

Math Model Depicts Hydrogen Embrittlement Dynamics

Murray Daw of Theoretical Division 8341 and Mike Baskes of Scientific Computing Division 8233 have devised a theoretical model that describes how metals and metal alloys respond to invasion by hydrogen or other corrosive impurities. The new model overcomes the longstanding inability of researchers to predict how cracks initiate and grow in these materials.

To achieve their goal, Murray and Mike developed what they call the embedded atom method. A major advantage of their approach is that it allows calculations to be done on an atomistic scale (that is, between atoms), thus revealing details not evident in macroscopic studies. The work is part of a group effort to devise a realistic model of the fundamental properties of metals and alloys, and of the effects of hydrogen on these materials.

"Most fracture studies are made on the scale of inches or even feet, so questions about how the electrons move around in the solid are impossible to address," says Murray. "And it's just these slight movements of electrons that weaken the metal bonding. The most important thing about the method is that you can build on it; it really is at the root of our understanding."

"For example, in our early work with this method, dynamic calculations on room-

(Continued on Page Three)



MAJOR STEP toward understanding how metals and metal alloys respond to hydrogen invasion was the result of a theoretical model developed by Mike Baskes (8233; left) and Murray Daw (8341). The model describes the bonds between metal atoms; quantifying the fundamental properties of these elements, such as cohesive energy and elastic constants, led to the breakthrough for Murray and Mike.

Win a Balloon Ride?

Today's The Day

...And if it's afternoon when you're reading this, you're too late.

Fitness Day 84, sponsored by the Friends of Health committee, takes place on the Parade Ground today from noon to 1. New this year are karate and yoga demonstrations plus a grand prize drawing for a balloon ride. As in the past, those who attend can bike or run or walk. Or join an aerobic exercise session. Brown bag or buy a \$1 sandwich (for the first 400 to show up). Free fruit and juice. Drawings for a dozen Friends of Health T-shirts.

It's all designed not to make you get or keep in shape but to make you *want* to get or keep in shape.

Lots of sun, lots of fun. Come on out!

It's May 24

Retiree Picnic Set

All Sandia retirees, more than 2600 of them, and their spouses, representing 25 states and two foreign countries, are invited to the 18th annual Retiree Picnic.

As usual, it's an opportunity to visit with other retirees and with members of Large Staff and to enjoy a picnic supper and refreshments. An added attraction this year is a series of showings of videotape footage of last year's picnic (in the Club dining room from 4 to 5:30). Footage shot at this

year's event will be shown after 6.

The picnic is on Thursday, May 24 from 4 to 7 p.m. at the Coronado Club. Parking space is available at the Club, at the Recreation Center, and at the Base Hospital. Handicapped parking is at the Club's main entrance. A shuttlebus will run from the parking lots on B Street to and from the patio entrance. Security guards will direct traffic to the parking areas. Please observe the "no parking" signs along all residential streets.



"MAKE YOU A HONEY of a deal on a car" — This swarm of bees found a bumper in the Credit Union parking lot irresistible last week. The bumper sticker, well, stinger, dilemma was solved (right photo) when Farrell Perdreauxville

(1622, left) and Dave Shank (5122) coaxed the swarm and its queen into a box. Dave has a vacant hive where the wayward colony can thrive. (Maybe they should have left the bees in place; sure would discourage tail-gating!)

Antojitos

Boring? Sandians? Several Tuesdays ago, the Journal's IMPACT magazine included an article, "The Great Beyawned," that described the patently boring activities of the Albuquerque Dull Men's Club, Clod Chapter. One of its principals, Dr. Don Seelinger, was quoted as concerned over the minuscule [yes, it's spelled right] Sandia representation in the club. "Once we tap Sandia," he predicted, "we'll be overrun with members."

You know, I believe Doctor Don is challenging us--throwing down the gauntlet, as it were. Now, there's a fascinating term. Gauntlet is, of course, a diminutive form of the French gant, or glove. When a medieval knight threw down his gauntlet, he was challenging his adversary to a test of prowess. [Isn't this exciting?] Often, gauntlets were mailed. No, not via the Middle Ages Postal Service --the code of chivalry demanded that each knight meet his opponent face to face (or visor to visor). [National defense today seldom makes such demands.] Mail is a kind of flexible armor that usually consisted of small overlapping metal rings or loops of chain to allow the armor wearer to bend at the joints. Gauntlet is not to be confused, though it too often is, with gantlet. Not everyone knows that gantlet comes from the Swedish gatlopp (gat is a lane or narrow way; lopp is a run). [Slow down, speed readers--it takes hours to write this stuff!] Running the gantlet then refers to the military punishment in which an offender is forced to run between two rows of soldiers who strike him with switches or even weapons as he runs. (The process is akin then to the quaint Sandia custom known as merit review.) Running the gamut, on the other hand, is not related to running the gantlet. That term, the reader will discern, describes certain of these columns.

Let's see, where were we? Oh, yes. Doctor Don, I'm afraid you're doomed to a long wait for Sandians. Your meetings would be too much excitement for most of us. ●BH

* * *

Grace Sheldon Named 'Woman of Year'



Grace Sheldon, secretary to Departments 1130 and 1140, was recently named 1984 Woman of the Year by the La Luz Chapter of the American Business Women's Association. She was elected on the basis of business experience and accomplishment, ABWA participation, education, and special interests.

Grace has been at Sandia since 1979, the same year she joined ABWA. She has held several officer positions with the local chapter and has served as chairman of a number of operating committees. She has also been active in ABWA regional affairs, including serving as a delegate to area council meetings and as a representative on regional planning committees.

Before joining Sandia, Grace worked as an executive secretary for Koogle and Pouls Engineering and for Wallace-McConaughy, a real estate and insurance firm. She has also been active as a volunteer in the Pioneer League Baseball Club and the Boy Scouts of America. Grace holds a business degree from LDS Business College in Salt Lake City.

Cultural Awareness Colloquium

Indian Culture – A Rich Legacy

Thanks to pueblo architecture, the state flag, and Indian place names, most New Mexicans are familiar with the Indian perception of the southwestern landscape.

In a recent Cultural Awareness Colloquium, Al Ortiz, a San Juan Pueblo Indian and professor of anthropology at UNM, lectured on "The Continuing Impact of the Indian Culture of New Mexico on the Southwest and the Nation."

When history began to be recorded in the Southwest, the land and the Indian cultures living upon it were already very old. Al believes that this antiquity — visible in the great ruins found in New Mexico, Colorado,

and Arizona — is one of our greatest legacies. "Tourism is important to this state and these ruins are known worldwide," Al says. "Visit one of the ruins, say Chaco Canyon, on a summer day and you'll hear more German, Japanese, and other foreign languages spoken than you'll ever hear on the streets of our cities. These people haven't come to New Mexico to see us or our cities; they've come to see the ruins.

"And Indian art inspires many non-Indians," Al says. "The impact of Indian literature, drama, and theater is less obvious, but it's there."

A more familiar aspect of Indian culture is the ceremonial festival network. All New Mexico Indian tribes — Pueblo, Navajo, Apache — carry on the ancient ceremonies, each unique to a tribe. "For the Indian, the rite holds a private meaning, but it is a renewing process for the observer as well as for the participant," Al says. "It is a celebration of our common humanity."

The biggest problem between the Indians and other residents of the Southwest, according to Al, is a communication failure. When Indians claim land or water rights, many outsiders assume that the reason behind the claim is greed. But very often the Indians are simply trying to regain access to a particular religious site or shrine. This was the case when the Taos Pueblo successfully petitioned the courts for access to Blue Lake.

Currently some of the pueblos, especially Zia and Jemez, are concerned about a proposal for a mammoth lumbering

operation in the Jemez Mountains, an area of some significance to these tribes. The public would also be affected because the Jemez, just a couple of hours drive from the city, is a popular recreation area. And the Zuni tribe is trying to regain a portion of land that has great religious significance to them. It crosses into Arizona where local county officials are fighting the claim with what Al refers to as "frontier mentality" — they don't want any more Indians in the county.

"What we have in the Southwest is a blending of cultures, religions, and people that is very special. The Indian cultural vitality derives its strength from antiquity. If we can develop the wisdom to see what we have that is worth keeping, and preserve it, then we will be seeing as the Indian sees."

COMPUTER KIDS



Kids too young to drive a car are earning adult wages devising software programs for big corporations. According to some estimates, 15 people in the US under the age of 25 are now earning more than \$100,000 a year developing popular programs for home computers. Schoolboys are creating electronic games their teachers confess they couldn't make themselves. And with increasing frequency, computer BASIC is becoming the first language other than English that children encounter... Fear of computers is a matter in which the generations differ. "Kids have no fear of computers at all — it hasn't been ingrained in them," in the opinion of Evan Katz, a 19-year-old who writes a column on computer chess and artificial intelligence for *Chess Life* magazine. "A person isn't scared of something unless he's taught to be. People who've grown up with the computer have a totally different attitude toward it."

—George Sweetnam in *Science Digest*

LAB NEWS

Published Fortnightly on Fridays

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA

Editorial Offices in Albuquerque, 87185
Phone 505/844-1053 FTS 844-1053
In Livermore 415/422-2447 FTS 532-2447

BRUCE HAWKINSON, Editor
DON GRAHAM, Assistant Editor
NORMA TAYLOR, Writer
LOUIS ERNE, Photographer
GERSE MARTINEZ, Assistant Photographer
BARRY SCHRADER, Livermore Reporter

Member, International
Association of Business Communicators

Supervisory Appointment



BOB GRAHAM to supervisor of the Design Definition Division 8271, effective May 1.

He joined Sandia at Livermore in 1961 after working at Collins Radio in packaging equipment for the Apollo and Mercury space missions. His first assignment at Sandia was in mechanical design definition, then in the electrical division as a draftsman. In 1966 he returned to the mechanical area and two years later became a lead project draftsman, where he has remained until now.

Bob's education includes an AA degree in drafting technology from Burlington (Ia.) College and more recently an AA degree in supervision at Chabot College.

He and his wife Nancy (8274) own a five-acre vineyard near Pleasanton on which they have built a passive solar-heated home. Their avocation is to maintain the grape vines and sell each year's crop to local wineries.

Take Note

John Lippold (8314) has been named the 1983 recipient of the James F. Lincoln Gold Medal Award. His paper, "An Investigation of Heat-Affected Zone Hot Cracking in Alloy 800," was judged the "greatest contribution to the advancement and use of welding" published in the *Welding Journal* during that year. John has been involved in fundamental studies of the welding metallurgy of a variety of alloy systems and has published more than 20 technical papers on the subject.

* * *

Iris Mack, a 1983 summer graduate student in Applied Mathematics Division 8231, was featured in the March 1984 issue of *Ebony* magazine as one of the outstanding young black achievers nationwide. She is currently a PhD candidate at Harvard. She has a bachelor's degree in mathematics and mathematical physics from Vassar and an MS degree in applied mathematics from UC Berkeley.

* * *

Rob Allen (8316) and Mike McClellan (8315) traveled to Puerto Rico during April to teach a short course on analytical instrumentation to a group of faculty members from various Puerto Rican universities. The course was part of a continuing series arranged by Jackson State University in Mississippi to help raise the level of training of college science faculty in Puerto Rico. Rob discussed electron microscopy, and Mike described surface analytical techniques. The two Sandians described the basic functioning of the instrumentation associated with each technique and showed examples of how the techniques are applied to actual research problems.



SANDIA LIVERMORE NEWS

VOL. 36 NO. 10

SANDIA NATIONAL LABORATORIES

MAY 11, 1984

Continued from Page One

Hydrogen Embrittlement

temperature nickel with hydrogen impurities revealed the fracture process as it developed. New calculations also show how dislocations [defects that control the mechanical properties of a metal structure] are produced by the crack and how these dislocations interact with hydrogen. The results agree well with the most recent microscopic investigations by experimentalists."

"Lately we've been studying the iron-nickel alloys, working our way to stainless steel," says Mike. "Since our method isn't limited to pure metals, the technologically interesting materials can finally be treated on this fundamental level. This method will open up several areas for investigation in both physics and metallurgy."

The model, which was developed into a program for use on Sandia Livermore's Cray computer, describes the bonds that exist among metal atoms, and among other atoms within the metal lattice. It is the fundamental properties of these elements, such as cohesive energy and elastic constants, that are used as input to the model; in fact, it was the use of these quantities that provided the breakthrough for Murray and Mike.

Other researchers have tried for years to solve the fundamental equations of quantum mechanics directly to get to the starting point of the Daw-Baskes approach. "We were able to achieve the solutions indirectly, by incorporating some of the known properties of metals," says Murray. "Once we were able to describe these factors, we could deduce how the lattice behaves."

The model depicts a tiny piece of bulk metal on an atomic scale, where it appears as an ordered lattice of metal nuclei. The greatest concentration of electrons occurs near the nuclei, where two atoms are relatively close together; that is, the electron density is correspondingly high in that region. Moreover, the energy of each atom

depends on the density of electrons surrounding it. When hydrogen enters this system, it moves through the lattice with a certain energy and eventually comes to rest — becomes bonded — within the lattice.

Murray pictures hydrogen as settling preferentially in lattice regions where the bonds between adjacent metal atoms are under stress and are approaching the breaking point. "The hydrogen migrates to the point of greatest stress because the chemical bonds of some of the atoms there can readily form new bonds with hydrogen," he explains. When this happens often enough, a crack begins to form.

This weakening of the bond between adjacent metal atoms is called decohesion. "You can see the crack tip advancing through the material as it gradually breaks," says Mike. "It's the atoms at the tip of the crack that are the most important. If they let go of each other, the crack will propagate. And this is the region where we find that hydrogen is most likely to congregate."

The same basic model is being used to look at the properties of alloys so that they can be studied efficiently by computer before they are actually made. In the future, the team plans to investigate the way in which impurities make iron stronger (as in the case of carbon steel) and how they inhibit the movement of dislocations within the metal lattice.

If all goes as planned, Murray and Mike expect to provide insights that will lead to the practical development of new alloys.

Congratulations

Patty and Dwight Soria (8257) adopted a baby girl, Rachel Ann, April 17.

Sympathy

To Carol Verity (8426) on the death of her mother in Scottsdale, Ariz., April 22.



TOURING THE GLOVE BOX room in the Component Development lab (Bldg. 979) recently were some top-level British atomic scientists who spent a day at Sandia Livermore being briefed on R&D work in the weapons programs. From left are division supervisors Anton West (8441) and Bill Hoover (8442) explaining the glove box uses to Richard Norman, chief scientific advisor to the British Ministry of Defense, and Peter Jones, director of the Atomic Weapons Research Establishment (AWRE).

Supervisory Appointments

GORDON SMITH to supervisor of Environmental Protection and Hazardous Waste Management Division 3314, effective April 11.

Since coming to Sandia in October 1979, Gordon has been a staff member in Industrial Hygiene Toxicology Division 3311.

Gordon received his BS in biology and MS in industrial hygiene from the University of Hawaii. He is a member of the American Industrial Hygiene Association and is president of the New Mexico Hazardous Waste Management Society. He enjoys hiking, camping, and photography. Gordon and his wife Gail live in Taylor Ranch.

* * *

BEN BLACKWELL to supervisor of Centrifuge, Climatic, Radiant Heat Division 7531, effective April 11.

Ben joined the Labs in 1965 as a member of the Technical Development Program. He worked in the aerodynamics organization, conducting thermal analyses of reentry vehicles. Except for two years spent teaching ME at Louisiana Technical University, Ben has worked in the wind energy program since 1973.

He received his BS in ME from the University of Arkansas, MS in ME from UNM, and PhD in ME from Stanford University. Ben was a member of Sandia's Doctoral Study Program. He is a member of ASME. He enjoys woodworking and backpacking. He and his wife Betty have two children and live in NE Albuquerque.

* * *

JOE ROMERO to supervisor of Zone A Operations Section 3612-1, effective April 16. Zone A Operations handles heating and air conditioning maintenance as well as some plumbing and lighting operations for Plant Facility Operations Division 3612.

Joe joined the Labs in November 1970 as a plant maintenance mechanical apprentice. He worked as a craftsman in plant maintenance after completing the five-year apprentice program; most recently, Joe has been a planner analyst in Maintenance Operations Planning Division 3615.

Before coming to the Labs, Joe was a machine operator at the Albuquerque GE plant. He attended the University of Albuquerque. Joe enjoys most outdoor sports. He and his wife Patricia have three children and live in the NE heights.

* * *

JOHN GUNBY to supervisor of Zone C Operations Section 3612-3, effective April 16. Zone C Operations is responsible for refrigeration, air conditioning, plumbing, and electrical work for Plant Facility Operations Division 3612.

John joined Sandia in November 1956 as a refrigeration mechanic and has remained with the plant operations group. He graduated from the Industrial Training Institute in Chicago. Before coming to the Labs, John worked for an oil refinery in California, and served in the Marine Corps from 1945-48. He enjoys bird hunting, fishing, and spectator sports. John and his wife Irene have three daughters and three grandchildren. They live in NW Albuquerque.

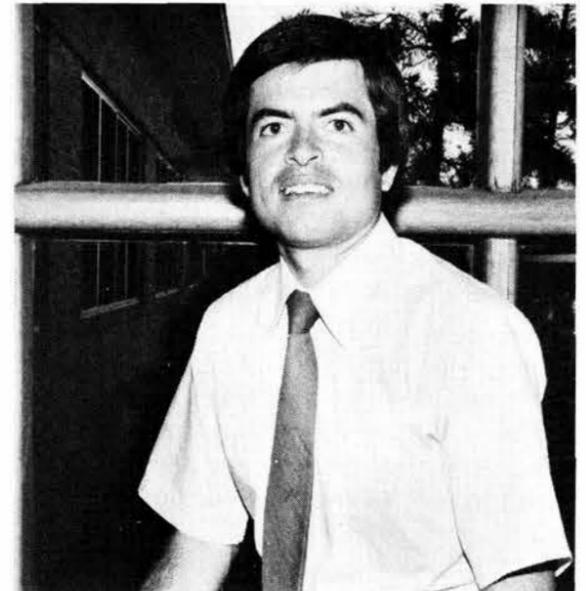


GORDON SMITH (3314), standing at left; BEN BLACKWELL (7531), back row; JOE ROMERO (3612-1), seated, center; and JOHN GUNBY (3612-3).

DAN ARVIZU to supervisor of Photovoltaic Concentrator Research Division 6224, effective April 11.

Dan transferred to Sandia in 1977 from Bell Labs in Denver where he had worked for three years on the Dimension PBX project. At Sandia Dan has worked on the Solar Thermal Test Facility doing heliostat evaluations and, since 1981, has been with his current division.

He received his BS in ME from NMSU and his MS in ME from Stanford. Dan was selected to participate in Sandia's Doctoral Study Program and received his PhD in ME in 1981 from Stanford. He is a member of ASME. Dan enjoys soccer, running, and playing the guitar. He and his wife Patricia have two children and live in the NE heights.



DAN ARVIZU (6224)



ALL THREE UNIONS and all three Sandia organizations involved in health care cost containment were represented at a recent two-day conference led by Bill Hembree, director of the Health Research Institute. From left, Dr. Paul Mossman, director of Medical 3300; Albert Miera (154), president of Office and Professional Employees International Union; Hembree; Felipe Rivera (3436), vice-president of Metal Trades Council; and Bob Kelly, manager of Labor Relations Department 3450. Benefits Department 3540 also took part in the union-management conference.

Take Note

The American Lung Association of NM is sponsoring summer camps in June and August for asthmatic teen-agers and children. The overnight camping experiences emphasize fun with activities geared to asthmatics; 24-hour medical care will be provided by doctors and nurses trained in pediatric asthma. "Camp Superteens" (for asthmatic teen-agers 13 to 16) will be held June 3-9 at Camp Fenton near Fenton Lake in the Jemez Mountains. "Camp Superkids" (for asthmatic children 9-12) is scheduled Aug. 5-11 at Camp Stoney near Santa Fe. In addition to recreation activities, classes on asthma and how to deal with it will be presented. Space is limited in both programs so parents wishing to enroll their children should write the American Lung Association at 216 Truman NE, Albuquerque, 87108, or call 265-0732.

* * *

Volunteers for the Outdoors invites outdoor organizations and the general public to take part in its next project — the Coronado Beautification Project at the Coronado Monument, just across the river from Bernalillo on Route 44, on Saturday, May 12.

Plans are to transplant 100 Russian olive trees from the bosque to the Monument grounds and to help restore the prehistoric adobe ruins of the Kuaua Pueblo. Work involves digging up the young trees, then replanting them at the Monument. Volunteers who prefer will mix adobe mud, and haul and lay blocks. Work begins at 8:30 a.m.; persons wishing to help should bring a lunch and a shovel and/or trowel. Refreshments will be provided.

In the past, Volunteers for the Outdoors has sponsored work projects in the city's proposed park in the bosque, at the Rio Grande Nature Center, and at the mouth of Embudo Canyon. The Coronado Project is jointly offered by VFO, the Coronado State Monument and Park, and the State Forestry Department. For more information, call the VFO office at 344-1151.

* * *

Albuquerque Civic Light Opera is seeking volunteers to work in its summer musical productions — "Gigi," "Pirates of Penzance," and "South Pacific."

Volunteers are needed especially in the areas of costume and set construction. Volunteer times for scenery painters and builders are Monday and Thursday evenings and Saturday, beginning at 10 a.m. For more information on set building, call Liz Essay, technical director at ACLOA, 345-6577. Volunteer hours in the costume shop are flexible and can be arranged to suit your schedule. Call costume designer Mariel McEwan on 345-4324 for information.

If you have an interest in box office work, ticket taking at the shows, or any other area at ACLOA, call Burt Dikelsky at 345-6577.

* * *

The first annual All Indian Arts and Crafts Show and Sale, sponsored by the NM Division of the American Cancer Society, will be held at the Convention Center May 18-20. The show and sale is being held during Native American Cancer Awareness Week, the beginning of an ongoing, concerted effort to make Native Americans

aware of the value of cancer prevention and early detection.

The public may attend a reception May 18 from 6 to 10 p.m. by making a \$100 per couple contribution to the American Cancer Society. Each contribution will entitle the donor to a signed and numbered poster print of Indian potter Maria Martinez, a work by Melody Lightfeather, featured artist of the show. The show will be held in Ballroom B at the Convention Center from 8 a.m. to 8 p.m. on May 19 and from 10 a.m. to 5 p.m., May 20, with no charge for admission.

* * *

Four students recently completed an IN-TEC course on computer graphics. Nothing unusual about that except that the students work at Tonopah Test Range and they "attended" the lectures by viewing videotapes of the class sessions in Albuquerque. Don Anderson (7172) acted as proctor for the group.

Working as a team on the class project, the students — Mike Bakos, David Geene (both 7171), Steve Reynolds and Bert Tate (both 7172) — established a much-needed graphic monitor and display system of all security and fire alarms in use at TTR.

Barbara Nielson (3522) was the education and training consultant for the course.

* * *

Don Mattox, supervisor of Surface Metallurgy Division 1834, is the 1984 president-elect of the American Vacuum Society. He will be installed as president next December at the national society meeting in Reno. Don has been at Sandia for 22 years and head of the surface metallurgy group since 1966. His most recent work has been on the development of coatings for fusion reactor applications.

* * *

Margaret Carroll (3442) and her husband Bill, campus safety manager at UNM, donated about \$4500 in personal computer equipment to the seventh and eighth grade physical science classroom at Van Buren Middle School as a prize won for the school by eighth-grader Christopher Brill. Christopher entered a project on cigarette filter effectiveness in the recent Northwestern NM Regional Science Fair. The Carrolls, who provide a prize for the fair every year, said they selected his project because of its safety considerations, which included a fire extinguisher and a first-aid kit.

Congratulations

Dale (1521) and Shauna Treece, a son, Cameron Erland, April 12.

Graham (7473) and Nancy Yelton, a daughter, Melissa, April 24.

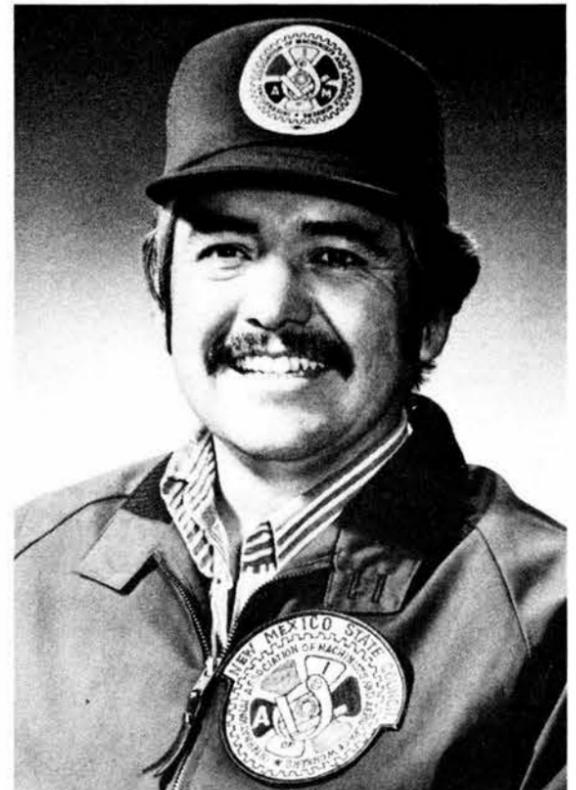
Dean (7482) and Liz Manning, a son, Matthew Adam, April 18.

Tim (7654) and Kay DuBay, a daughter, Carly Blount, March 29.

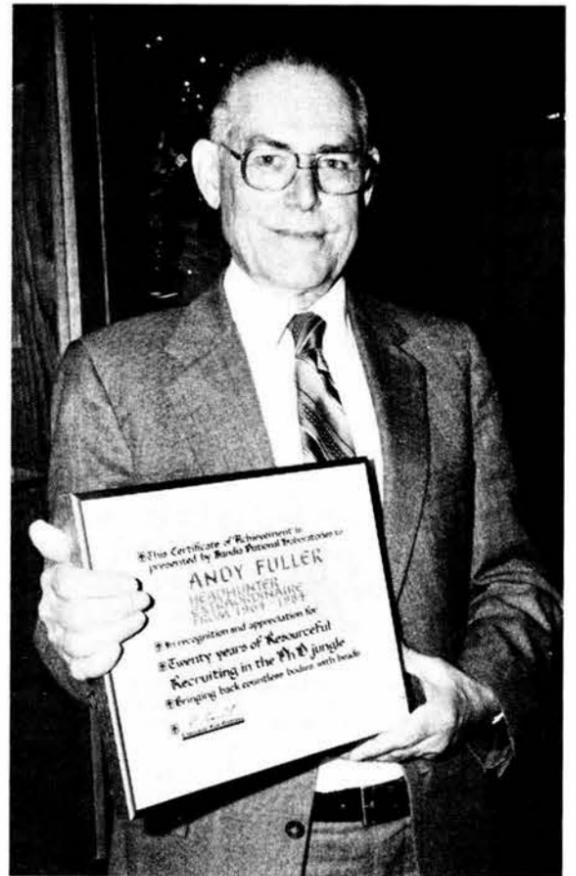
Charlie (324) and Trudy Randour, a son, Christopher Lange, April 18.

Tom (1522) and Helen Baca, a son, Aaron Philip, March 26.

Mark (5165) and Donna Bleck, a daughter, Lara Ruth, April 14.



FIDEL PEREZ is the newly elected president of the NM State Council of Machinists. Fidel has been at the Labs for 15 years; he completed the apprenticeship program and is a machinist in the Composites and Abrasives Machining Section 7481-3. He is past president of Local Lodge 1689, and is currently secretary-treasurer of the Metal Trades Council. The State Council of Machinists works with locals throughout the state, sharing information and working for the betterment of the 5000 union machinists in New Mexico.



NOT A RETIRING RETIREE — Andy Fuller (3531) is leaving Sandia in a three-alarm conflagration of glory. He's holding a certificate prepared and presented by Al Narath, now of Bell Labs, that recognizes Andy's "20 years of resourceful recruiting in the PhD jungle, bringing back countless bodies — with heads."

Museum on TV

KNME's Illustrated Daily (Channel 5) will devote the May 23 show to the Museum of Natural History (6:30 p.m.). Their production team may film some Sandia's replication work in early May for that show.



AT THE PALAU ISLANDS on Christmas Day, Keith and Judy Mead enjoy a stroll on the tropical beach.



AT TRUK LAGOON, Keith Mead looked for remains of WWII, found five of the sunken Japanese ships while suba diving.

Unusual Vacation

The Meads Dive in Truk Lagoon

A 33-day vacation to the Far East and South Pacific was a memorable event for Keith (1811) and Judy Mead (5163) during last year's Christmas holiday and following weeks. For Keith, it was a return to an area he was in during WWII. He even found a remnant of those historic days — 30 sunken Japanese ships on the bottom of Truk Lagoon.

"Truk is like the mythical tropical island paradise — a coral reef encircling a clear lagoon more than 40 miles across with a lush jungle-covered island in the center, the top of an ancient volcano," Keith says. "It's beautiful. It's still sparsely populated with only a few thousand natives and a few tourists at the one hotel. In WWII it was a stronghold for 40,000 Japanese troops, but little of that is left. The ships in the lagoon were sunk by U.S. aircraft in April and May 1944.

"I was a Navy gunnery officer in those days on a landing craft doing patrol duty in the Palau Islands, which we also visited during this trip. In 1944, I passed by Truk on patrol. It's a strange feeling to dive down and see those sunken ships. We swam into the holds and saw the cargoes of war — aircraft fuselages, artillery, shells, gas masks, even bicycles. All of these and the ships' structures inside and out are now covered with teeming sea life. They've become artificial reefs and home to millions of sea creatures from tiny transparent opal sweepers to 12-foot-long sharks — an infinite variety and infinitely beautiful."

The Meads made four dives into the lagoon at Truk. It is now a National Monument of Micronesia, U.S. Trust Territory. It is unlawful to remove an artifact.

After three days at Truk, the couple flew to Guam for an overnight stay, then flew on to Yap, famous for its great circles of stone used as money, valuable to the natives even today. After two days at Yap, the Meads flew to the Palau Islands for three more days of scuba diving.

"I was here for seven months during the war and I think the reefs here are the most beautiful in the world," Keith says. Near the south islands at about 25 feet under the surface, the reef is a sheer wall that drops straight down for more than a thousand feet. We dived to about 110 feet and saw a

marvelous multi-colored undersea landscape with bizarre and beautiful inhabitants. I hitched a ride of several minutes from a giant sea turtle who happened by. Great fun."

At this point, Judy takes over the story. "I like beaches, diving, swimming, and tropical paradises," she says. "But I also like to investigate the history and culture of each local area."

The couple spent New Year's in Manila doing "tourist things" and enjoying the sights and activities. "There was no evidence that we could see of political problems," Judy says. "It was holiday time, and the people seemed happy."

From Manila, the couple flew to Singapore for three days of shopping and sightseeing, then went on to Penang, a Malaysian state with three major religions: Buddhist, Muslim and Hindu. "Temples," Keith says. "We saw a lot of temples. Ate a lot of exotic food."

More exotic food, temples, and sightseeing followed during three days in Bangkok, Thailand. Here the Meads found some extraordinary bargains in silk and tableware. Keith bargained for a 144-piece table service for 12 cast in nickel-bronze in a modern design with teak handles. "It is beautiful and cost a hundred bucks," Judy says. "Fantastic."

More shopping followed in Hong Kong where the couple stayed in a truly luxurious hotel and spent a week enjoying the city. They made a one-day excursion to Red China. "What a contrast," Keith says. "Compared to Hong Kong, Red China is primitive. This side-trip was not a high point of the vacation. We felt depressed during the state-controlled tour."

"But the vacation was a high point in our lives," Judy says. "We thought it was going to be a once-in-a-lifetime splurge, but since we've been home and talked about it, we've decided we must return to Micronesia during Christmas of 1986."

Logistics: the Meads spent more than a year planning their vacation. They worked closely with a friend who is a travel agent in Los Alamos. All airline tickets and accommodations were reserved and paid in advance. The cost for airline tickets was \$5900. Accommodations were \$3000, but the



GOING OVERBOARD backwards, Keith begins a scuba dive to view sunken ships and sea life in Truk Lagoon.



WWII TANKS are found on Pelelieu, Palau Islands. Keith tries on a rusting helmet.



A TROUPE of Thai dancing girls entertains at the hotel at Bangkok.

couple stayed in four of the top-ranked hotels in the world. Another \$3000 was spent on food, local tours and guides, scuba equipment rental, and purchases. "We had to stick to the schedule," Keith says. "If you miss a plane in Micronesia, you have to wait two days before another one comes along."

(Ed. Note — Keith and Judy will show slides of the trip and discuss South Pacific travel at a Coronado Club program on Monday, May 21. The event starts at 7 p.m. in the ballroom.)

feed back



JUDY MEAD tries a ride on an elephant during a tour of Bangkok.



NOT MEDUSA but Keith Mead in the "snake temple" at Penang. The snakes are live pit vipers (defanged of course).



ON YAP, Keith examines ancient stone money, the large donut-shaped stone, which natives still value. The native guide, Yo, also posed with Judy.



Q. Yesterday afternoon I was driving a DOE vehicle and noticed the fuel level was near empty. When I arrived at the motor pool, I was told to come back. If I want to use this vehicle for transportation to remote areas between 8 a.m. and noon I have two options: 1. Drive the vehicle until it runs out of gas, walk to the nearest telephone, and call the motor pool for a tow truck. 2. Drive to the nearest off-base service station, fill the tank, and submit a petty cash voucher for reimbursement. I believe either option would cost more in time and effort than the cost of dispensing gasoline at the motor pool throughout the working day.

At 7:15 this morning I attempted to exit Area I through Gate 6 to refuel the vehicle. The gate was secured, and the security guard told me that only Gate 10 was open until 8:15 a.m. I drove the additional two miles to reenter Area I at Gate 10 and then retraced my path two miles to reenter Area I at Gate 10 since it was still earlier than 8:15 a.m. It appears that 8 a.m. is not starting time at Sandia as I had previously been told.

A. We have been closing the gasoline dispensing area in the afternoons for approximately two years, which has proven to be economically feasible. Several Sandia Bulletins noted the closing of the dispensing area in the afternoon. If you are in this situation again, please contact Motor Pool supervision for assistance, and we will provide gasoline, even if we have to remove a mechanic from a repair job. Sorry you were inconvenienced.

Regarding closing vehicle gates, there have been several near misses between pedestrians and vehicles at Gates 1 and 6. Safety and Plant Engineering assisted the Security Organization in evaluating this situation (from pedestrian safety viewpoint) and concluded that the safe thing to do at these gates was not to mix vehicles and pedestrians during rush hours. Surveys conducted at these locations indicate the pedestrian rush is over by 8:15 a.m. and 4:45 p.m. Thus, these two vehicle gates are closed for safety reasons from 7:30 a.m. to 8:15 a.m. and from 4:15 p.m. to 4:45 p.m. Monday through Friday. Excepted from this rule are emergency vehicles, van pools and buses.

C.L. Brumfield — 3400

Q. More and more people seem to be parking illegally in spaces reserved for second shift employees.

A. Limited manpower makes it difficult for Security to patrol the various parking lots at Sandia on a daily basis. Consequently, there may be some days when people who park improperly are not cited. However, in the weeks ahead Security will make a special effort to patrol the second shift parking lots to which you refer, and people who use these parking areas without proper authority will be ticketed.

C. L. Brumfield — 3400

Q. Is there an official Sandia policy regarding smoking in elevators?

A. There is no "official policy" about smoking in elevators. But NO SMOKING signs were put up to remind smokers that they shouldn't smoke in a small confined space for the short time they are in the elevator.

R. W. Hunnicutt — 3600

Q. Under current DOE rules, could Sandia stock in Stores a sort of "generic" business card? It would have Sandia Natl. Labs and mailing address printed, but would have lines on which we could write in our name, organization, and phone?

A. Sandia formerly furnished business cards to its employees. However, in early 1982, Sandia agreed to conform to DOE's own practice and discontinued furnishing business cards, including the "generic" variety suggested by your inquiry. You may buy your own, however; see SLI 1125, which covers the ordering of business cards.

P. M. Stanford — 100

Q. One of our Q-cleared contractors lost his badge, so now I have to spend a week escorting him while he does his job. This reduces both his effectiveness and mine. Why do I have to treat him as if he's uncleared?

A. Sandia is neither equipped nor authorized to issue temporary badges to resident contractors who forget or lose their badges. The policy is (and has been for some time) that when they forget their badge, they will go home or to their off-base office and retrieve it. If the badge is reported lost or stolen, the contractor must wait for 5 days to allow time for the badge to be returned before another one will be issued. In this case, it would require that the individual be escorted into the security areas. In a case where it can be proven that the badge was destroyed, a replacement will be issued right away.

C. L. Brumfield — 3400



NEW TRAINING HOTLINE — To respond more effectively to inquiries about workshops, enrollment procedures, class schedules, and other aspects of Sandia's training programs, Education and Training Department 3520 has established a "training hotline." The number is 6-1482, and it's usually answered by Cathi Brunacini (3522), possessor of the smiling face above. If she can't answer your question, she will ask the coordinator of the appropriate training program to call you with the answer.



Favorite Old Photo

THIS BLOCK of stamps was issued on Oct. 8, 1983, to commemorate the 100th anniversary of streetcars in America. One of the stamps features "Bobtail," the last mule-drawn streetcar in the nation. It was located in Sulphur Rock, Ark., where I was born and reared. The streetcar connected the town to the railroad 1½ miles away. Service began in 1889 and ended in 1926. We kids would help load freight onto a mule-drawn flatcar at the depot for delivery to the town merchants. For this work, we got a free round-trip ride on the streetcar; it would have cost us five cents otherwise. The house in the background was built for my great uncle John Burklin Meriwether — Aunt Mary wanted the largest house in town. By the time this photo was taken (1910), the house was a hotel.

George Browning (Ret.)

Fun & Games

Outdoor Treks — The American Lung Association of New Mexico offers a series of multi-day events — backpacking, canoeing, and bicycling — to promote its programs for healthy lungs and clean air. These "Treks for Life & Breath" provide participants with inexpensive vacations while raising money for the Association's clean air projects. Expenses are being underwritten by a \$5000 grant from the Albuquerque MONY (Mutual Life Insurance of New York) agency, enabling all funds raised to go to Association programs.

The fourth annual 100-kilometer backpack trek July 7-14 will be in the Pecos Wilderness. The Second Annual 60-kilometer canoe trek July 28-30 will be along the Ute Mountain Run in the calmer stretches of the northern Rio Grande. The third annual 300-kilometer bike trek Sept. 1-3 will tour the Jemez Mountains.

Novices as well as veterans are encouraged to participate. The Lung Association provides training, food, rental referrals, support vehicles, or transportation logistics. With proper conditioning, the average biker, hiker, or aspiring boater should be able to make the trek.

For additional information, contact the Lung Association, 216 Truman NE, or call 265-0732.

Golf — Winners (first and second place) in the recent Sandia Golf Association Arroyo Open were Richard Adams (1244) and Gerry Smith (2564), A Flight; Dennis Chavez (3723) and James Schwank (2144), B Flight; Al Maes (3741) and James Buttz (5254), C Flight; Tom Towne (7535) and Joe Llamas (7556), D Flight; Emery Chavez (155) and Gerald Ward (3154), E Flight; and Jerry Ford (3154) and Richard Baehr (1823), Callaway Flight.

June 2 is the date of SGA's next tourna-

ment, a Scotch Foursome. Contact Kevin Linker (6227) for details.

Softball — Like to play slow-pitch softball? Are you male or female? But are you 55 or older? If you meet all three requirements, you should know that the Albuquerque Office of Senior Affairs has started a senior citizens slow-pitch softball league and has invited a team from Sandia to participate. Games will be played early on weekday evenings or on weekends. Call Don Hente (6446) on 6-1448 if you're interested.

CorpCup — More than 100 Sandians will compete in this year's Corporate Cup event at Milne Stadium on May 19-20, beginning at 9 a.m. Come out and cheer your compatriots as they attempt to regain the title they lost last year to KAFB. "The Base and Los Alamos will be our heaviest competition," says coach Henry Dodd (6252). "We'll need all the support we can get."

Women's Softball — Last chance for Sandia females (and wives of employees) to join SERP softball. Teams or individuals of all skill levels are invited — this is a fun league. The season starts in June and continues through July. Cost is \$7.50 per person; expect to play at least 12 games (on Base, Monday through Thursday evenings). If you're interested, call Maryanne Cunningham on 6-2527 right away.

More Running — The Seventh Annual Leroy Bearman Memorial Run is scheduled Sunday, June 3, at 8:30 a.m. at Kit Carson Park (near the Rio Grande Zoo and Tingley Beach). Contestants will compete over the five-mile course in 13 age and sex categories. Entry fee is \$4 before the race, \$5 on

the day of the race. T-shirts go to all entrants, various prizes to the winners. Pre-register at either Gardenswarz Sportz store. The race was first run in 1977. It honors Leroy Bearman, long-time sports editor and enthusiast, who died following heart surgery at the age of 42.

Whitewater Racing — The 27th Annual Rio Grande Whitewater races take place tomorrow and Sunday on the river near Pilar, 24 miles south of Taos. Sponsored by the Adobe Whitewater Club, the races are open to rubber rafts, kayaks, and open and closed canoes.

The downriver race for rubber rafts — paddled, poled, rowed, or portaged, no personnel limits but hand propulsion only — is 4.4 miles through intermittent rapids and flat water raced against the clock. The canoe marathon has a LeMans start and goes through 10 miles of flat water with currents up to 6 mph. Entry fee for all events is \$3 per person per event.

More information is available from Peggy Stevens, 299-6086.

Sailing — If you've ever wanted to sail the bounding main, DOE's Bill Horton has an interesting proposition for you. As a qualified skipper of large sailboats, Bill proposes to charter a 45-footer for a month or so in the Virgin Island region of the Caribbean, then to schedule interested people (up to six) to ship on with him for a week or two per party. For example, three couples might want to spend a week of island hopping and snorkeling. Bill is aiming at the November-December period and would like those with an interest to call him for details on a get-together where the subject can be more fully explored. He's on 883-7504.

55 Downtown - University - KAFB East
Effective April 30, 1984

Bus Schedule

This Route Serves:
 A Sandia National Laboratories
 B Sandia Base Hospital
 C Sandia Base Exchange
 D Lovelace / Bataan Hospital
 E Veterans Hospital
 F University of New Mexico
 G Convention Center
 H Turnaround Point
 I San Mateo
 J Carlisle

For information call:
***766-7830**
 City of Albuquerque
 *TTY System in use for the hearing impaired.

Monday - Friday Service
 Times indicated may vary according to traffic conditions.
 No Saturday or Sunday Service.

Route 55 from Downtown

	A.M.
5th & Gold	6:22 6:52 7:22 7:37
University & Grand	6:30 7:00 7:30 7:45
San Mateo & Gibson	6:41 7:11 7:41
Dept. of Energy	6:48 7:18 7:48
Wyoming & H St.	6:51
Gate # 1	7:21 ^T 7:51 ^T

Route 55 to Downtown

	P.M.
Gate # 10	4:00 4:30 ^T
Wyoming & H St.	3:42 4:07 4:40 5:14
Dept. of Energy	3:44 4:09 4:42 5:16
San Mateo & Gibson	3:52 4:24 4:54 5:24
University & Grand	4:03 4:35 5:03 5:33
5th & Gold	4:11 4:41 5:11 5:41

^T Goes Through Tech. Area.

90 N. Coors Express*
Effective April 30, 1984

Bus Schedule

This Route Serves:
 A Corrales Center
 B S.I.P.I.
 C University of Albuquerque
 D Convention Center
 E University of New Mexico
 Turnaround Point

For information call:
***766-7830**
 City of Albuquerque
 *TTY System in use for the hearing impaired.

Monday - Friday Service
 Times indicated may vary according to traffic conditions.
 No Saturday or Sunday Service.

Route 90 to University and Grand

	A.M.	P.M.
Corrales Rd.	6:22 6:52 7:07	4:11 4:41
Paradise Hills Blvd.	6:27 6:57 7:12 7:50*	4:18* 4:45*
Taylor Ranch (Vella Vista)	6:30 7:00 7:15 7:54	4:22 4:49
St. Joseph Dr.	6:35 7:05 7:20 7:59	4:27 4:54
5th & Gold	6:52 7:22 7:37 8:16	4:44 5:10
University & Grand	7:00 7:30 7:45	5:18

Route 90 from University and Grand

	A.M.	P.M.
University & Grand		3:33 4:03 4:35 5:03 5:33
5th & Gold	7:30	3:41 4:11 4:41 5:11 5:41
St. Joseph Dr.	7:45	3:58 4:28 4:58 5:28 5:58
Taylor Ranch (Vella Vista)	7:47	4:03 4:33 5:03 5:33 6:03
Paradise Hills Blvd.	7:50*	4:06 4:36 5:06 5:36 6:07
Corrales Rd.		4:11 4:41 5:11 5:41 6:11

Express Buses stop only at time points listed above.
 Express Stops are marked.

*Enters S.I.P.I.

BUS FROM THE BOONDOCKS — As these schedules indicate, a Sun-Tran bus that serves the Corrales, Rio Rancho, Paradise Hills, and Taylor Ranch communities can deliver Sandians to Tech Area I each workday. Called Route 90 until it reaches 5th & Gold, the bus magically becomes Route 55 and heads for Sandia via Grand and Gibson. Commuting coordinator Barbara Champion (3543) notes that the Corrales Shopping Center is now offering parking for commuters; look for the Park-n-Ride signs. A bus ride costs 60 cents each way. And commuter punch and monthly pass cards are available at the Credit Union. More info from Barbara on 4-RIDE.

Events Calendar

May 11- June 17 — "The Ballad of Joaquin Murrieta," La Compania de Teatro de Albuquerque; Fri. & Sat., 8 p.m., Sun., 3 p.m.; Nuestro Teatro, 3211 Central NE.

May 11-27 — Albuquerque Little Theatre closes 54th season with Beth Henley's 1981 Pulitzer Prize winning play, "Crimes of the Heart," Tues.-Fri., 8 p.m., Sat. 6 & 9 p.m., Sun., 2 p.m., reservations, 242-4750.

May 13-Aug. 26 — Exhibit: Pueblo Pottery and Mission Church Decoration, East Gallery, Maxwell Museum, UNM (Mon.-Fri., 9-4; Sat., 10-4; Sun., 1-5; closed holidays).

May 14 — Albuquerque Philharmonia Orchestra Spring Concert, 8:15 p.m., Highland H.S. Center for the Arts.

May 15 — Albuquerque Opera Theatre Benefit, Donna McRae in solo concert, 8 p.m., KiMo.

May 17 — El Paso Ballet presents "Tommy," choreographed from the rock musical (not recommended for children), 8 p.m., KiMo, reserved seating, 766-7816.

May 18 — NM Symphony Orchestra concert, guest artist: Dong-Suk Kang, violinist; guest conductor; Neal Stulberg; 8:15 p.m., Popejoy.

May 20 — Seventh Annual Show of the NM Council of Car Clubs, Copper Parking Garage (Copper NW between 4th & 5th), viewing time 10 a.m. to 4 p.m.

May 20 — Albuquerque Civic Chorus Spring Concert, 50th anniversary of the chorus, 4 p.m. free admission, KiMo.

May 20 — NM Buckskin Assn. & All Breed Horse Show, Bern. Co. Sheriffs Posse Arena, 8501 Edith Blvd. NE; premiums & information, 898-5939.

May 24 — NM Museum of Natural History lecture and slide show: "The Evolution of Bird Flight," John Ostrom, Curator of Vertebrate Paleontology, Yale Peabody Museum, 7 p.m., KiMo.



GOOD WORK, SANDIA — Ray Romatowski (left), manager of DOE's Albuquerque Operations Office, congratulates Arlin Cooper, supervisor of Computer Security Division 2612, on Sandia's implementation of DOE's computer security program for sensitive unclassified information. The award recognizes the success of Sandia's 34 Assistant Computer Security Officers, Arlin's division, his management, and others in 2600 in dealing with information that's unclassified but that requires protective measures.

nia volunteers in action

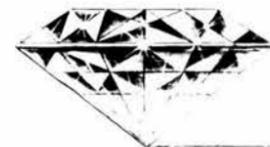
News

Here is a volunteer opportunity for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

SANDIA'S SOUTH 14 PROJECT (which assists families in these neighboring communities) needs someone to prepare and submit its application for tax-exempt status to the state. The assignment probably will require mostly patience and persistence in shepherding the request through the bureaucracy.



HEALTHY



WEALTHY



AND WISE

MILEPOSTS

LAB NEWS

MAY 1984



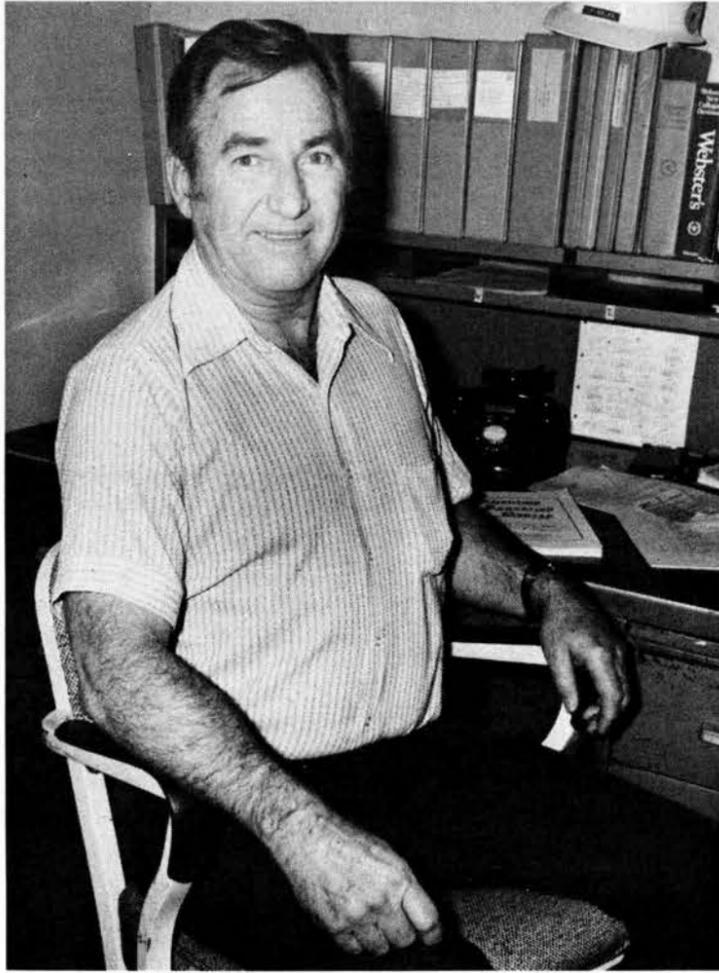
Oscar Goodwin (3155) 30



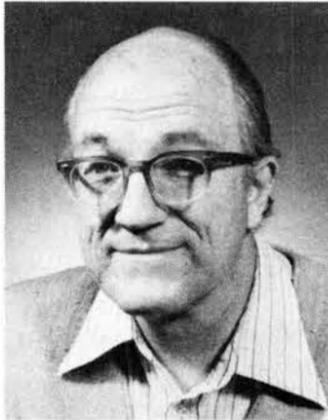
Isaias Gutierrez (3426) 20



Eva Leong (8264) 10



Francis MacDonald (7135) 30



Bud Wimber(2334) 15



Orlando Romero (7265) 10



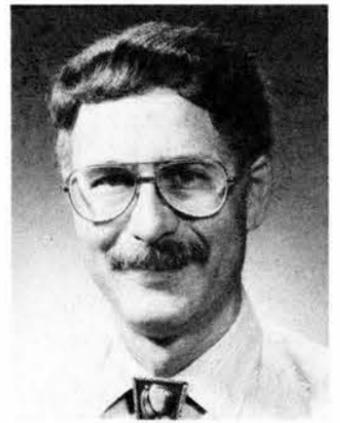
Glen Loeppke (6241) 25



Diane Miller (2123) 10



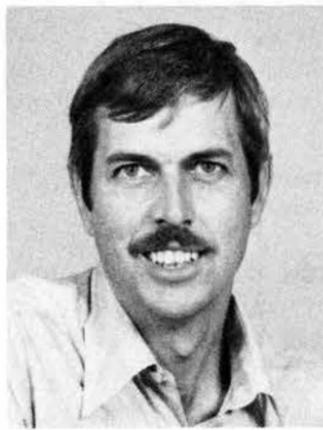
Dick Vigil (5266) 25



Ralston Barnard (7523) 10



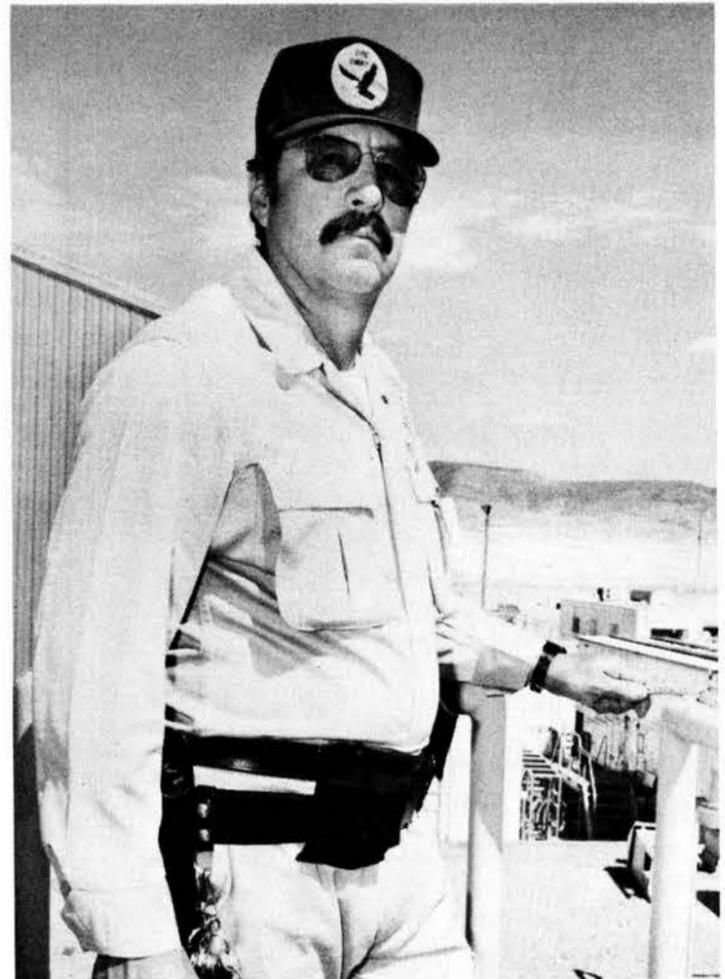
Marie Iverson (3160) 20



Dan Tichenor (8361) 15



Ben Benedetti (8121) 20



Ruben Garcia (3435) 10



Spike Leonard (8234) 20



Harold Hunt (8257) 25



Charles McCain (8265) 10

Starting Over

by Arlene Price (3330)

Is there life after divorce? At first it doesn't seem like it. Suddenly, all that is familiar and predictable has changed. We go into a tailspin, hoping to land with both feet on the ground. What makes the change tough is that there is no easy transition from the married to the single lifestyle. Shifting gears from being married to being single means creating a different identity. It is a learning process in which new roles must emerge. Attempts to help people through this adjustment period have resulted in the

formation of a variety of groups. One approach is the Divorce Adjustment Class, which is designed to provide support while helping people deal with the many new challenges they face.

In our effort to enhance this process, Sandia Medical announces its next Divorce Adjustment Class. It will meet Mondays and Wednesdays, May 21 to June 20, from 12-1 p.m. in the conference room of building T13. To enroll, please contact Arlene Price at 6-0021.

To Paul Garcia (7473) on the death of his father, April 23.

To Robert Yuhas (7633) on the death of his father, April 17.

To Miracle Mackey (7213) on the death of her father in Chicago, April 26.

To Forest James (7482) on the death of his grandfather in Crosby, Texas, May 1.

To Vernon Brewster (7137) on the death of his mother in Escondido, Calif., April 5.

To Bob Lucas (2541) on the death of his son in Albuquerque, May 6.

To Don Van Zuiden (7658) on the death of his father in Illinois, April 27.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name and organization.
9. Housing listed here for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

CAIRN TERRIER cross, 4-yr.-old male, neutered, shots are current, free to right party, needs loving home. Scales, 298-6254.

ATARI 2600 game machine w/7 cartridges, rapid fire controller, \$140 OBO. Rael, 299-0343.

20" 3 1/2 HP Penneys lawn mower, \$35; bookkeeping journal & ledger, both \$20. Purdue, 256-0802, 1-10 p.m.

GIRL's size newborn to 2 toddler clothes. Kramer, 262-1040.

UTILITY trailer, covered, \$50; HO-gage model railroad, make offer. Drumheller, 281-3127.

SILVERWARE: Community by Oneida, 12 place settings, 6 pieces/setting, service pieces & chest, 21 yrs. old, \$350 or reasonable offer. Gottlieb, 298-9859.

FREE calico cat, female, very friendly, spayed. Hall, 268-1434.

TV, Sears 13" port. B&W w/sunscreen, working order but verticle hold needs improvement; transistorized model makes repairs easy; owners manual & wiring diagrams, best offer. Picraux, 345-2032.

EISENTRAUT Ltd. 62cm frame, Campagolo and Avocet equipped, Imron paint, \$495 or make offer. Halsey, 299-2023.

SLIDE projector, Argus 500 watt, \$40; slide cartridges for same, each holds 36 slides, \$1.50 ea. Bureta, 292-5421.

SEARS auto. water softner, \$75; set metal bi-fold doors, 48" wide, \$20; white commode w/tank (no top), \$10; darkening shade, white, \$8; Jacobson lawn mower, old, pull start, 2-cycle, no bag, \$20. Sims, 294-3683.

HARDTOP for Jeep CJ-5, 1976-84, black, light tint on windows, \$650 firm. Ulibarri, 883-6479 after 5.

GE washer & dryer, \$100; GE refrig., \$250; twin bed, \$60; fp screen, \$75; sofa & love seat, \$100. Subramanian, 821-1705.

SPEAKERS: 2 Klipsch LaScala, natural tone, \$620 each. Pastorek, 292-6323.

FREEZER, 10 cu. ft. upright, \$100; upholstered arm chair, \$50; high chair, table top type, \$12. Binder,

299-2937.

TWO sets of mattresses for bunk beds, \$70. Ripi, 293-6067.

REFRIGERATOR, new Panasonic 2.6 cu. ft., \$125. Kenna, 298-6059.

BATHROOM fixtures: tub, \$50; toilet, \$30; sink & vanity, \$50; medicine cab., \$10; light fixture, \$5. Rimkus, 292-1258.

MISC. items: dresses, stereo, canopy bed, weight bench, child's tricycle, surveyor's tripod, fan, rollaway bed, Chevy rims. French, 293-3451.

LAWN MOWER, manual, reel type w/grass catcher, \$35. Henrick, 296-2163.

VCR, frontloading, Panasonic Omnivision VHS, many features, paid \$550, sell best offer over \$400. Torrez, 265-1469.

DINING/kitchen table, round, all wood, w/4 chairs; wooden highchair; changing table; hanging wood/wrought iron light fixture. Chavez, 298-2405.

SOFA & chair, \$200. Marquez, 344-8455.

CAMPER, 10 1/2', w/stove, ice box, jacks; outboard motor, 7 1/2 HP, Sears, water cooled. Ladig, 299-3308.

13" ELECTRONIC Mitsubishi color TV, stand; lg. painted oak coffee table, white tile top, could be stripped; misc. Strome, 821-2567.

SEARS swing set, \$30; if you dismantle & remove, \$15. Thompson, 294-5704.

BEARCAT 250 crystalless scanner, programmable 50 channels/5 bands, non-volatile memory, search & store, \$250 OBO. Prior, 296-2930 after 6.

WATER HEATER, 20-gal., 1650 watt. Moss, 296-3094.

GARAGE SALE: furniture, toys, clothes, jewelry, bikes, turntables, luggage, etc., 9 a.m. May 12, 3701 Gen. Patch NE. Hulme.

TWO backpacks, 2-man pack tent, Jansport brand, \$150. Hole, 877-0266.

PARTING out 1978 Chevrolet truck: engine, transmission, 2 gas tanks & more. Walker, 298-4819 days or 281-9587 after 7.

EVAPORATIVE cooler, downdraft type, suitable for 1000 sq. ft. house, \$150. Sons, 294-3953.

REFRIGERATOR, approx. 12 cu. ft., \$100. Bolin, 299-2198.

WIRE wheel disks, 14", \$25; redwood table for children, sturdy, hand-made, \$25. Atkins, 298-5762.

19.4 CU. FT. side-by-side; 4' x 5' yellow mini blind; bed rails; space heater; file safe; metal desk; free: croquet set, dog house & cabinet drawers. Iman, 299-6500.

FREEZER, Kenmore, 9 cu. ft., \$150 firm. Lucero, 299-6300.

PORTABLE whirlpool for bathtub, Sears largest, \$100 (cost \$200+); traction stand, new, 20 lb. water, sit or lie, \$35. Nielson, 266-2421.

CABOVER camper, Coachman 11 1/2' w/Bock camper jacks, 3-way refrig., HW heater, stove, monomatic, heater, \$1800. Sieglitz, 898-6338.

OAK bunk beds, \$75; alum. 36" screen door w/frame, \$10; ma-

hogany stereo/TV/record cabinet, \$40. Balthasar, 298-5794.

COLOR TV, Curtis Mathes 25" console, remote control, \$300. Thompson, 884-4883.

PUPPIES, Lhaso Apso, AKC, small fuzzy house dogs, don't shed, love people, \$175; 9 1/2' camper, ref., furnace, BR, many extras, sleeps 5-6, orig. owner, \$2500. Cook, 869-6921.

MAPLE chest, 4-dwr., youth size, \$50; new 40-gal. natural gas water heater, \$80. Keizur, 884-8357.

TWO tires, G70-14 glass belted, never used, \$50. Bagg, 298-4035.

35mm CAMERA, Olympus OM-1 w/50 & 28mm lenses, filters, orig. \$400+, sell for \$225. Shunny, 265-1620.

THREE bowling balls; hooded grill w/roisserie; 20-in bike; end table. Urenda, 268-2347.

TRANSPORTATION

'77 TRIUMPH Spitfire convertible, maroon, low mileage, FM stereo cassette, \$3300. Zurawski, 268-9511 after 5.

'79 TOYOTA Corona, PS, PB, AC, 5-spd., AM-FM cassette. Pennington, 268-2672 after 5.

'78 HONDA 750K, full dressed, w/many options, Bukaty, 881-9551.

'69 and '72 OPELS, mechanics special, both for \$450. Newell, 1205 Georgene NE, 242-5959 or 293-3636.

'78 PONTIAC LeMans 4-dr. sedan, V6, PS, PB, AT, AM-FM, new tires-muffler-battery, \$2500. Wengert, 294-5373.

'69 DATSUN 1/2 ton pickup, 4-spd., 1300cc engine, AM radio, 30 mpg, \$700 OBO. Unkelhaeuser, 281-5624.

'71 CAPRI, 40K miles on rebuilt 2000cc engine, newly rebuilt AT, needs paint, muffler, \$400. Kelber, 898-5035 after 7.

'73 CHEVY Chevelle, 2-dr., \$850. Chavez, 881-2782.

'78 BUICK Regal sport coupe, AT, PS, PB, AC, AM-FM cassette stereo, 55K miles, \$3000. Knoll, 299-1181.

'77 TOYOTA Chinook pop-top weekender, garageable mini motorhome, 21 mpg, 51K miles, AC, refrig., furnace. Rainhart, 821-3690.

'82 BUICK Skylark, charcoal, AC, PS, AM, \$6100. Hanks, 256-3307.

'83 FORD Ranger, 1/2 ton, mid-size 4-spd., oversize 4-cyl., radio, gauges, \$5400, nothing down. Williams, 299-8986.

'82 FORD Escort, 2-dr., hatchback, low miles, red, AM-FM cassette stereo, below book. Schmidt, 884-1091.

'72 OLDS Cutlass, 350 engine, new: vinyl top, paint, upholstery & battery, \$1000. Martinez, 873-1803.

BICYCLE, 10-spd. Schwinn, \$100. Kenna, 298-6059.

'83 HONDA 1100 (V65 Magna) motorcycle, dealer serviced, \$3650. Ulibarri, 881-3551.

'70 CORVETTE T-top, 350HP, 4-spd., many new parts, kept original. Brooks, 265-8612.

'75 FORD van, 56K miles, ST. tape, camping conversion, rebuilt engine, \$4000. Covate, 298-0649.

'80 HONDA XL 185SL street/trail bike. Fisher, 881-8072.

'83 CHEVY van, full conversion, all the extras, low miles, \$2000 & take over payments. Munford, 865-7949.

'69 CHEVELLE Malibu, 400 sm. blk, AT, PS, PB, make offer. Edrington, 881-2395.

TWO '74 FORD Mustangs: one brown, one white, both 2-dr., 4-cyl., AM-FM cassette, AC, \$1800 each. Waddles, 842-0564 or Dickson, 293-1805.

'77 KAWASAKI KZ750, custom seat, low miles, \$1400. Rich, 897-0491.

PEUGOT bicycle, 10-spd., Reynolds frame, Suntour derailleurs, \$275. Drumheller, 281-3127.

SAILBOAT, '82 Coronado 15 racing, rigged trapezes, roller jib, HD trailer winch, easily holds 4, \$2900. Weirick, 281-1462.

'76 VW bug, low mileage, one owner, AM-FM, ski rack, below book. Todd, 255-3161 or 255-3111.

'82 DATSUN 210 hatchback, SL pkg., 16K miles, \$6500 negotiable; '63 Chevy flatbed pickup, all custom, 396 eng. w/350 trans., both recently rebuilt. Zarrella, 892-0822.

YAMAHA XT250G street/dirt motorcycle, 1850 miles, shop manual, extra sprocket, \$875. Braithwaite, 822-1998.

'50 CHEVY 1/2 ton pickup, \$850; '72 Chevy van, 350, \$750. Bevington, 867-5159.

GOLD prospector's rig: '71 Scout, 4-wd, dual tanks engine-driven dry panner, lg. water tank, accessories, \$1895. Norris, 299-4717.

'72 CADILLAC Coupe deVille, \$1600. Hole, 877-0266.

26" SEARS 10-spd., \$50 OBO; 26" Schwinn chrome moly 5-spd. dirt bike, 25 lbs., \$250 OBO. Mooney, 299-1774.

'75 HONDA 550 Four Super Sport, Vetter fairing, luggage rack, \$795 OBO; will trade for fishing boat. Rozelle, 298-0396.

'71 ALFA Spyder, 60K miles, extras, \$4000. Scott, 294-8627.

'73 PONTIAC Bonneville, V8, AT, AC, PS, one owner, 53K miles, \$1700. Jungst, 821-8546.

'79 TRIUMPH Spitfire, low miles, radials, mags, OD, AM-FM cass., custom paint, showroom model, \$4000. Sanchez, 877-5231.

'79 CHEVETTE, 2-dr., hatch back, AC, AT, radio, \$1100; '69 Mustang Grande coupe, 302 rebuilt engine, AM-FM-8Tk., mechanics special, \$850. Lucero, 299-6300.

'76 DATSUN kingcab pickup, 33K miles on rebuilt engine, Weber carb., new radials, needs paint, \$2500. Orear, 256-1941.

'74 YAMAHA DT360 Enduro, \$400; '73 Yamaha 100 Enduro, \$200 OBO. Abbin, 296-7678 or 883-8665.

'77 YAMAHA DT 100cc dirt bike, street legal, \$325. Barham, 298-7304.

'82 KAWASAKI GPZ-550, 2500 miles, warranty; 20 1/2" frame Schwinn Varsity w/extras. Ritchey, 268-7620.

'72 VW Super Beetle, std., AC, AM-FM. Beasley, 298-8911.

'71 DODGE Colt, 2-dr., 4-cyl. Lanoue, 877-7902.

'77 OLDS Cutlass "S", V-6, 231 cu. in., AC, PS, PB, AM-FM cassette, low mileage, one owner. Randall, 821-0388.

'40 BUICK SPECIAL, straight 8 engine, no body damage, \$2950 OBO. Chavez, 831-9591.

'83 BUICK Park Avenue, gray sand color, deluxe luxury, 4-dr., 12k miles, \$14,000. Errett, 292-4885.

REAL ESTATE

OPEN HOUSE May 20, 1-5 p.m., 2228 El Navajo SW, 3-bdr., den, FR, storage-shop bldg., carport, oversize lot, \$55,000. Reich, 877-2846.

14 x 70 REDMAN MH, 1982, patio cover, carport, new carpet, 2-bdr., 2 bath, North Hills MH Park. Bronkema, 821-2119.

7 1/4% ASSUMABLE loan, 4-yr-old house, 3-bdr., 2 bath, landscaped, west side, \$452 monthly payment. Smith, 836-1676.

MOUNTAIN cabin near new Brazos ski area, water, gas, elec., 1/4 acre. Hanks, 884-9196, 256-3307.

NAVAJO DAM, 1/2 acre lot, \$6995, terms, 300 ft. from river, utilities available. R.E. Bontrager, P.O. Box 6338, Navajo Dam, NM 87419.

RENTAL house for sale, occupied, 1390 sq. ft., brick, 3-bdr., 1 1/2 bath, garage, \$62,500 firm, 2526 Gen. Arnold NE. Holmes, 292-0898.

'81 14 x 70' ARTCRAFT MH, 2-bdr., 2 bath, \$16,900. Walker, 881-0299 days or 281-9587 after 7.

ASSUMABLE 9.5% VA loan, NE hts., 3-bdr., 1 1/4 bath, FR, sunken LR, formal DR, 2-car garage, many extras, \$85K. Perez, 298-0286.

WANTED

BICYCLE, Schwinn Varsity or Continental, 10-spd., men's 22- or 24-inch frame, good condition. Dale, 821-7117.

CHILD Care and transportation to/from Fatima School for kindergarten student; noon to 12:30 session, beginning Aug. 20. Geer, 265-2094.

BEAT-UP wooden table, approx. 5' x 3' for work table; work lamp & stool. Sinclair, 884-7096.

GOOD English saddle; 800-16.5 rim for Ford 3/4 ton pickup. Baker, 294-3334.

CAMPER SHELL to fit '67 El Camino; motorcycle trailer. Prevender, 299-5253.

TRADE '74 Chev. 3/4 ton, Camper Special pickup, 108K miles, for later model economical (sub)compact vehicle. Schubeck, 821-3133.

REAR bumper for Datsun pickup. Rozelle, 298-0396.

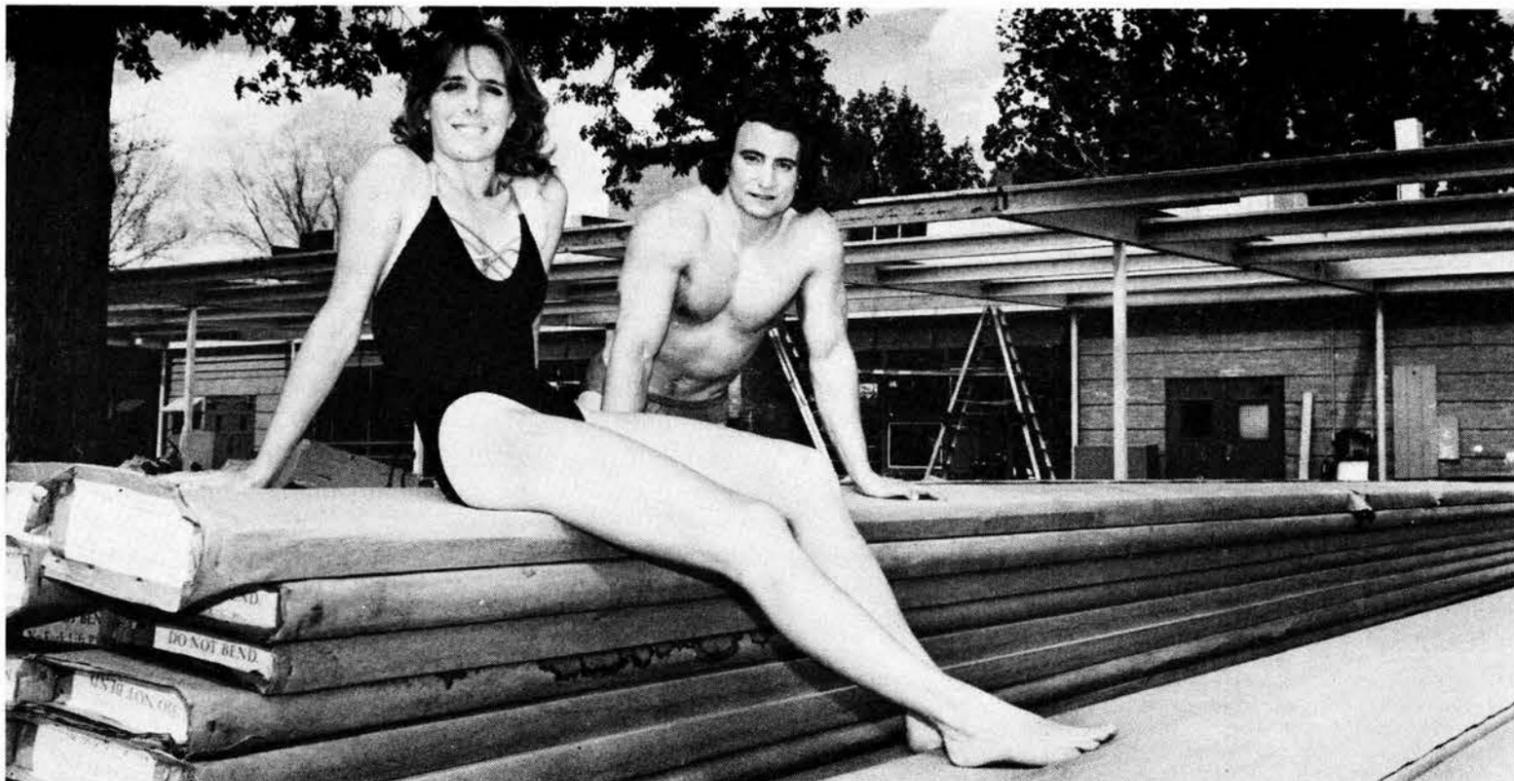
ROOMMATE to share NE house, Lomas & Juan Tabo area, \$187.50 + 1/2 utilities. Eley, 296-3185.

WORK WANTED

YARDWORK or odd jobs. Greg Cook, 296-3064.

YARDWORK, references. Luke Atkins, 298-5762.

LIGHT hauling jobs. Scott Widenhoefer, 298-2510.



GRAND OPENING party at the Coronado Club twin pools is set for Memorial Day, May 28, starting at 11 a.m. Mary McWherter (1636) and Richard Cernosek (7555) checked out progress of the construction project in the Club patio and report that it should be completed in time. A permanent patio cover is being added to the back of the Club building, the snack bar area, and an area of the infant wading pool. All who work on KAFB and their families are invited to the party — no tickets required, no admission charge. Festivities include games, contests, horseshoe and tennis tournaments.

Coronado Club Activities

Western Flyer Tonight; Shrimp Peel Tomorrow

TONIGHT at Happy Hour, Western Flyer takes off with a program of danceable country and western tunes while Chef Henry Perez and the kitchen staff wheel out an oriental buffet on the supreme side. Or you can choose your entree from the regular menu. Happy Hours prices (very reasonable) are in effect from 4:30 until 8:30 when the music starts. Karen Edwards instructs free western dance lessons from 7:30 until 8:30.

TOMORROW sees a special Saturday Shrimp Peel featuring a full pound of the tasty little devils that you can peel and devour to your heart's delight. Included are soup and salad bar for a tab of \$11.95. Deputy Dan is on the bandstand playing the country and western tunes that make for fun and fancy dancing. The dining room opens at 6 p.m.; the music starts at 8:30. Call the Club office, 265-6791, for reservations.

SUNDAY is Mother's Day, a special occasion in anybody's book. Make it very special with brunch at the Coronado Club from 11 a.m. until 3 p.m. The menu includes baked Virginia ham with raisin sauce, carved roast beef, oven-baked potatoes, breaded cod fillets, Scandinavian vegetables, assorted salads, pastries, croissants, and fresh fruit. The price is \$9.95 for adults, \$5.25 for children 12 and under. Reservations: 265-6791.

ON THURSDAYS, Manager Mitch Griffin arranges a fantastic fresh seafood dining event. Early in the week, Mitch calls his old hometown contacts in New England, finds out how the catch is going, and makes his selections. Mitch knows about seafood. The order is flown in for special servings on Thursday evenings. Join the regulars; it's a nice night out during the week. On Thursday, May 24, Mitch is planning a spectacular fresh seafood buffet — lots and lots of very good things. You might want to make reservations for this one — call 265-6791. The Sandia Jazz Corporation featuring

Arlen Asher on reeds will entertain.

GOURMET DINING (Club 35), Tuesday, May 15, — After two months and two outstanding gourmet dinners, Club 35 is now an established Coronado Club tradition. This month the menu features a choice of two winning recipes from the Gourmet Olympics — black bass St. Augustine with lemon sauce, snow peas and stuffed new potatoes, or veal medallions with crabmeat served with wild rice, sautéed cherry tomatoes and avocado sauce. The soup is consomme Madrilene and warm goat cheese salad. Dessert is Poines Belle Hélène (pears in chocolate and cream). Dinner is preceded by a wine taste and a spread of hors d'oeuvres. The group gathers in the candlelit elegance of the new El Dorado room about 5:30. Jim Trost, pianist extraordinaire, entertains, and dinner is an experience in fine dining. The way it works is the first 35 couples who make reservations are the Club 35 membership for the month. The price is \$35 per couple.

THE TRAVEL COMMITTEE has arranged a program on Monday, May 21, by Keith (1811) and Judy Mead (5163) to show slides and discuss their trip to Micronesia and the Far East (see article elsewhere in this LAB NEWS). The program starts at 7; admission is free.

Here's news the committee couldn't resist: save up to \$2000 on the cost of a new Volkswagen (four models only), pick it up at the Frankfurt factory (free air travel), and then tour Europe in your new car. The agency then ships your car home, handling and shipping costs at their expense. It is an exceptional deal if you need both a new car and a trip to Europe. The deal is arranged through University Volkswagen and Academy Travel here in Albuquerque. Find out all the details at a meeting at the Club on Tuesday, May 22, at 7:30 in the ballroom.

The committee also announces some new travel packages: *Heart of the Canadian Rockies*, Aug. 3-11, round trip airfare to Calgary, motor coach tour and hotels at

Calgary, Lake Louise, Moraine Lake, Emerald Lake, Columbia icefields, Jasper, Banff National Park, Calgary Westin, and Chateau Lake Louise, \$1405; *Bahamas*, departure in September, round trip airfare to the Caribbean island, seven nights at the Sheraton British Colonial Hotel, travel taxes, \$748; *Jamaica*, Nov. 4-11, roundtrip airfare, seven nights at the Rose Hall Beach Hotel in Montego Bay, daily breakfasts, travel taxes, \$675.

The Club can still book you on the New Orleans World's Fair tour May 25-29 for \$562. May 25 is the deadline to sign up for the Fiji/South Pacific tour, June 30-July 8, for \$825. For additional information, call Charlie or Betty Clendenin at 299-2071.

A FINANCIAL SEMINAR, another in a continuing series, is set for Tuesday, May 22, at 7 p.m. in the ballroom. Speakers Charles Justus III and Sandra Corless of American First Financial, financial planning and consulting firm, will discuss pre-retirement financial planning, AT&T stock options, and IRA alternative investments. There is no admission charge, but a retirement planning booklet will be available.

POOL AND PATIO TICKETS are available now — the cost is \$12 for a single, \$24 for a couple, and \$35 for a family of three or more. Pick them up at the Club office. The office also has schedules and fee lists plus the word on availability of summer swimming instruction.

MEMBERSHIP CHAIRMAN Frank Biggs (7112) extends an invitation to anyone who works on KAFB to join the Coronado Club and receive two free tickets to dinner. The offer expires May 31. Sandia and DOE employees are eligible for full membership, others for associate memberships. For both, annual dues are \$60 which must be paid in advance (or by signing a payroll deduction card). The Club recently has been completely renovated, dining room and food facilities improved, and programs expanded. The Coronado Club is the best private club buy in the city.