and a green tent. Anyhow, this crew took off and left behind the poles and a flashlight. The caller, Elizabeth Waters by name, was pretty sure the father worked at Sandia. The forgetful father can reach Mrs. Waters on 298-3094.

* * * *

Sandians who are members of the Albuquerque Chamber of Commerce have donated money for the purchase of tickets to the 1971 Babe Ruth World Series, to be held at the Albuquerque Sports Stadium, Aug. 21-28. The tickets will be given to the Martineztown House of Neighborly Service for distribution. Persons interested in supporting this cause or wanting to purchase tickets should contact the Chamber of Commerce.

* * * *

Bob Armstrong (4542) has been elected president of the N.M. Historical Outdoor Drama Society, Inc. As chairman of the Albuquerque Goals Committee on Tourism and a member of the Chamber of Commerce, Bob has been an avid booster of the historical outdoor drama as a tourist attraction. The Society is investigating possible sites for an amphitheatre. Anyone interested in helping with the development of the project should contact Bob.

* * * *

The Albuquerque Chapter of the American Society for Metals elected new officers for a one-year term beginning Sept. 1. Sandians elected are Dennis Mottern (5535), chairman; Richard Rohde (5531), vice chairman; and Frank Zanner (5535), secretary.

Elected to the Executive Committee are Richard Ericksen (5314), Nick Magnani (5531), Terry Nordstrom (5531) and Gary Jones (5335).

Promotions

Shirley Dean (50) to Executive Secretary
Jo Sena (10) to Executive Secretary

In the last issue of LAB NEWS, one name not included among those receiving college degrees was that of Ray Dunaway (5165). Ray got his BS in Math from UNM earlier in the year under the Educational Aids Program.

* * * *

Joe Deveney (5154) is the newly-elected president of Toastmasters Club 765. Joe was installed recently with other new officers including Lee Bossart (9223), treasurer.

"It's traditional with a new administration in the club to go looking for new members," Joe says, "and usually we mean men who are interested in developing public speaking skills. Because of a recent change in the constitution of Toastmasters International, women are now eligible for membership. Anyone who wants to join the group should call me at 268-6806 for more information."

* * * *

Phil Owens (7616) will chair a meeting of the Industry Section during the Southwest Regional Meeting of the National Society of Professional Engineers in El Paso Sept. 30. He was recently reelected to serve a second term as regional vice chairman of NSPE. He coordinates activities of chapters in New Mexico, Texas, Oklahoma, Louisiana, Arkansas, Colorado and Wyoming.

* * * *

**Photographic Display
In Bldg. 802 Created
By Dave Bushmire**



The current exhibit of photographs in the elevator foyer of Bldg. 802 is the work of Dave Bushmire (1431). Most of the pictures were made as part of a Famous Photographers Course that he started three years ago.

"I'm about there," Dave says, "only two more lessons to complete." From the comments overheard about the photos, we'd say that Dave has arrived.

He processes the big black and white prints himself in a darkroom he sets up in his bathroom. The color prints were made from Dave's negatives by a commercial firm.

Dave uses a twin lens reflex with interchangeable lenses. He favors the 180mm telephoto lens for people photos. The pretty girl in the pictures is his wife Rita who, naturally, is his favorite model.

"She's been a tremendous help with the photo course," Dave says.

Exhibits at Sandia are arranged through Community Relations Division 3213. If you are an artist or photographer with pictures to display, contact Joe Laval, ext. 5864.

Service Awards

July 30 - Aug. 12

25 Years

Peter Rospopo (7111), Joe Muench (1641) and Leo Ortiz (3155).

20 Years

Manuel Romero (4514), Alfred Herrera (7151), Henry Laursen (9123), Santos Quintana (4513), Harold Houts (7512), Walter Self (7132), Frank Lane (5241), Simona Quintana (7631), Bruce Higgins (7132), Lloyd Hungate (7411), Charles Maak (5538), Thomas McKinney (7452), John Johnson (9239), Bonnie Montano (4514), Donald Grebe (9482), Elizabeth Heisler (3500), Joe Trujillo (4514) and Floyd McGimsey (9344).

15 Years

Harry Kinney (1517), Richard Chavez (7121), F.T. Stixrud (9344), Luke Stravasnik (1553), Ivan Gillett (1611), Leland Allen (1421), John Moore (3111), F.E. Ramirez, Jr. (7112), Fidel Gonzales (4514), Herman Marquez (4614), Mike Campbell (7500), John Omeara (7453), Jose Llamas (9312), Floyd Norcott (1525), Harold Garcia (3520), Richard Mickey (3155), Stephen Neff (7114), George Saviteer (7453), Marvin Bauder (9424), William Carter (7431), Norman Rosenberg (1912), Eleanor Dadian (8213) and Sylvia Martinez (1550).

10 Years

Glenn Burger (1525), Paul Bailey (1721), E.E. Ritterbush (3242), William Lewis (9423), Ted Gold (8324), Herb Pitts (3231), Bettye Hollingsworth (5622), Thomas Gardner (7613), Wendel Reynolds (1531), and David Berst (9482).

Sandians Seeking Self Improvement in Out-of-Hours Classes

September is the start of self-improvement time at Sandia Laboratories. The Out-of-Hours Education Program will again offer 102 courses ranging from basic grammar to modern mathematical methods of physics. Last year about 50 percent of Sandia employees, a total of 3500, took courses in the program.

The Out-of-Hours classes meet during the noon hour or after work. All classes are designed to meet job-related needs and are taught by qualified Sandia instructors.

The catalog of courses offered will be distributed Aug. 13 and registration will open Aug. 16, according to Gene Bates (3132), Out-of-Hours program administrator. Classes will start Sept. 13.

Several new courses are being offered for the first time, Gene reports, along with others that have proved to be long-time favorites.

Among the new ones are "Satellite Prediction and Tracking" to be taught by Grover Hughes (9474); "Applications of Fourier Optics and Holography," Carl Murphy (9462); and "Optimization Theory

Authors

W.B. Gauster (5325), "Effect of Heating Rate in Thermoelastic Stress Production," Vol. 19, No. 3, JOURNAL OF MECHANICS AND PHYSICS OF SOLIDS.

J.E. Schirber (5150), "Pressure Dependence of the Fermi Surface of W," Vol. 35A, No. 3, PHYSICS LETTERS.

P.J. Chen (1721) and M.E. Gurtin (Carnegie-Mellon Univ.), "Growth and Decay of One-Dimensional Shock Waves in Fluids with Internal State Variables," Vol. 14, No. 6, PHYSICS OF FLUIDS.

G.H. Haertling (1316), "Improved Hot-Pressed Electrooptic Ceramics in the (Pb,La)(Zr,Ti)O₃ System," Vol. 54, No. 6, JOURNAL OF THE AMERICAN CERAMIC SOCIETY.

F.R. Norwood (1721), "Response of an Elastic Half Space to Impulsive Stationary Finite Line Source," Vol. 38, No. 2, JOURNAL OF APPLIED MECHANICS.

and Applications," Tony Veneruso (1213).

One of the repeat courses, which was offered last year as a partially in-hours course at Livermore Laboratories and received an enthusiastic response, is "Human Factors Engineering." This one is taught by a team of Sandians engaged in the field. Instructors will be Alan Swain, Bob Webster, Lynn Rigby, Henry Guttman (all 1644) and Brian Finley (3112).

• 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.

MISCELLANEOUS

SONY stereo tape recorder, model No. TC255, 1 yr. old, forward & reverse, 4-track \$115 or best offer. Cole, 265-3061.

ELECTRIC reel-type lawnmower, \$15; exercycle, \$35; Mossrite Joe Maphis guitar; '70 Fender twin reverb amplifier. Hunnicutt, 299-2932.

BOAT MOTOR; Whirlpool washer; braided rug; HiLo bed; misc. items; chair. Trollinger, 268-3414.

BASKETBALL goal & backboard, heavy duty; fold-down camper for station wagon or truck; roller skates, quiet rubber wheels; race car set, mounted. Dodd, 299-6330.

'71 HONDA CL-350, less than 1000 miles, gold. Duran, 867-5251.

CAMPER, alum. cover, paneled inside, stove, sink, butane tank, ice refrig., home made. Duran, 344-8054.

2 END TABLES, coffee table, blond finish, formica tops, drawers, \$15 each, \$40 all three. West, 298-6966.

300 SAVAGE, new, fired 6 times, w/w/o case, \$75. Schulze, 299-0152.

GIRL'S 20" spyder bicycle, Sear's, \$20; men's 26" bicycle, 10-spd., Sear's, \$45; Norelco Educational electronics kit, ages 9-12, \$12. Stevens, 299-6086.

POOL TABLE, 4' x 8', Brinkton, w/6 cues, plus cue & ball rack, \$125. Butler, 898-2025.

7 MONTH OLD male dog, Terrier mixed, housebroken & good w/ children, free. McClellan, 299-1750.

'70 HONDA 350, w/sissy bar, \$495. Grier, 296-7251 after 5:30.

UTILITY TRAILER, high stake sides, \$50; 8' Jon boat, \$30; Girrard auto. record changer, speaker, speaker cabinet, \$45. Shock, 877-3728.

N GAUGE TRAIN SET, lots of cars, track, 3 engines, dual control trans., new, hardly used. Sasser, 298-1439.

TWO horizontal shaft gasoline engines, 1 Clinton, \$5; 1 Briggs & Stratton, \$8. Bentz, 299-3448.

2 EA. 10,000 microfarad capacitors rated at 10 volts for power supply, 75¢ ea. Henry, 256-2467.

HAND MOWER, \$5. Carrillo, 247-9700.

GELDING, 9-yr.-old sorrel, rides English, \$200. Harley, 898-0594.

'69 YAMAHA 350 cycle, new tires plus good spare, low mileage, \$550; St. Pius X green blazer, size 10-12, worn 3 times, \$20. Cowham, 298-4249 after 5:30.

FOLDING outdoor chaise lounge, alum. frame, plastic webbing, decorative full-length cushion, \$5. Rowe, 296-6295.

DINETTE, 5-piece, wrought iron type, grey formica, extends 70", \$45; Argus projector, other items, make offer. Collis, 255-0470.

RADIO-phonograph; buffet; hutch w/open shelves; dressing table; contour chair; tables; liv. rm. chair; piano; misc. items. Bernbrock, 256-2063.

SEALPOINT SIAMESE kittens, pure bred, available Aug. 6, \$5 ea. Hale, 298-1545.

BABY STROLLER & rocking horse. Salas, 255-4119 after 5:30.

ALUM. sun screens for 4-dr. station wag., set of 7 designed for Plymouth, may be adaptable to others, \$15. Joseph, 299-6989.

SHOP SMITH, complete wood working machine, lathe, saw, grinder sanding disc or drum jig saw, etc., \$200. Grant, 255-6105.

NEW custom tent for VW campmobile, \$100; RCA 21" color TV, \$50. Goodwin, 256-2216.

'63 SHASTA travel trailer, 15', sleeps 5, equalizer hitch & jacks, \$800. Norwood, 299-6364 after 5:30.

POODLE PUPPIES, AKC reg.; king-size walnut headboard & twin frames; plastic covered table top, approx. 3' x 5'. Johnson, 298-7356.

FREE, 1/2-Siamese kittens, to good homes. Ericksen, 898-2208.

CAMP TRAILER, Scottsman 13' Scotty model, w/10-gal water tank & sink pump, propane 2-burner stove, heater & gaslight, icebox, 12 & 125V lights, sleeps 5. Stevens, 296-6326.

HAND WINCH; 2 alum. windows, 3' x 6', '34 Cadillac limousine, four shotguns. Wilson, 282-3225.

LYTAR 130 super 8 projector, F/1.4 15-25mm zoom lens, 400 ft., 14-24fps, auto threading, \$45. Berman, 296-5640.

3 KITTENS, 8 wks. old, to be given away. Miller, 5308 Constitution NE. GE port. stereo; German half-black guppies; 5-bolt Chevy rims, used tires, 10 x 10 rug, TV antenna. McGovern, 296-6813.

'65 YAMAHA 250 Twin, 75 miles on overhauled engine, new paint, \$300. Nelson, 299-6284.

GARAGE SALE, many items: lawnmower, hi-fi, flute, baby items, camping equip., etc. 1808 Makomis Ct. Perry, 299-6109.

THREE conductor No. 6 alum. wire, each wire separately insulated, 12¢ per foot. Souder, 282-3121.

CURLETTE, 100% human hair, by Tovar, lt. brown, orig. \$30, sell for \$12. Anastasio, 299-7012.

'69 SUZUKI, AS-100 cycle, geared down for trail, \$185. Folkins, 1-867-2825.

GERMAN SHEPHERD PUPPIES, AKC reg., show quality, only females available. Abbin, 256-0188.

WINCHESTER MODEL 70, .308, 3-9 power scope, Bushnell, \$120, Allen, 296-6985.

REAL ESTATE

\$450 DOWN, 1901 Bryn Mawr NE, 2-bdr., hw/floors, air, utility rm., garage, walled yard, trees. Zurawski, 268-8946.

BRICK 3-bdr., 1 3/4 bath, DW & range, can assume 5 1/2% FHA mortgage, \$19,750, 1104 Kentucky SE. McGuire, 255-5048.

BRICK, 2400 sq. ft., Monterey Manor, 4-bdr., & FR, quick or delayed occupancy, 1020 Casa Grande Pl. NE. Robertson, 296-4613.

3-BDR., Bellehaven, den, fp, carpets, dbl. garage, corner lot, 1 3/4 baths, 5 1/4% loan w/large down. Varnado, 296-3814.

BRICK home on lg. corner lot, SE, 3-bdr., 1 3/4 baths, den hw/floors, AC, covered patio. Scott, 242-7339.

FOR RENT

TRAVEL TRAILER, sleeps 6, \$40/week. Bentz, 299-3448.

UNFURNISHED HOUSE, 3-bdr. & den, vicinity of Eubank & Candelaria. Hansen, 898-3173.

WORK WANTED

BRIAN, 15, will do yard work, wash cars, pet care & misc. jobs, Indian School & Wyoming area. 296-7773.

SANDY, college student, will tutor or baby sit, experience tutoring Spanish & math. Ellingson, 299-4056.

WANTED

FIBERGLASS KAYAK. Merewether, 242-5451.

CARPOOL MEMBER from vicinity of 4th & Osuna to Gate 6. Burt, 344-8045.

TRADE Admiral deep freeze for refrigerator. Peterson, 256-7514.

VISITING scientist & wife need house Aug. 15-27, no children or pets, will care for lawn, small pets. Soos, 842-6299.

NEED 2 sets tire chains for 8.45 x 15 tires or one for 7.00 x 15 pickup tires. MacDougall, 299-8496.

SHOP MANUAL for '54 Ford car; 14" 4-hole Corvair wheel; leaf springs, approx. 30" long. Stuart, 299-9190.

GIRL'S bike, 26", 3-spd. Sasser, 298-1439.

CARS & TRUCKS

'67 MGB, white, wire wheels, motor just overhauled, take old 3/4-ton pickup plus cash, or \$1600. Fraen-glass, 265-7372.

'67 PLYMOUTH Sport Fury convert., 43,500 miles, AC, bucket seats, console, PS, radio, AT, \$1695. Ray, 298-0408.

'56 190 SL MERCEDES. Riley, 1-636-2119 Bosque Farms after 6.

'50 CHEV. pickup, 4-spd., '57 engine, needs work, \$175. Arning, 256-9229.

'67 DODGE van, R&H, motor recently rebuilt. Abeyta, 636-2524 Peralta.

'59 RAMBLER station wagon, V8, R&H, recent trans. overhaul, needs new universal joint before drivable, \$100. Stuart, 265-7315.

'68 VW CAMPER, 46,000 miles, no pop top. Arnold, 898-2403.

'63 CHEVY Belair, 8-cyl., std. trans., \$325. Nelson, 255-2364.

'65 DODGE Dart station wagon, V8, AC, Michelin tires; '61 VW sedan; 14' Vanderbilt travel trailer. Manguson, 296-3650.

'51 BUICK Special, 2-dr., std. trans., best offer over \$75. Roeske, 296-3744.

'58 JEEP wagon, 6-cyl., 4-wd, new clutch, battery & front springs, 6-ply tires, best offer over \$575. McHarney, 255-7883.

'64 Corvair 2-dr., 4-spd., \$350. Stang, 256-7793.

'65 DODGE 1/2-ton pickup w/lwb, new rebuilt 318 cu. in. engine w/ less than 4000 miles, priced under book. Mills, 1-636-2087 Bosque Farms.

'70 IMPALA Custom 2-dr., HT, PB, PS, factory air, low mileage, 350 engine, below book, Richards, 256-9740.

Beachcombers Ball Set Aug. 14

SOUL SESSION

July 31 — 8:30-12:30
Happy Hour Prices

Sandy Jewett (4331)

TONIGHT westerners get a break when the Country Express plugs into the Happy Hour bandstand. This versatile country-western outfit plays a swinging sagebrush shuffle. Baked ham will be spread for the buffet and special prices will be in effect from 5 until 9 p.m. Yolanda Adent takes over the main lounge at 9 p.m. to lead a sing-along until midnight.

* * * *

NEXT FRIDAY, Aug. 6, Frank Chewiwie will make the happy music and Smiling Jim Noonan's special veal cutlet buffet will be spread. On Friday the thirteenth, in honor of the occasion, the Terror Trio with a reformed Bob Banks will make the happy music. Bob is neat and straight these days. Sol Chavez is the wildman and Sol will break things up at Happy Hour Aug. 20.

* * * *

BIGGEST BLAST of the year at the Coronado Club is the annual Beachcombers Ball. Jim Noonan's kitchen staff goes all out in the preparation of a fabulous dinner—seafood cocktail, hand carved barbeque beef, baked whole salmon, corn on the cob, fruit baskets, etc., plus mai-tais and scorpions served in coconuts.

The band booked for the occasion is led by 300-lb. Big Tiny Little. Pete Gallegos (1333), Club entertainment director, who heard the group in Las Vegas, says it's great. "This is a top flight band," Pete says, "Tiny is a great showman and so is the girl singer. They've played Tahoe, Las Vegas, and major clubs everywhere. It's called Fat Power."

The twin pools will be open for swimming. Sarongs, bikinis and wild

field test sport shirts are the order of the evening. If somebody wears something really outstanding, he or she might be presented with an award of some kind. It's that kind of an evening. Who knows what will happen.

Make your reservations early. Tickets are \$3.75 for members, \$4.25 for guests.

* * * *

TEENAGERS should enjoy a dance and pool party on Thursday, Aug. 12. Something called "The Gentle Uprising" will be wired into the bandstand and Tom Watson on KQEO will emcee the activities. Member parents should pick up tickets for their youngsters.

* * * *

CORONADO WATER CARNIVAL, an afternoon of fun, games and competitions in the twin pools is set for Saturday, Aug. 24. The Aquatic Club will perform and clowns Kenny O'Keefe, John Hobbs and Brian Spriggs will do some fancy and funny diving. Along about 6:30 p.m. the UNM Pep Band and Loboettes will present an hour-long show of marching, dancing, and dixieland jazz. Happy Hour prices will be in effect all day. Mark your calendar now.

* * * *

DUPLICATE BRIDGE, as played by the Coronado Bridge Club, is a strenuous and stimulating game. Starting next week, the group is going to award gift certificates totaling \$15 to the top three individual averages during the month. The group is seeking new members to share the fun and prizes. They meet Tuesdays at 7 p.m. Call Virg Bailey (1814), ext. 8845, if you need more information.

Coronado Club

ANNUAL MEETING

Monday, Aug. 2 at 8 p.m.

Free Refreshments

THE SAFE DRIVER

MOTORCYCLES ARE HERE TO STAY! TODAY THERE ARE NEARLY 2,500,000 MOTORCYCLES REGISTERED IN THE U.S.

THE SAFE DRIVER IS ON THE ALERT FOR MOTORCYCLES AT INTERSECTIONS. HE ALSO WATCHES FOR MOTORCYCLES CHANGING LANES, OVERTAKING HIM OR CUTTING IN.

WHEN OVERTAKING A MOTORCYCLE, DO NOT CROWD. TO PASS, MOVE OVER INTO THE FULL LANE AT LEFT AND RETURN TO THE RIGHT LANE ONLY AFTER YOU CAN SEE THE MOTORCYCLE.

Mazatlan Trip Rescheduled Oct. 5-12; Lubbock Football Bus Still Open

Dates of the Coronado Club Mazatlan trip are changed to Oct. 5-12, according to Chet Fornero (4337), Club travel director. "We changed airlines in order to get a larger plane," Chet says. "We were practically sold out before but now we have 40 more seats available. Some 85 people have already signed for the trip."

The group will stay at the luxurious Playa Mazatlan. The \$198.50 fee includes transportation from the Coronado Club parking lot to the Sunport, round trip jet flight, Mazatlan airport transportation, all baggage handling, breakfast and dinner daily (including tips), and two special cocktail parties including a Fiesta night with an extravagant floorshow.

Those interested should pay the \$50 deposit at the Club office right away. Remainder of the fee is due Sept. 1. Cost for singles is \$211.

The charter bus trip to Lubbock Sept. 17-19 to see the Lobo-Texas Tech game is still open, Chet reports. This one for \$49.50 includes transportation from the Club to Lubbock with free refreshments throughout the bus trip and a pre-game cocktail party, ticket to the game, and two nights at the Ramada Inn in Lubbock.

Chet reports that he has secured a group rate airfare quote for an eight-day, three-island trip to Hawaii in February 1972 that would cost approximately \$525 per person. He plans to try to put together a charter trip in conjunction with another local organization which might reduce the price.

TOMORROW NIGHT a clown named Jeffry Eden will perform his Moments of Madness show when Freeman Lacey and the Mark take a break from making Soul Session music. Eden appeared at the Club last year and broke up the troops with his fast-moving audience participation show. Soul Sessions start at 8:30 p.m. and swing until 12:30. Admission is free to members, guests 50 cents. Happy Hour prices are in effect all evening. Super sandwiches are available.



The Harvey Wallbanger people are also providing a special promotion on their potent and will give away a number of T-shirts during the evening.