

Labs Cited for Trident Work

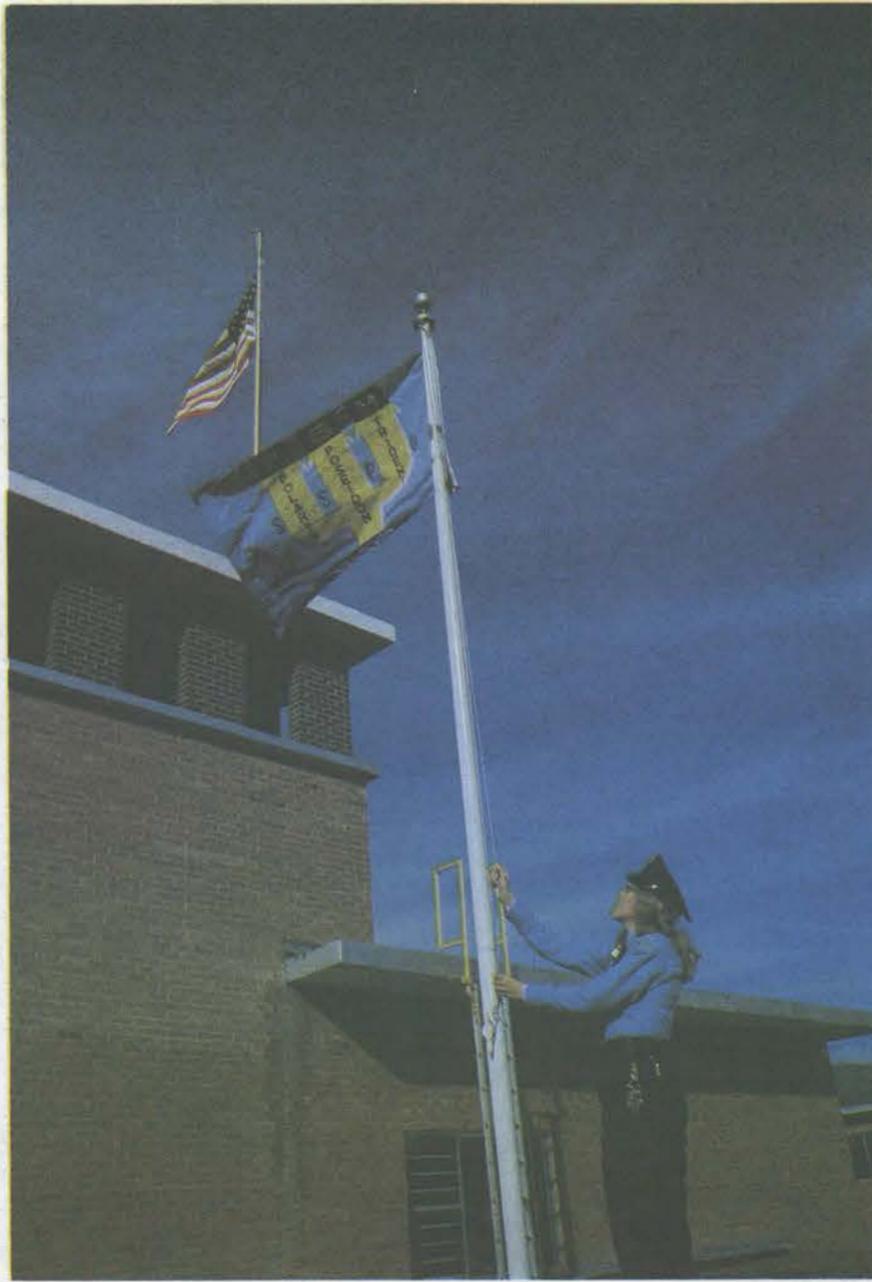
Both Livermore and Albuquerque branches of the Labs have been recognized by the Navy for work relating to the Trident Fleet Ballistic Missile Weapon System. Recognition took the form of the Polaris/Poseidon/Trident Flag, presented in separate ceremonies to Tom Cook, VP at Livermore, and to President Sparks; letters of commendations accompanied the awards. The Trident flag will be flown at Sandia during the month of March.

In the letter to Tom Cook, the Navy's Rear Adm. R. H. Wertheim cites Livermore's "... significant contributions in developing ancillary components for the W76-O/Mk4 reentry system and chairing the review committee for the use of microelectronics and integrated electronics packages on the Trident C4 missile ..."

Adm. Wertheim, in his letter to President Sparks, states that the Labs "... made significant contributions in developing the integrated arming, fuzing and firing systems, and ancillary components and in the conduct of system and component tests for the joint DoD/DOE nuclear weapons project, the Trident W76-O/Mk4 reentry system. In addition, your contributions in the areas of microelectronics technology and explosive-ordnance devices for the Trident C4 missile have contributed materially to the success of the Fleet Ballistic Missile Weapon System Development and production program."

At Sandia Livermore, the Trident work was centered in Engineering Technology Department 8440 under Don Gregson. In Albuquerque, Systems Development Department 4330 under Gene Ives had primary responsibility in this weapon program.

Adm. Wertheim is director of the Navy's Strategic Systems Project Office.



POLARIS / POSEIDON / TRIDENT FLAG has been presented to both the Livermore and Albuquerque branches of Sandia Labs in recognition of their contributions to the Trident Fleet Ballistic Missile Weapon System. Security Inspector Louetta Tidwell here raises flag on staff on roof of Bldg. 800.



LAB NEWS

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MARCH 21, 1980

SANDIA NATIONAL LABORATORIES • ALBUQUERQUE NM • LIVERMORE CALIF • TONOPAH NEV

Energy Savings

New Pump, Motor Save Many Kilowatts

In spite of continuing conservation efforts, Sandia Labs' huge consumption of electricity, driven by demands of new facilities and programs, continues to be a problem. That's why Plant Engineering's Division 3652 was heartened recently when Jim Van Den Avyle and Bob Cross of Mechanical Metallurgy Division 5835 came up with a suggestion that will save some 1080 kilowatt hours of electricity daily. Or, another nice way of looking at it, saving

three tenths of one percent of the entire Labs' consumption of electrical energy.

Division 5835 performs long-term, 24-hour-per-day testing of metals under mechanical stress at elevated temperature loadings using three hydraulic test frames in a lab in Bldg. 805. The test apparatus is serviced by a hydraulic pump and 100 hp electric motor located in the basement. The cost and energy savings idea is to replace the 10-year-old pump and motor with smaller equipment requiring less power but still meeting the requirements of the test program.

With electricity priced at five cents a kilowatt hour, the \$10,500 cost of the new pump will be amortized in 194 days. There's another savings factor here, too. The hot oil in the hydraulic system is cooled by the chilled water system in the building. Replacing the pump will cut the equipment cooling needs by half.

"This is the kind of personal concern



DISCUSS ENERGY SAVINGS—Earl Gruer (3652), Jim Van Den Avyle and Bob Cross (both 5835) plan exchanging this pump and motor installation in the basement of Bldg. 805, which powers 24 hour per day long term mechanical stress tests, for a smaller unit requiring less electricity to operate. The exchange will save a significant amount of energy and money.

Aerial View

Remember when LAB NEWS offered copies of an aerial view of the Tech Area a few months back? We expected maybe a hundred requests, got over 1000. So in this special issue, we've reproduced this photograph in color. It occupies a full page within the centerfold.

[Continued on Page Two]

Continued from Page One

Energy Savings

needed in the Labs' energy savings program," Earl Gruer (3652) says. "We've turned off all the lights we can turn off, lowered the thermostats and reduced operating time. If everyone will take another look at the electrical equipment in their areas with an eye to saving energy, then we can achieve still more savings. Our goal is still a five percent reduction in Sandia's overall energy consumption."

If you have an energy saving suggestion, call Operations Engineering Division 3652 on 4-1935.

Fun & Games

Basketball—The Sandia Labs Women's All Star Basketball team won the Air Guard tournament last weekend, in a clean sweep, beating the Albuquerque NATA's 37-20, the Warriorettes 33-32, and the KAFB Women's team by a score of 48-30. Bev Rainwater (5622) was named MVP in the tournament. John McBrayer (2117) is coach.

In men's basketball, the Labs Recreation League Champions (B-3) captained by Kirt Rackow (2451) beat the KAFB Recreation Champs 51-36, while the KAFB Intramural Champs beat our "A" League champions (A-3) 58-43. In the all Stars games, our "B" League All Stars again beat the KAFB Rec. League All Stars 62-38, while the Base Intramural All Stars took our "A" League Stars, 69-55.



EXHIBIT of color photographs now on display in the Bldg. 802 foyer is the work of Joe Laval of Community Relations Division 3163. The prints are enlargements from slides, part of a larger presentation Joe is preparing to depict the changing seasons.

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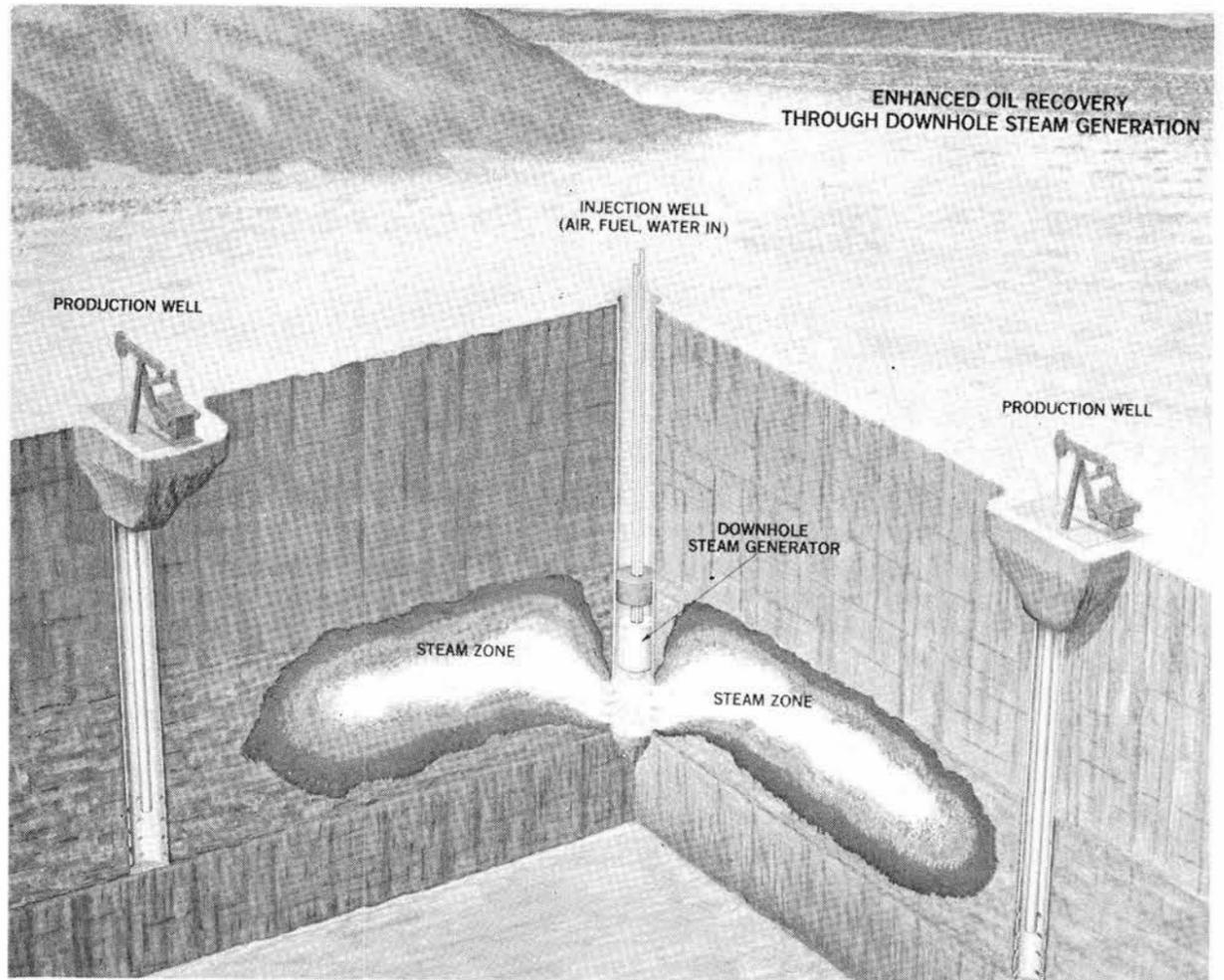
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CREATING STEAM in situ to make heavy oil less viscous, thus more readily pumped to surface, is function of Sandia's downhole steam generator. A prototype, the generator is now being tested at an oil field in Bakersfield, Calif.

Downhole Steam Generator Under Test

Testing of a prototype downhole steam generator developed by Sandia for use in enhanced oil recovery operations has begun at a heavy oil reservoir near Bakersfield, Calif. (LAB NEWS, Dec. 7, 1979). Though designed to function at depths down to 4500 feet, the generator is being operated on the surface for this initial test. Steam and combustion gases are being directed into the 800-foot-deep reservoir through a standard surface steam delivery system.

The test is being conducted in cooperation with the Chevron Company to determine environmental impact of the new system and to analyze a technique for increasing the percentage of recoverable oil.

Development of the special generator is part of the DOE's Project DEEP STEAM. The project's target is the deeper heavy oil resources which cannot now be recovered economically.

Sandia manages Project DEEP STEAM for DOE's Fossil Energy group and is providing the technical direction to develop ways to inject steam underground to increase the flow of heavy oil from reservoirs at depths greater than 2500 feet. The steam heats the oil, which then becomes less viscous and flows into nearby production well boreholes (not the injection borehole). It is then pumped to the surface. An estimated 80 percent of this country's five-billion-barrel proven reserve of heavy oil could be recovered using such methods.

Steam injection burns one barrel of oil in surface steam boilers for every three barrels recovered, and the boilers require scrubbers to keep emissions within air quality limitations.

The downhole steam generator is expected to burn much less fuel; furthermore,

it may have much less impact on air quality and will likely lead to recovery of more oil at greater depths. Heavy oil recovery with conventional surface steam generators is effective down to 3000 feet, below which the steam cools off too much.

The prototype generator—six inches in diameter and 40 inches long—uses a mixture of propane and high-pressure air for combustion. Water injected into the generator's combustion chamber creates 800 cubic feet of steam per minute (1.2 megawatts thermal). In downhole operations, the propane, air, and water will be delivered to the generator by hoses.

The initial phase of the Bakersfield test involves monitoring both injection and production wells to determine how much carbon monoxide, nitrogen oxide, nitrous oxides, and sulfur dioxide—typical combustion gases—escape into the atmosphere through the production wells. Also, by comparing production from these wells with production from wells using a conventional steam generator, researchers should learn if the combustion by-products increase or decrease oil flow.

Second phase of the test involves use of foam to control movement of steam through the reservoir after an initial period of production. The foam should "capture" the combustion gases, holding them downhole while at the same time filling the voids previously filled with oil. This could enhance recovery by channeling steam to sites where oil remains. It is expected that the foam may also insulate the reservoir, greatly reducing heat loss through overlying strata.

"Ultimately, we want a system that creates no surface pollution, increases oil production and performs economically at depths to 6000 feet," says Ron Fox, head of Enhanced Oil Recovery Division 4738.

Supervisory Appointments



MIRIAM HALL to supervisor of newly-created Purchasing Section 8264-1, effective March 1.

Joining Sandia/Livermore's safety organization as a clerk in 1960, Miriam had film badge and SS materials responsibilities. In 1974, she transferred to Purchasing as a buyer and, in 1975, was promoted to administrative staff member and became a contracting representative. Prior to Sandia, she worked as a chemist for Shell Oil Company for five years and was office manager of the Federal Land Bank in Livermore for two years.

Miriam has BS and MBA degrees from California State University, both in accounting, and is currently enrolled at Golden Gate University working toward a law degree. She is a member of the National Contract Managers Association.

Much of her time off the job is spent attending night school and maintaining her home and garden on Chateau Way in Livermore. Her married son and two grandchildren live in Oregon.

Congratulations

Mr. and Mrs. John Hachman (8271), a daughter, Marceline Diane, Feb. 27.

Sympathy

To Doug McMillan (8411) on the death of his mother in Livermore, Feb. 4.



And another theory goes up in flames. It always seemed to us that forest fires were dreadful things that destroyed beauty and natural resources and had not a single redeeming characteristic. Now, says *Harvard Magazine*, ecologists are discovering that some plants and animals actually benefit from fire. The cones of the lodgepole pine, for example, are usually sealed shut with resin and hang tenaciously to the tree season after season. Fire makes the cones drop, open and release their seeds. Where fire destroys a single tree, a host of new ones spring up and flourish.

Retiring



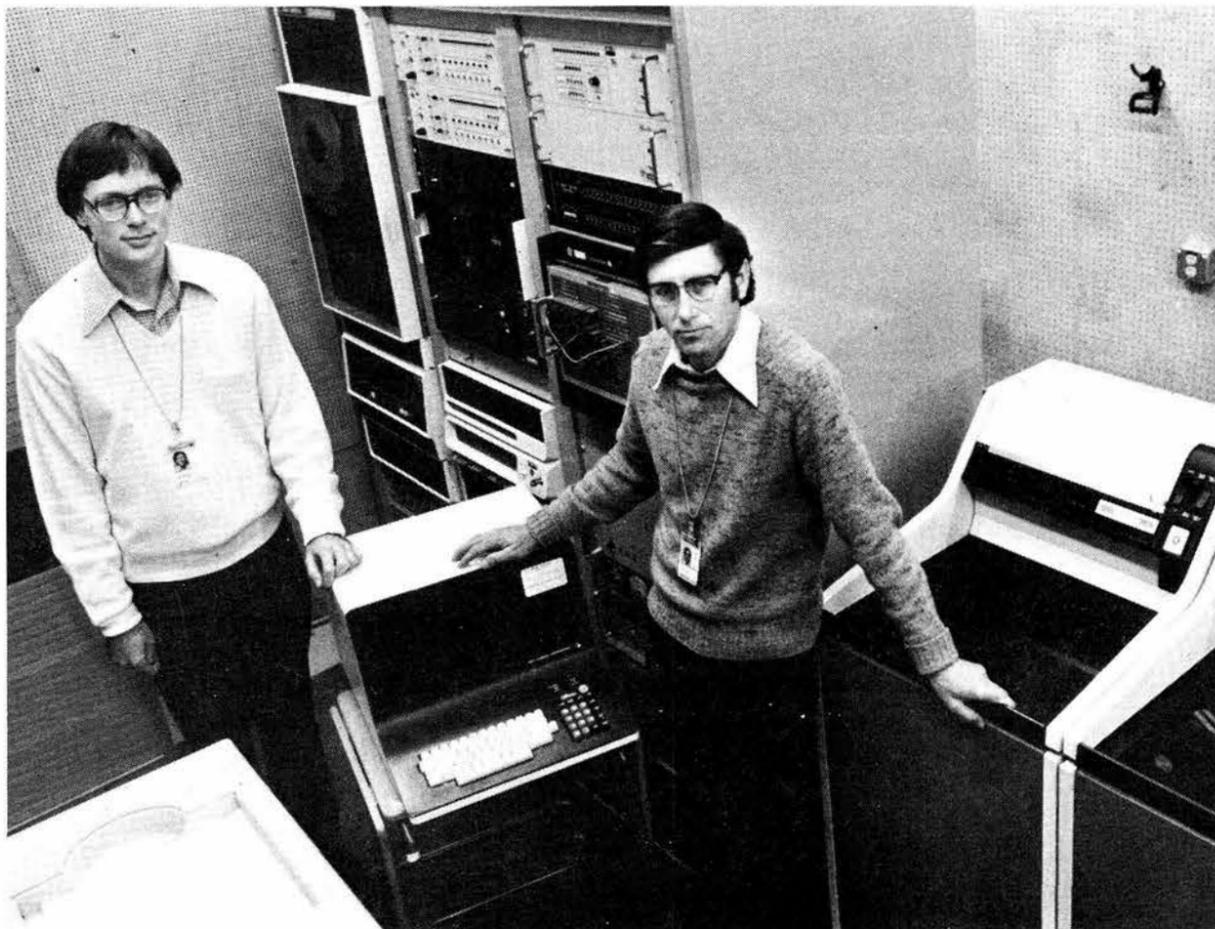
Gordon Ross (8262)

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MARCH 21, 1980



THE ECLIPSE DIGITAL DATA SYSTEM with Herb Swan (8411) at left and Steve Folkendt (8413).

Eclipse: To Get Test Data In a Hurry

"Less time to set up, less time to get the data plot, and much better accuracy"—that's what the Environmental Test Division (8413) at Sandia Laboratories Livermore can claim with its new digital data acquisition system for spin, shock and vibration testing of weapon components and containers.

The dynamic tests conducted in the division's lab in Bldg. 914 include random vibration, sine sweep, transient shock, drop table and centrifuge. A twin data collection system has been installed in the Dynamic Test Lab in Bldg. 975.

Steve Folkendt (8413) points out improvements over the old analog magnetic tape recording system offered by the new Eclipse S-200/230 digital equipment.

"Under the analog method, the customer waited up to two weeks for results. This meant delays in related testing. Sometimes the whole process would have to be repeated if the data was incomplete or in error. With our new equipment, results become available in less than an hour. The engineer analyzes them and decides whether to retest before the test setup is even taken down."

Other advantages to the all-digital procedure include reduced setup time for the recording equipment, greater accuracy of test results—improved by a factor of 10—better control and better response to external events related to the testing.

Steve explains further that their quick-look plots can verify the success of the test

in 90 percent of the cases and generally meet the requirements for a permanent copy of the test data.

The new data acquisition system has been in operation for nearly a year, and it gathers the data in almost all vibration and shock tests. Parallel operation with the older analog system is no longer needed. The second Eclipse system, installed in January, is now fully operational in Bldg. 975.

Herb Swan of Data Processing Division 8411 developed the software programming and has continuing responsibilities relating to the digital systems.

The new equipment performs about one random vibration test per hour, including full data storage, backup and processing. Such a test samples 20 channels of 10kHz each for 20 seconds. Afterward, it takes about five minutes to obtain time plots of all 20 channels, including verification that the correct data was obtained. Within 10 minutes, more complete spectral density plots can be provided.

Test data is temporarily stored on magnetic tape for later processing by the Eclipse system or the CDC 6600.

As for the effect of Livermore's earthquakes on the equipment, Steve reports that both systems remained operational despite equipment shifts of a foot in Bldg. 975 and of six inches in Bldg. 914. So, says Steve, "The system is just as sturdy as some of the components it is monitoring!"



UNUSUAL PETS? YOU BET!!! John Wiggins (1254), amateur herpetologist, indulges a lifelong fascination with reptiles by keeping three iguanas for pets. Casper and Cleo are shown here in a tropical environment carefully created by John with light, heat, running water and diet. Candy, the youngest and most hyper of the three, scurried out of view just before this photo was taken.

Unusual Pets

Sandian Knows Days, Nights of Iguanas

"Do iguanas qualify as unusual pets?" asked a recent caller.

We ran quickly through our mental file of unusual animals and found iguanas listed right after hedgehogs.

"Sure," we said. "They qualify."

"Good," the voice on the other end said. "We've got a guy in our outfit who keeps three of them in his living room."

It was the kind of tip any reporter would find hard to resist.

The guy with the iguanas turned out to be John Wiggins of Systems Research Division 1254, a staff member with a Masters degree from MIT in laser physics and a lifelong fascination with reptiles. At age eight he bought a pair of chameleons and over the years has had a succession of lizards, including Tegus, Sun-Gazers, Nile Monsters and Ring-Neck Collared lizards. But now it's iguanas.

How do people react to them?

"Most people are frightened of iguanas," John told us, "but it's mostly unwarranted—just like people's fear of snakes."

If they're not dangerous, why are people afraid?

"Biblically, you'll remember, it was the snake who tempted Eve. And in a sense, iguanas are victims of bad press, too. Hollywood keeps casting them as prehistoric monsters in science fiction films—monsters that attack and try to kill people." John laughed. "And the truth is, they're mostly vegetarians. They eat fruit and lettuce."

John's three iguanas (Casper, Cleo and Candy) are tree iguanas, so named for their principal habitat. Their coloring is mostly shades of green, and it's obvious they'd blend well with the foliage.

As a tropical creature, and a true reptile, iguanas need the right blend of heat, light, exercise and diet to survive in captivity. John's constructed a lavish

environment for his three that includes heated bricks for basking in the simulated sunlight provided by ultraviolet lamps. He's provided running water, circulating air, lots of growing plants and a huge, tri-level circular arrangement of glass aquariums that provides the iguanas with exercise as they climb up and down over driftwood tree branches and rocks.

John bought his first iguana in Boston while he was a grad student at MIT. He kept him in his dormitory room, much to the consternation of his roommate, an exchange student from Uganda. Finally, in exasperation, his roommate announced he was moving out. "I can't stand it, John," he explained. "I left Uganda to get away from lizards."

"I understood what he was saying," John told us. "Some people can handle iguanas, and some can't."

One of John's goals is to create the right environment for the iguanas to mate. "People don't realize it," he told us, "but iguanas are an endangered species. They're considered a delicacy in their native lands and hunted as food. Since they're not a demand item on the pet market, dealers don't pay much for them, so hunters are more likely to eat an iguana than sell it."

What kinds of pets do they make?

"They're not very affectionate," John says, "but in captivity they overcome their fear of humans. And they're interesting to watch."

From his hidden post behind the viewfinder of his camera, Louie Erne, the *Lab News*' intrepid photographer, asked John a question: "Do you ever hold them?"

"Sure," John said, reaching in and lifting out Casper, the largest of his three iguanas. "What fun would it be to have a pet you couldn't hold?"

• cec

Take Note

Albuquerque's CVI Laser Corp., nominated by Sandia Labs for the Small Business Subcontractor award, has been selected as winner of the award and will now compete with other regional winners for the national award. CVI designs, develops and fabricates high-quality optics and other components for high energy lasers and has developed a novel dielectric cavity YAG laser for industrial application. Yu Hahn is president of CVI.

* * *

Retiree Bill Carstens is cast opposite Penny Powell (wife of VP Ray Powell) in the next offering of the Vortex Theater, "I Never Sang For My Father," a Robert Anderson drama. The play begins March 28, runs for four weeks Fridays through Sundays, with curtain time at 8 p.m. The Vortex is located on Buena Vista near Central, telephone 247-8600.

* * *

The Albuquerque High School Class of '70 is planning a 10-year reunion this summer, and the organizing committee is having trouble locating all members of the graduating class. To get on the mailing list for information about the reunion—and to provide addresses for your classmates—write Margaret Zamora at 910 Zearing Pl. NW, Albuquerque 87104, or call Robert Zamora at 242-7555, Debbie Foster at 243-4865 or Rosalind South CdeBaca at 842-5278.

* * *

The Albuquerque Gem and Mineral Club presents its 11th annual gem and mineral show March 28-30 in the Agricultural Building, State Fair grounds. The exhibit is open from 10 a.m. to 9 p.m. on Friday and Saturday, from 10 to 6 on Sunday. Admission is \$1.25.

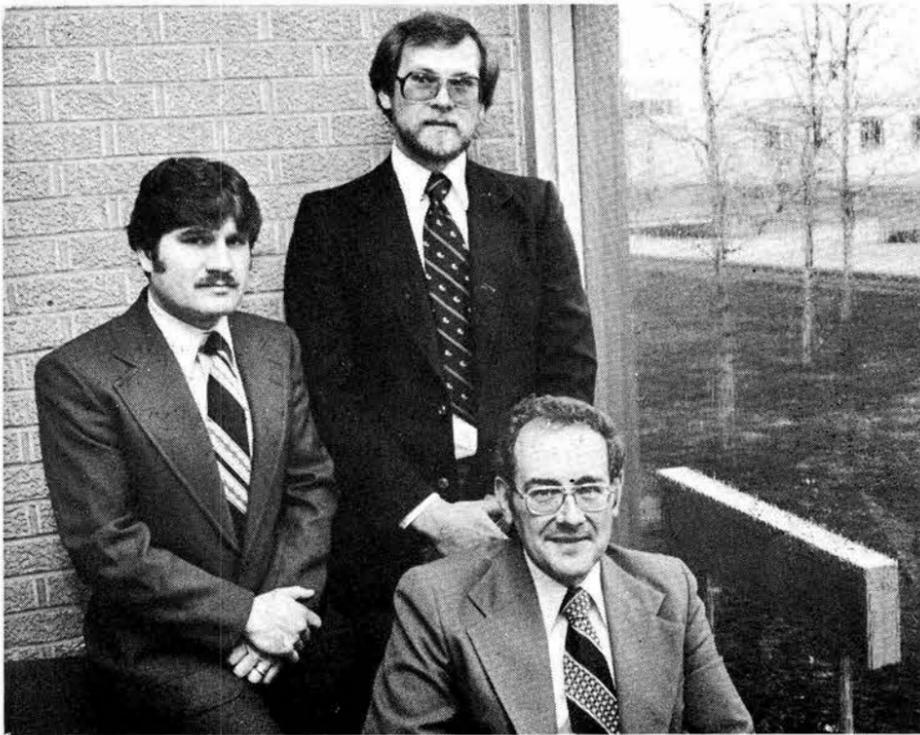
Several Sandians and their families are helping with the show—Lloyd Keller (4344), chairman; Tom Massis (2516), dealer chairman; Bill Moyle (2457), publicity; and Paul Hlava (5822), special programs chairman.

* * *

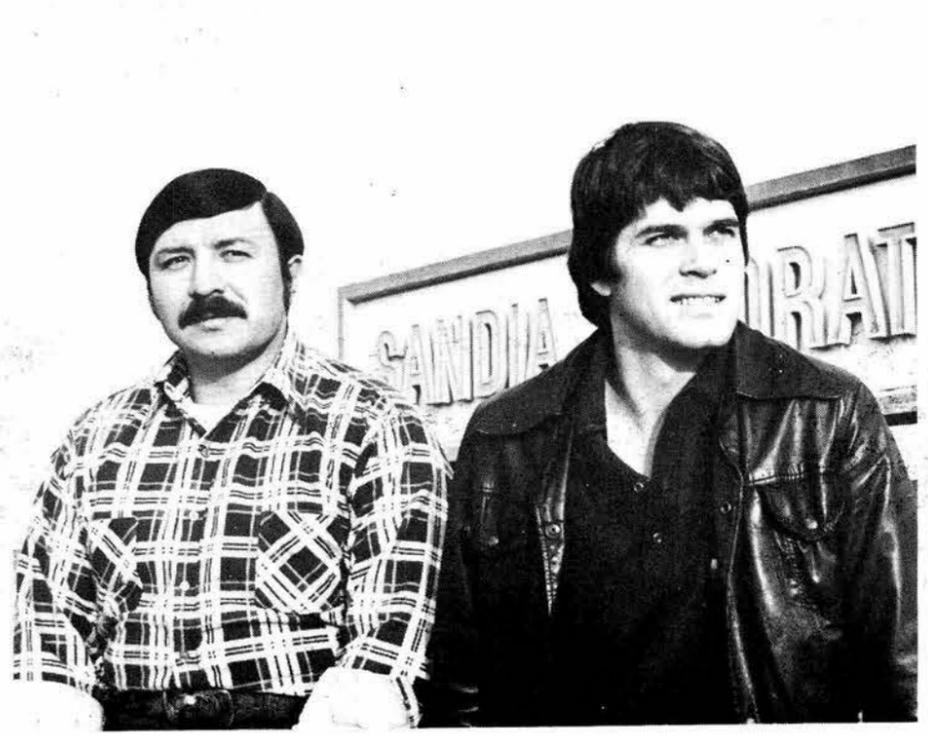
"Live or Die," the film shown earlier this month in Bldg. 815 in the *Go For Health* program, will be shown again on Friday, March 28, at noon in Bldg. 815. The importance of lifestyle in relation to health is the topic of this film. Gwen Gorman, Nurse Practitioner from Sandia Medical, will answer questions for a brief period after the film. All of the programs in *Go For Health* are videotaped. Contact Susan Brammer in Medical at 4-7169 to make arrangements to see a videotape.

* * *

The Albuquerque Philharmonia Orchestra is presenting a concert Monday night, March 24, at 8:15 at Albuquerque High School (800 Odelia Rd. NE). Guest soloist is Leonard Felberg, Prof. of Music at UNM, who will be heard in the Violin Concerto No. 1 by Bach and "Legende" by Henryk Wieniawski. The orchestra will also play works by Malcolm Arnold and Dvorak. The public is invited; there is no charge.



NEW SUPERVISORS—Mike Robles (2631), Cliff Ballard (2521), Duane Hughes (3521).



NEW SECURITY SUPERVISORS—Sam Ortega and Byron Gardner, both lieutenants in Security Operations Division 3432.

Supervisory Appointments



BOB CLARK to supervisor of Storage Batteries Division 2525, effective March 1. Bob's work, since coming to Sandia in 1962, has been associated with the advanced development of thermal batteries. He also performed thermal analyses in relation to chemical

problems in thermal batteries. More recently, he has been concerned with use of secondary batteries for storage of energy in solar systems, and from this work his new division has evolved.

Bob earned his BS in chemistry from the University of Michigan and his MS and PhD in analytical chemistry from the University of Illinois. He is a member of the American Chemical Society, the North American Thermal Analysis Society, the American Institute of Chemists and the International Confederation of Thermal Analysis. Bob plays tennis and, for the past 10 years, has managed a little league baseball team; his 1979 team won the city and state championships and placed fifth in the Western Regionals in California. Bob and his wife Peggy have four children and live in the NE heights.

* * *

BYRON GARDNER to Lieutenant in Security Operations Division 3432, effective March 1. Before joining Sandia four years ago as a security inspector, Byron attended UNM. Currently, under Sandia's Educational Aids Program, he has attained senior status at UNM, majoring in general management.

Leisure time activities for Byron and his wife Susan include skiing and sailing. The Gardners live in NE Albuquerque.

* * *

SAM ORTEGA to Lieutenant in Security Operations Division 3432, effective March 1. He has been a security inspector for the past two and one-half years. Before joining the Labs, Sam was with the Belen Police Department for 10 years, first as an

officer and later as assistant chief of police. He attended the University of Albuquerque where he studied criminology.

Off the job, Sam's interests are sports oriented, and he especially enjoys playing basketball. He and his wife Joline have an eight-year-old son; they live in Belen.

* * *

MIKE ROBLES to supervisor of Scientific Computing Operations Division 2631, effective March 1. Since coming to Sandia in June 1969, Mike has worked in the computing directorate. He was a programmer for two years, supervisor of an operations section for two years, and supervisor of a production control section. Since 1978, Mike has been a project leader for the personnel development team.

Mike completed the T-VI two-year data processing course before coming to the Labs. Under EAP he earned his BBA degree from UNM and his MBA from Highlands Univ. Mike is a member of the Association for Computing Machinery; he's currently president of ACM's local sub-group SIGBDT—Special Interest Group for Business Data Processing. His outside interests include jogging and camping. He and his wife Dolores have four children and live in the NE heights.

* * *

DUANE HUGHES to supervisor of Education and Training Division 3521, effective March 1. Duane joined Sandia in 1956 as a specifications engineer. He was one of the charter members of the Management Staff group, worked for several years in the EEO and Affirmative Action organization, and has had two assignments in the education department. He first worked with the technical training division and, more recently, with management training and organizational development.

Duane earned a BS in physics and math from Heidelberg College (Ohio). For the past 10 years Duane has operated a large irrigated hay farm on the Pecos River near Santa Rosa. Out of necessity, he has become a do-it-yourselfer he reports; he also

enjoys travel. Duane and his wife Judy have two children and live in the NE heights.

* * *

CLIFF BALLARD to supervisor of Active Ceramics Division 2521, effective March 1. During his five years at Sandia, Cliff has worked with glass ceramic materials, primarily in the development of coatings for super alloys and development of headers for explosive components. His current work is concerned with ferro-electrics, piezoelectrics and varistors.

Cliff received his BS and MS in ceramic engineering and his PhD in ceramic science from Alfred University (NY). He is a member of the American Ceramic Society. Immediately before the Labs, Cliff was in the Army at the Army Materials and Research Center in Boston.

His hobbies include working with stained glass, woodworking and gardening. Cliff and his wife Sharon live in the NE heights.

Events Calendar

March 23—Organic Growers Convention, Albuquerque Garden Center, 9 a.m.-7 p.m., 10201 Lomas NE, 296-6020.

March 26—Ballet Folk Company; the performance includes "Salute to Sousa," "Concerti," and "Firebird"; 8 p.m., Kimo Theater, 766-7816.

March 27-30, April 3-6—"The Unsinkable Molly Brown," Albuquerque Civic Light Opera, 8:15 p.m. (2:25 p.m. on 30th), Popejoy, 344-2317.

March 28-30—Gem & Mineral Show, Ag. Exhibit Hall, State Fair Grounds, F-S, 10-9, Sun. 10-6.

March 28-April 19 [weekends]—"Murder on the Nile," Tiffany Playhouse, 3211 Central NE, 8 p.m., 256-7164.

March 29-30—African Violet Society Sale & Show, Albuquerque Garden Center, Sat. 2-6 p.m., Sun. 10-6, 296-6020.

April 2-6—"Pandora's Box," Rodey Theater, 8 p.m. (2:30 on 6th).

New Look of Computer Graphics

The computer is pervasive. From utility bills to personnel tab runs, the computer is part of everyone's life in modern America—even while watching television. Those hurtle-through-space sequences, those mind-boggling, word-bending graphics and those super-technical, watch-the-moving parts automotive commercials are prepared by computers.

More precisely, they are prepared by computer programmers who adapt modern audio visual techniques, add the flamboyance of Hollywood film makers and the precision of mathematics to achieve the eye-catching, attention-grabbing action sequences on film.

"In fact," says Dave Darsey, supervisor of Distributed Processing System Design Division 2644, "the weapons labs pioneered computer graphics. LLL and LASL did some early work in molecular structures, ARPA and DoD financed some early and exciting graphics and Sandia was a pioneer in using computers to design circuits and produce layouts for printed circuit boards and in color graphics. At Sandia, interactive war games are now being created to play on TV screens and respond to control board inputs, which has never been done like this before."

Division 2644 is responsible for developing computer graphics and image processing for the Laboratories as well as the new superminicomputer distributed processing network. Dave's group, after a year of intensive effort, has produced the software to "bring on line" one of the more advanced graphic film recorders in the Sandia computing network. The DICOMED D48 is a multipurpose precision machine capable of producing almost any graphic effect that can be programmed.

Routinely the computer "flies" aircraft and portrays aircraft and bomb aerodynamic interactions. The computer analyzes the geotechnics of underground nuclear tests and other stresses in earth formations. It simulates coal gasification and in situ oil shale processing. Results are visually displayed on film. Weapon effects, solar illustrations and safeguards sequences also can be displayed by the DICOMED. It can produce 35mm slides, 16mm movies,

microfiche and microfilm. Color, brilliant or subtle, is routinely produced.

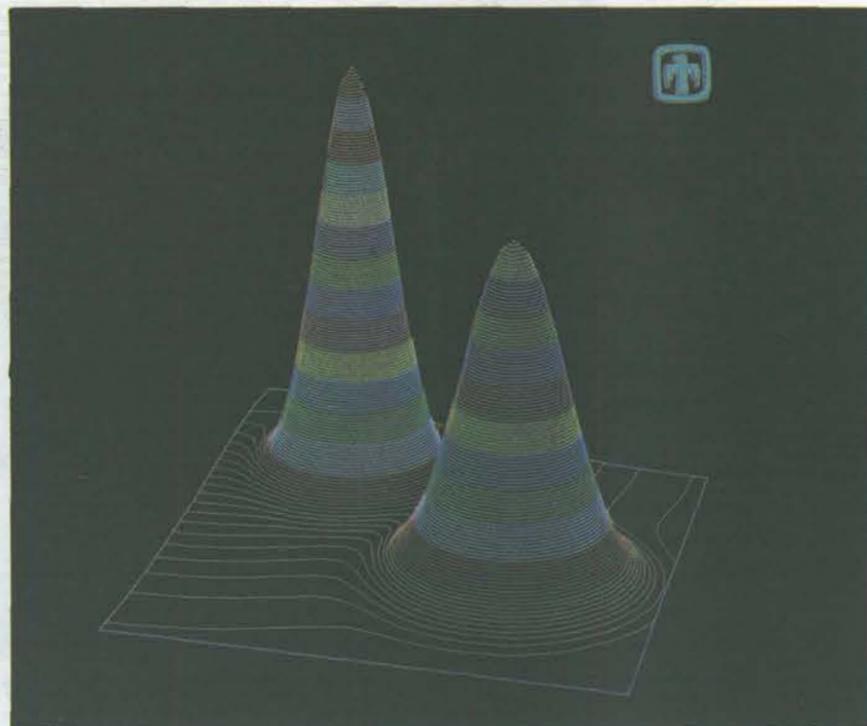
"Computer graphics are very powerful tools," Dave says. "Complex problems may be illustrated in charts, lines, graphs or in animated moving sequences so that the solutions become visual, more easily grasped. Of course, color coding is another aid in visual simplification."

Dave's group is responsible for the software for the DICOMED. The software includes three general-purpose plot packages, DISSPLA, Graphics Compatibility System (GCS), and DCSCORS, which are available on all of Sandia's scientific computers.

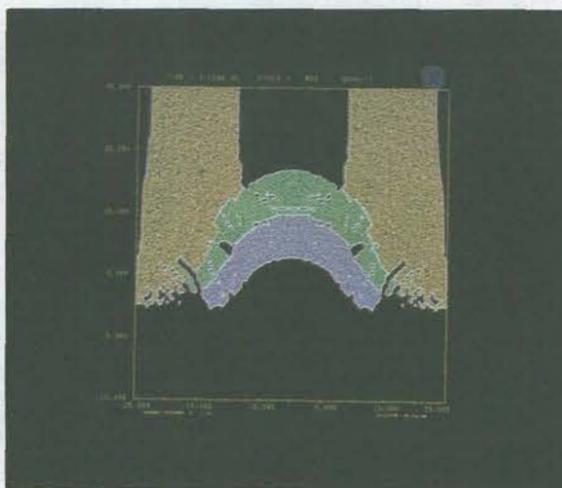
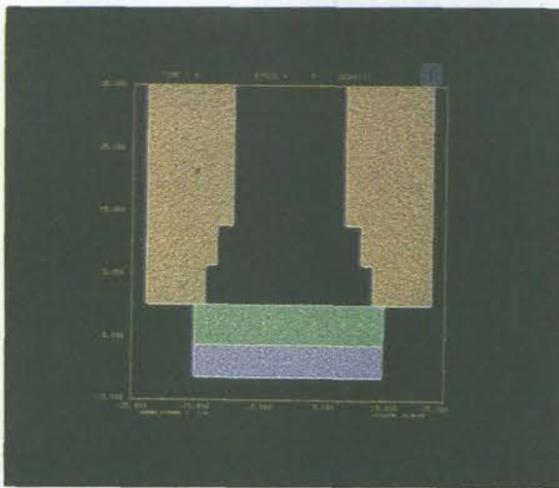
"Business is booming," Dave says, "as more Sandians are exploiting computer graphics for show-and-tell presentations,

for explaining complex technical concepts and for displaying financial, budget and personnel data for management purposes."

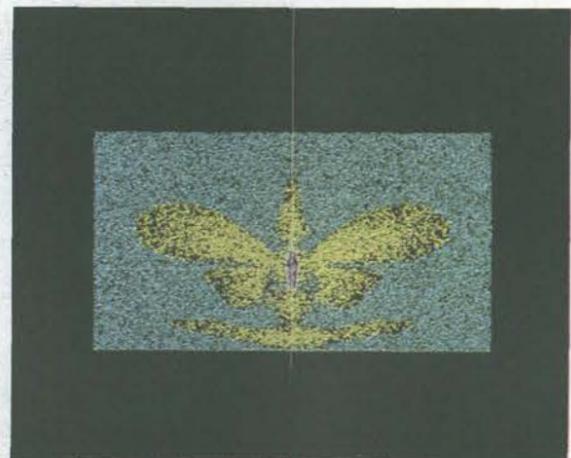
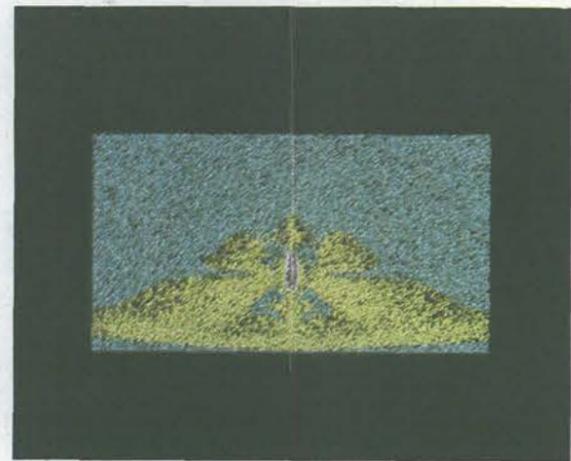
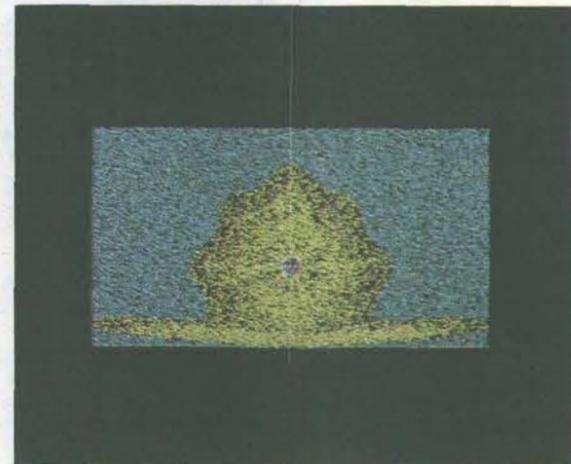
Anyone with questions about producing computer graphics with the DICOMED should contact Lee McDonald (2644), 4-1223.



CONES—Sam Thompson (4444) programmed various three dimensional contours on a surface. The drawing illustrates hidden surface (the back unseen side) removal and color stratification.



RIGHT, from the top, the computer-generated drawings are representative of various oil shale fractures and the effects of explosive shape and detonation scheme programmed by Marlin Kipp (5531). On the left is a series of drawings showing a pusher plate accelerated through a Davis gun to impact on a catcher mechanism, part of a materials study programmed by Michale McGlaun (5533).





Sandia National Laboratories

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RENATE ORTIZ of the PTA Clothing Bank staff helps a couple of youngsters select sweaters. The Bank aids about 4000 kids annually, currently is in dire need of clothing donations.

Clothing Bank Helps Needy Kids

The thing kids do most is grow—from an inch to several inches a year. That means that there's a lot of clothes out there that no longer fit their owners.

Those clothes are needed by other kids who have the same problem, plus another—their parents can't afford to buy them new clothes. Which means that they may be diffident about their appearance and won't attend school.

The Bernalillo County Council of PTAs helps those needy kids—about 4000 annually—with wardrobes from head to toe. The PTA Clothing Bank has operated for 30 years, accepting donations of clothes and funneling them to needy kids. The youngsters are referred to the Clothing Bank by teachers, counselors and school officials.

"This is a particularly bad year," says Barbara McClung who has headed the Clothing Bank operation for the past three years. (She's the daughter of Harry Pastorius, 3640.) "We have many youngsters who need clothes and there are not enough clothes. We need everything in all sizes—shoes, socks, underwear, trousers, skirts, shirts, sweaters, coats, hats, gloves." All we ask is that the clothes be wearable and clean."

Barbara heads the many volunteers who make the collections, operate the Clothing Bank and sort, wash and mend clothes. Each school PTA has a Clothing Bank chairman, bringing the total to 42. Other volunteers work directly with the Clothing Bank at 120 Woodland NW to keep the facility operating (9 to 1 Mondays through Fridays).

"All donations are gratefully accepted," Barbara says, "including cash which we use primarily to buy shoes. The items are tax deductible and we give receipts for donations."

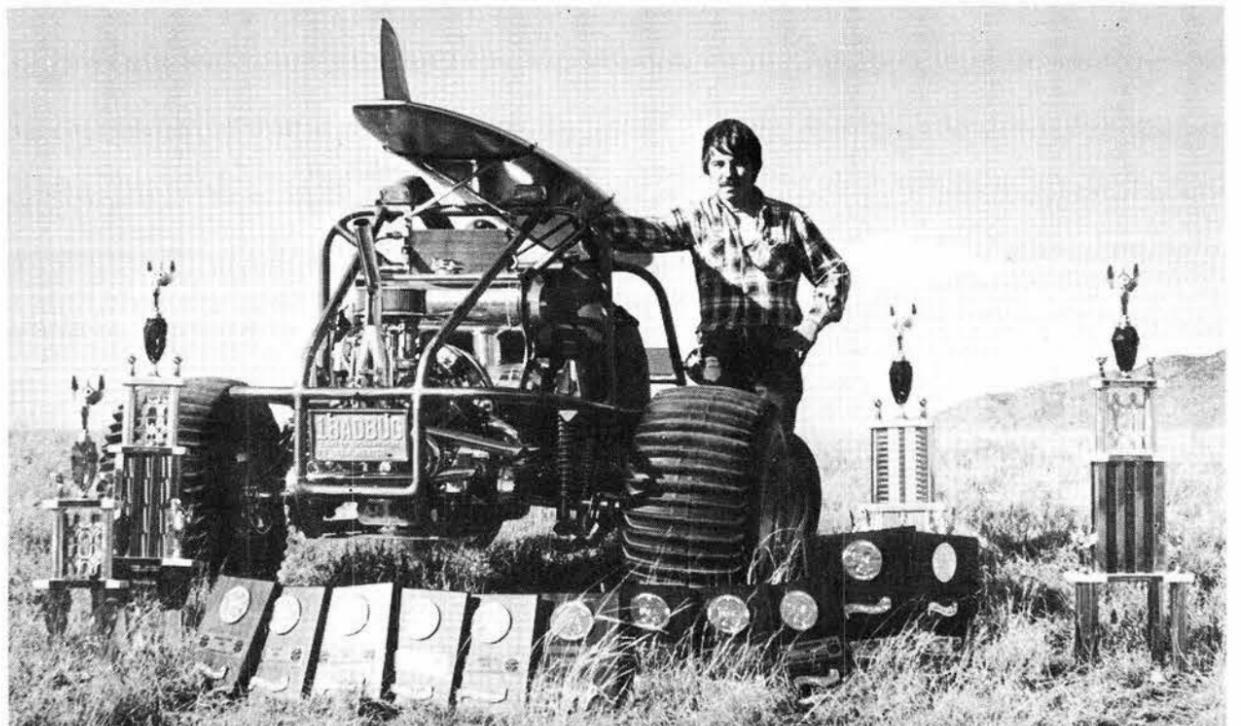
Sandians who wish to help may drop off their donations at the Sandia Elementary School on KAFB-East. Principal Joe Quintana has made his office a collection point. Or if you're near Menaul and N. 2nd, the Clothing Bank is just around the corner. Call Barbara on 344-7481 for more information.



EMPLOYEE TRANSPORTATION COMMITTEE met last week in one of the city's new buses. Members of the volunteer group are, from left, Dody Hoffman (3431), Ben Bader (4737), Phil Thacher (2552), Jeff Gammon (3741), Farrell Perdreaux (5622), and Sharla Vandevender (4533). Chairman Jeff Gammon took the occasion to announce a supplement to Labs bus service to relieve crowding on the Chelwood and Eubank buses. This takes the form of service, effective March 31, starting at Carlisle/Comanche at 7 a.m., east on Comanche to Morris (7:20), Morris to Lomas (7:33), then to the Labs via Eubank arriving at Gate 6 at 7:42 and DOE at 7:48. Sandia's Commuter Assistance office, under Don Stone (3543), works closely with this Committee; Don reports that additional changes in the city bus schedules are slated for March 31 and will be announced in the Weekly Bulletin as the information becomes available.



FIFTY Bernalillo High School students in electronics classes came to Sandia on March 12 to observe and discuss work with Sandians, some of them graduates of the school. Above, John Wolfe of Electro-Optics Division 2152 demonstrates the use of lasers and fiber optics. Other hosts were Joe Garcia and Frank Chavez (1474), Robert Sanchez (2153), Jim Del Cariz (2343), and Jim Cheykaychi (2553).



REGGIE TIBBITTS (3613) displays his tubular "sand rail" vehicle which he entered in recent competitions in New Mexico, Arizona and Texas, picking up a passel of plaques and trophies along the way including one first and three "best of competition" awards. Sponsored by the National Rod and Custom Association, the competitions award points in various categories. Reggie is now in second place nationally. He built the vehicle, primarily from VW parts, about five years ago, raced it for awhile, then rebuilt it into a show vehicle. The surf board? Well, once upon a time, that's what sand rails were supposed to do—take you over the sand dunes to the best surfing areas. Reggie conceded he hasn't done much surfing lately.

The Rehabilitation Center

Most people in Albuquerque are aware that the Rehabilitation Center provides treatment, therapy and service for the physically and mentally handicapped. The Rehab Center is one of the showcase agencies of Albuquerque's United Way. Each October when the annual fundraising drive is underway, the Rehab Center is featured in much of the publicity, more often than not represented by a picture of a small handicapped child.

As important as this therapy is, there are other continuing programs for the physically and mentally handicapped conducted by the Rehab Center that are equally important but perhaps not as well known. Sandia has a small part in one of these programs.

Vocational training is the name of the game here—helping the handicapped learn marketable skills, gain productive employment.

Since 1974 Sandia has had a contract with the Rehab Center for repair of forklift pallets. The work requires semi-skilled labor, and the activity provides a training opportunity for the Rehab Center staff.

Recently, Sandia contracted with the Center to remove labels and adhesive from microfilm cartridges so that they might be reused. Worth \$1.25 each, the cartridges must be cleaned before reuse. The Rehab Center is paid 28 cents for each cartridge cleaned. Sandia has a backlog of 2000 cartridges needing cleaning and estimates

a continuing need for about 200 more each month.

In the past, the Rehab Center has also made security flags and mail cart covers for classified materials for the Labs.

Many other firms contract with the Center for various jobs—Mountain Bell has an extensive project to salvage copper wire from obsolete equipment and cable, the State Fair orders all their prize ribbons from the Rehab Center, and many flower shops request decorating and packaging material. The Center can provide a great variety of miscellaneous products and services.

Participants in the programs at the Center are paid for their piece work. In the sheltered workshop, participants are paid minimum wage or better depending on the skill level involved.

"The important thing is not the payment," says Mike LaVois of the Rehab Center staff, "although earning money is very gratifying to the participants, the real value is in the skills learned and the confidence that comes from doing a job well. We have tremendous success stories here. People come to us with severe problems. We run tests, provide an evaluation and provide training and therapy in the areas where the person can develop skills. Many times they graduate from here into regular jobs and become self-supporting. That's the goal of most."



REPAIRING FORKLIFT PALLETS, a worker at the Rehab Center receives instruction and help from Bob Schmidt, supervisor of work activities. Sandia has had a contract with the Center for forklift pallet repair since 1974. Recently, the Labs contracted with the Center for cleaning microfilm cartridges for reuse.

Feed Back

Q. Please consider providing updated pages to the Sandia phone book pre-punched with five holes. The new binder is too big. I prefer to use a 1" book with five rings.

A. To take care of those who prefer a tighter binder, we have ordered one-inch binders for use with the telephone directory. The new binders should be in stock in January. However, they will be 3-hole, not 5-hole binders.

K. A. Smith—3100

Q. Is there some way textbooks could be distributed at the Labs? It would save a lot of the time and gas that's now expended by individuals making trips to UNM or Holman's.

A. It is too late to do anything for this semester, but we are looking at alternatives and we expect to have a better book distribution system by next semester. We agree that there is surely a more fuel-efficient method of distributing books other than requiring over a thousand students to drive to UNM to pick them up. Thanks for the suggestion.

J. R. Garcia—3500

Retiring



Victor Schaeffer (1481)



Eusebio Montano (3612)



Florence Moore (3152)



Isabelle Fuller (3733)



Albert Clamp (1423)



Willela Golden (2426)

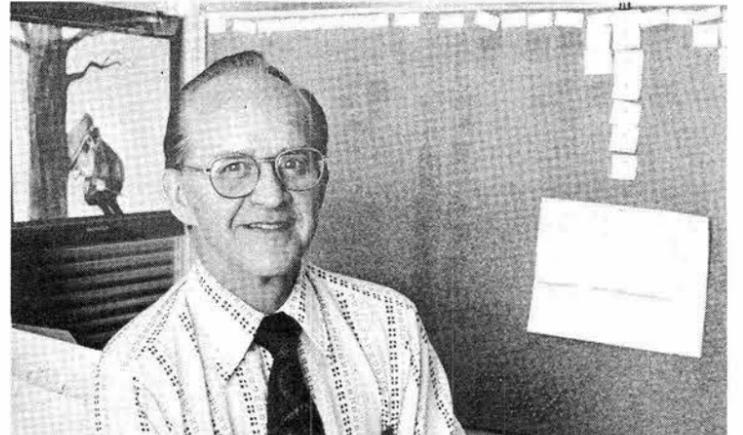
MILEPOSTS

LAB NEWS

MARCH 1980



Edward Vavro - 1471 20



Charles Ray - 3711 20



Pete Seward - 1135 25



John Sullivan - 3618 30



Tom Bauman - 4742 10



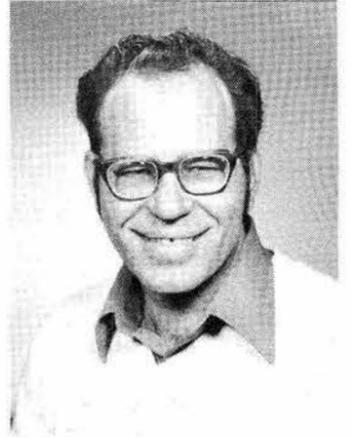
Raymond Bland - 1472 20



Leonard Flesner - 1421 25



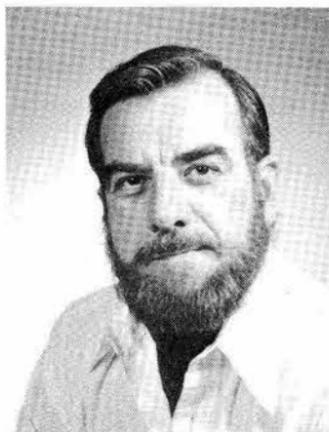
Robert Hartenberger - 3618 30



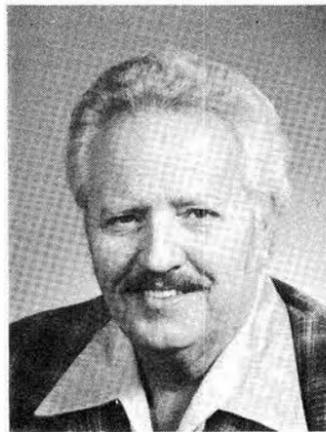
Norman Grandjean - 4722 15



Mary Beth Brown - 6021 25



Keith Taylor - 5613 10



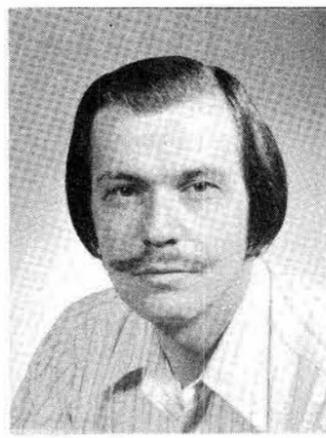
Jim Hann - 4322 30



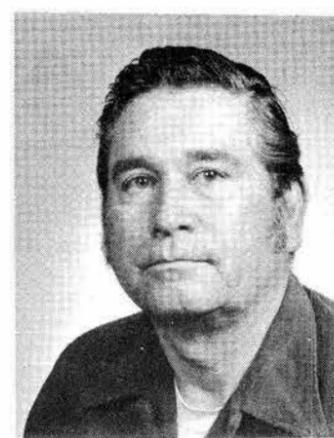
Al Hachigian - 1213 20



Howard Stuart - 1211 25



David Straub - 1254 10



Jose Romero - 3618 10



Frieda Salazar - 2431 30

Congratulations

To Yvonne (2426) and Jack (1472) Strascina, a boy, Ian, Feb. 14.

To Roberto Lozano (OYOC at Stanford) and his wife, a son, Dominic David, March 11.

Sympathy

To Domi Casres (2426) on the death of her mother in Albuquerque, March 5.

To Robert Romero (1473) on the death of his mother in Albuquerque, March 16.



AL RAKOCZY (4363) adjusts one of his paintings now on display in the Tech Library, Bldg. 804. Al has been painting about five years, also builds furniture in his off hours. The exhibit includes both oils and watercolor landscapes.

JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING

Deadline: Friday noon prior to week of publication unless changed by holiday. Mail to: Div. 3162 (814/6).

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 & organization.
9. Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

SPRINGTIME & WINDY—Get a Sandia Labs' cap to hold your tresses in place. \$4.25. LAB NEWS trailer next to Bldg. 814. South Hwy. 14 Village Project.

ROCKER/RECLINER, Lazy Boy, rust velvet, \$120; new end table, hexagon commode, storage below, \$40. Paul, 299-6387.

HEADBOARD, Ethan Allen king-size Canonball, antique pine, \$95. Runola, 296-1316.

PUPPIES, Cairn terrier, red wheaten, male & female, champion ancestry. Cole, 296-6698, 292-3424.

TABLE TENNIS TOP, never used; humidifier Presto console Mk100; tuxedo, 42 long, black w/white jacket also. DeVore, 266-6159.

PHYSICAL YOGA class meets at C-Club after work. Experienced instructor, first class free. \$25/month. Baca, 294-5249.

VACUUM CLEANER, Wards Eureka canister type with power head for carpets; all attachments, \$45. Holmes, 292-0898.

CABOVER CAMPER, 10', w/jacks, as is, \$550. Flores, 247-8990.

TIRES, 4 H-70x15, new, with chrome basket rims; 3 rugs, 12x12; leather couch; "Refrigerator" John Boy boat. Herrera, 836-1768.

REFRIGERATOR, Ward's 15 ft. w/ bottom freezer, old, works, \$60; auto Gaffers/Sattler gas range, \$200. Aeschliman, 281-1227.

LAWN MOWERS, two, gas; camper shell for 1/4 PU, best over \$300. O'Neill, 898-5753.

PINE DRESSER, 10 dwr., large wooden desk. Prevender, 299-5253.

GERMAN VIOLIN, \$550. Downs, 293-9320 or 294-5283.

TYPEWRITER, cartridge loaded electric, recently cleaned & serviced. Olson, 268-2227.

LATHE, Craftsman wood with motor & 3-dwr. wooden base on casters. Linnerooth, 884-8615.

TELEPHONE, 1908 antique oak box, adaptable for functional use, will demonstrate. Harrison, 883-5411.

BOSTON ROCKER, \$35; sofa, jade green, 8 ft., rollers, \$160; 3-piece BR suite, bed, chest, night stand, \$175. Smith, 299-7151.

COFFEE TABLE, glass top, gold wrought iron base, \$30; matching end table, \$25; freestanding shelf unit, \$25; all for \$75. Hawkinson, 281-5239.

VACUUM CLEANER, Sears wet or dry, shop model, 2-bushel size, \$40. Stevens, 884-7984.

CARPET, 40 yds. off-white nylon sculpture, 40 yds. brown tweed nylon plush, \$3/yd; see on floor until 4-1. Meyer, 296-9066.

GREAT BOOKS, 67 volumes, \$899 new, never used, \$375 or best offer. McMaster, 884-8055.

CABOVER CAMPER, Mobile Traveler, 11', self-contained, 2-way refrig., jacks, dampers, battery, \$1500. Hansen, 898-3173.

BABY CAR SEAT, Bobby Mac, \$25. Benton, 877-2473.

CRIB & MATTRESS, \$60; fireplace screen, 25x34, \$10. Haid, 292-0159.

LAWN SPREADER for fertilizer or seed, \$12; lady's Sears 3-spd. 26" bike with basket, \$50. Brammer, 266-5158.

COMPUTER EQUIPMENT, Imsai 8080 w/FP, interrupt/clock, 5-4KRAM, video board, ALS-8 board; Axiom 80-col printer, Persci dual floppy, comter terminal w/modem. Conley, 296-0695.

ELECTRIC RANGE, Frigidaire, 30", bronze, self-cleaning oven in working order, \$185. Dye, 299-2823.

CARPETING, gold, approx. 55 sq. yds., \$150. Schubeck, 294-5666.

TRAVEL TRAILER, '68 Aristocrat, 15 ft., sleeps 6, 3-burner stove, oven, not self-contained, \$1350. Easterling, 298-7083.

PIANO, baby grand, Baldwin, dark wood. Miller, 293-6437.

GIUITAR, 12-string Gibson B25-12, soft case, \$175. Conrad, 266-5063.

CABOVER CAMPER, '76 Coachman, 10 ft., self-contained, 4-burner stove w/oven, shower & sink in toilet area, furnace, 3 jacks, \$1830 or make offer. Eisenberger, 293-5162.

B&W TV, 23", no picture, \$15. Brion, 298-1761.

CONCERT ORGAN, Baldwin Organ Sonic w/Leslie speaker, solid walnut cabinet & bench. Make offer. Schkade, 265-5473.

TRAILER HITCH, heavy duty. Kind-schi, 256-0531.

ELECTRIC TYPEWRITER, portable, 2 yrs. old, \$75. Conlon, 268-6515.

CRIB, complete, \$30; 9'x12' avocado green rug w/pad, \$30; 8 1/2'x11' bound gold carpet, \$30. Koski, 822-1122.

ELECTRIC STOVE, GE, avocado green, \$200; blue & green carpet, 2 pieces; bamboo shades, lighting fixtures. Stine, 268-6528.

TWIN BED, frame, headboard, mattress, box springs, complete, \$45; gun rack, 4-position drawer, \$10; 15" wheel and tire, \$7.50. Stang, 256-7793.

PUPPIES, AKC registered German Shorthair Pointers, whelped 1-8-80, \$125, champion bloodlines. Williams, 873-1875.

CABOVER CAMPER, 11 ft., self-contained, shower, gas, 110 VAC, refrig., stove, heater, carpet, jacks, \$2300. West, 299-7314.

CLEAN FILL DIRT, free, you haul. MacPherson, 268-8925.

COUNTER TOP RANGE, electric, drop-in unit, 30" Corning smooth top with 8-piece set of cookware, \$200. Verardo, 255-6385.

CABOVER CAMPER, fits small pickup, 1 yr. old., icebox, furnace, 12/110V, jacks, stove, porta-potty, pressurized water system, boots. Armstrong, 881-1931.

KING SIZE gel bed. Clark, 296-3924.

TRAVEL TRAILER, 72 Jet, single axle, self-contained, carpeted, hitch included, \$2250. Brooks, 256-3920.

SILVER SET, coffee/tea service, 5-piece set w/tray, 1941 Reed and Barton. Norwood, 292-0072.

SKIS, Kastle 210 cm w/o bindings, \$40 or best offer. Lockwood, 298-9563.

QUARTZ CLOCKS, hand made to order on cedar, redwood, battery operated, \$40. Atkins, 298-5762.

WASHER, Sears, needs repair, motor works. Esch, 292-0754.

STOVES, one gas, one electric; 9x12 brown rug with pad. Hirschbuehler, 299-8293.

TEACHERS DESK, solid mahogany, 30x42x30, needs work, 2 missing dwrs., \$10 or best offer. Hochrein,

299-5225.

CHARCOAL GRILL, Sears aluminum, model 1874, cast iron grate, \$20; wiring harness for 40 Chevy pickup, \$20. Van Den Avyle, 898-6474.

LABRADOR RETRIEVER pups. Benson, 268-9727.

TWO BOYS' BIKES, 20". Reger, 268-9358.

REFRIGERATED AIR conditioner, 5600 BTU, \$95; fiberglass garage door, 16x7', \$25; Sears 10" radial arm saw, stand, casters, \$275. Ward, 884-9266.

GOLD VELVET Medit. sofaped, \$175; green/gold swivel rocker, \$50; 2 set, lt. green floor-length drapes, \$25 ea.; 2 90-150" decorator rods, \$25 ea.; blue & white dining fixture, \$30. Thompson, 293-8390.

STEEL CASEMENT WINDOW frame, 62"X69" W; used lounge chair & ottoman, blue, \$35; valise style leather briefcase, new, \$30. Eckhart, 256-7665.

HOT TUB, fiberglass, indoor/outdoor, w/heater, blower, filter, pump, chemicals, \$1500. Bloomquist, 821-3018.

SLEEPING BAGS, 2 Coleman polyester fill, nylon cover, \$15 ea.; 9x12' tent w/canvas sides, \$40. Sheives, 296-9780.

REFRIGERATOR, 12 cubic ft., \$40. Guttman, 243-6393.

RUGER RIFLE, M77R 338 Win. magnum, custom stock, fiberglass bedded, Michael's swivels, Weaver V7W scope, \$350. Bills, 299-6086.

BOWLING BALL, Don Carter w/carrying case & man's size 9 bowling shoes, \$25. Gregory, 268-2022.

SCREEN DOOR, heavy wood frame, kick panel, grill, all hardware, \$15; Burt ski bindings, \$45. Horton, 883-7504.

COUCH, gold brocade, 7', \$50. Moss, 268-7604.

TRANSPORTATION

FISHING/SKI BOAT, 15' Starcraft, 85 hp Johnson outboard, trolling plate, anchor, bait lights, HD trailer, \$2400. West, 299-7314.

79 FORD F150 pickup, 4WD, 301V6, 23,000 mi., AM-FM radio, \$6500. Baldwin, 266-8430.

74 FORD F100 pickup with 8' camper, 360 engine, AT, sliding window, AM-FM, \$2500. Morrison, 877-7425.

'57 CHEVY 4-dr., restored, AT, PS, PB, AC, 283 powerpack, 24k gold trim. Make offer. Bell, 821-7148.

'64 CHRYSLER Crown Imperial classic, PS, PB, AC, other extras, one owner. \$2500. Campbell, 255-4271.

72 PONTIAC Catalina, 4-dr., AC, PS, PB, \$350. Jennings, 255-5950.

'75 DODGE Powerwagon, 4x4, PS, PB, camper shell, trailer hitch, electric trailer brakes, LWB. Moya, 836-0434.

76 HONDA 360 cc motorcycle, 3500 miles. Herrera, 836-1768.

77 MUSTANG II, 4 cyl., 4-speed trans., 2-dr. hardtop, \$200 under book at \$2975. Hardin, 293-5679.

76 VW Scirocco, carb., AC, AM-FM-8TK, 20-25 mpg city, 30-35 hwy., \$4500 or best offer. Aeschliman, 281-1227.

79 CAMARO Z-28, green, PB, PS, AT. Hunter, 869-2566.

74 PONTIAC LeMans 350, 2-dr., rebuilt engine, PS, PB, below book, \$1300. Gallegos, 344-3290.

77 CHEROKEE 4WD, AC, PS, PB. Kraft, 299-2157.

75 FORD Granada Ghia, 2-dr., 302V8, PS, PB, AC, AT, \$2400. Chavez, 281-1703.

77 DATSUN pickup, AT, see 414 Vassar SE. McHarney, 266-3639, 265-2032.

BICYCLE, Vista 10-sp. touring, 27", luggage carrier, tool kit, generator lights, pump, \$75. Russell, 292-3279.

74 PONTIAC Ventura cpe., AT, AC,

PS, V-8, one owner, maintenance record, reg. gas, \$1950. Graham, 299-4871.

BICYCLES, child's 20" Schwinn w/trng. wheels, \$55; boy's 20" dirt bike, \$20; woman's 26" 3-spd., \$35. Easterling, 298-7083.

DUNE BUGGY, tubular steel frame, 60 hp, spoke wheels, \$1400. Spencer, 897-2362 before 3 or wkends.

BICYCLE, Motobecane Jubilee 10-sp., 25" frame, 27" wheels, new tires, tubes, \$140. Tolbert, 869-2729.

'71 BLAZER 4WD, 4-spd. trans., 6 cyl. Bower, 298-8187.

ENGINE, Ford 302 short block w/rods, pistons, crank, new rings & rod brngs., \$75. Brion, 298-1761.

'68 CHEVY van, stove, icebox, turtle top, new 327 engine & tires, AT, AC. Jarrell, 293-9671.

'66 PORSCHE 911, AC, new trans., one owner, all records, white, 92,000 miles, \$5500. Kjeldgaard, 268-8835.

70 PONTIAC, runs, first \$49 takes it. O'Neill, 898-5753.

'77 CHEVY Silverado pickup, 4WD, winch, roll bar, PS, PB, AC, 42,000 mi. Nichols, 296-8259.

'79 CYCLONE 13' sailboat w/trailer; 22' Venture sailboat w/trailer, 6 hp Evinrude, equipped for cruising or racing. Stephens, 265-5341.

72 MONTE CARLO, AC, AT, PB, PS, V8, bucket seats. Jojola, 877-8804.

'67 MUSTANG, 289 4-barrel, 10,000 miles on rebuilt mild hi-po cam, all power. Rhoden, 293-5301.

'71 CHEVY Malibu, reconditioned motor, trans. & paint, \$1000. Silva, 255-3723.

'51 CHEVY 3/4 ton pickup. Needs battery, \$500 or offer. Bahe, 344-8407.

78 DATSUN B210-GX, \$3695. Fimple, 293-3911.

76 CHEVY Nova hatchback, 6 cyl., AC, AT, PS, PB, radial tires, 46,000 mi., \$2500. Brooks, 299-1884.

ECHONOMKAL SKI BOAT, 14' Glaspar w/65 HP Mercury outboard & trailer, \$1000. Garner, 1-384-2625.

ODYSSEY MODEL 40.1 MOPED, 140 mpg at 25 mph, some extras. French, 821-6144.

'65 FORD CUSTOM, 352 engine, PB, AC, PS, AT, \$200. Chirigos, 299-6695.

DUNE BUGGY, tubular steel frame, 60HP, spoked wheels, \$1,400 firm. Spencer, 897-2362 before 3:00 wkdays, anytime weekends.

REAL ESTATE

SHERWOOD FOREST, 5/8 acre, sale or trade for land or equity in land at Elephant Butte. O'Neill, 898-5753.

TRADE your 3 BR Mossman for my coach in 4 Hills Park, cash to your equity, assume your VA loan. Norris, 299-4717.

WESTGATE HTS. new addition, 3 BR, 1 1/2 bath, fenced yard, 10'x12' storage shed & workshop, \$45,000, 10% down, will carry REC. McClure, 265-4102.

PARADISE HILLS 4 BR, 2300 sq. ft., corner lot, pitched roof, large down, assume 5% loan, REC at 10%, \$65,000. Skender, 898-5647.

FIVE ACRES, 4 1/2 miles off S. Coors on Pajarito Rd., \$2000/acre. Martinez, 268-9774.

HOUSE, 2 BR, 1 1/2 bath, kitchen skylight, sprinklers, hardwood floor, mid-50s. Pickle, 298-6046.

ESTANCIA VALLEY, 2 1/2 acres, 3 mi. east of McIntosh. \$1000. Garner, 1-384-2625.

FOR RENT

MOUNTAIN HOME near La Cueva in Jemez, completely equipped for

summer vacations, fishing, hiking, \$140/wk. Parker, 821-5999.

HOUSE, 2 BR, appliances, near San Mateo & Lomas, no kids, pets. \$275/mo. Nickolson, 255-3678.

HOUSE, 2 BR, furnished, \$275/mo. McIlroy, 299-4977.

APARTMENT, 1 BR, 640 Alcazar SE. Zudick, 345-9986, 255-5821.

APARTMENT, 2 BR, kitchen, carpeted, drapes, \$260/mo. plus util., \$150 DD. Taylor, 821-2194, 292-0496.

TOWNHOUSE near Lomas & Chelwood, almost new, 2 BR, 2 bath, 2-car garage, \$395 plus deposit. Muir, 883-7933.

HOUSE, 3 BR, NE, 1 1/2 bath, CFA, AC, all appliances, carpet, drapes, fenced, garage. Available Apr. 1, \$370/mo., 1st. last, DD. Follstaedt, 883-1649.

TOWNHOUSE, 1 BR, carpeted, drapes, kitchen built-ins, lg. closets, balcony, no pets. Sebrell, 821-4227.

WANTED

FLY ROD & reel, hip boots. Kerschen, 821-2848.

USED FREEZER, about 15 ft., in good condition and reasonable; chest of drawers, wood tone. Yaniv, 881-8085.

MOTORCYCLE, 100 cc off-road. Prevender, 299-5253.

KLIPSH HORN and midrange horn for hi-fi system; J. Noe amp. Lenz, 884-4835.

TRAILER HITCH & rear deck sun shade for '75 Pinto; radio for Maverick. Baxter, 344-7601.

DONKEY, to borrow for Palm Sunday procession (March 30) at local church. Thompson, 298-5800.

PUNCHING BAG & platform; free l'eggs eggs (plastic egg used to package panty hose); tow bar to pull small car. Stuart, 299-9190.

BIKE, 20" boy's in good condition. Burton, 869-2541.

"THE OLD WEST", a Time-Life set of books. Breitung, 255-2566.

'57 CHEVY parts, whole car or pieces. Esch, 292-0754.

LAWN MOWER, trade for window type refrig. air conditioner, 110V. Strip, 255-7230.

SURVEYOR'S level or transit, to buy or rent. Hansche, 281-5623.

BABYSIT in my home, 1 yr. & up, SE hrs. area. Silva, 255-3723.

TRI-BAND ANTENNA, Yagi, 10-15-20 meters. O'Nan, 884-4973.

SHARE-A-RIDE

VAN SERVICE from Rio Rancho and Corrales Shopping centers and Paradise Hills to Sandia. \$2.50 for round trip. Pace, 897-2396.

LOST & FOUND

LOST—Black leather mitten, right hand. Fisher, 881-8072.

LOST—Key ring w/6 or 7 keys; blue Sandia briefcase; sunglasses w/dark blue & gray frames; gray flannel shirt & large jacket; white gold ridged wedding ring; man's 3-speed J. C. Higgins dark blue bike; man's black imitation lamb's wool hat; black metal lunch pail w/plaid thermos; 14kt gold nugget earring w/gold chain, no back post. **LOST & FOUND**, Bldg. 814, 844-5677.

FOUND—gold-colored picture pendant; pierced earring, 1 1/4" dia.; new pr. gold loop earrings. **LOST & FOUND**, Bldg. 814, 844-5677.



Tijeras Arroyo Golf Course

Membership Open To Sandians

The KAFB Tijeras Arroyo Golf Club is conducting a membership drive during March and Sandians, DOERs and other government contractor people on Kirtland are invited to join.

For a \$150 annual fee, members have unlimited play privileges; the fee for a member plus one dependent is \$225, while \$300 covers the member and two dependents. Daily green fees (for those without annual membership) are comparable to those of municipal courses: \$2 for 9 holes and \$4 for 18 on weekdays; \$2.35 for 9 holes and \$4.75 for 18 on weekends. The course is open every day but Monday from 8 a.m. to sundown. If a federal holiday falls on Monday, the course is open then, too.

Sandians who join the club have the same membership privileges as military

members, except (by A.F. regulation), they can't charge purchases of food or clothing and they can't purchase items in the pro shop that cost more than \$15.

Membership privileges, however, include full use of the course, the snack bar and the driving range. And all members, military and civilian, have an equal opportunity to get the weekend tee-time of their choice. Selections are by drawing.

If you need lessons, the club has a pro regularly available all day Tuesday and Wednesday and on other days by appointment. Thirty-minute lessons are \$7 each, six for \$36.

More information is available from the club office at 844-8116 or 844-4427. If you're interested in joining, drive out to the course—it's on the left just a bit before the turnoff to Area III.

Coronado Club Activities

Easter Egg Roll Set March 29

TONIGHT at Happy Hour a group called Youngblood vibrates upon the bandstand while steamboat beef and seafood Newburg top the buffet spread. Gary Waters entertains in the main lounge. Gary returns again for Happy Hour next Friday, March 28, when seafood is the buffet feature and Bob Banks' trio plays for dancing. Happy Hours start right after work on Fridays and run until midnight or so with special prices (cheap) in effect all evening. To reserve buffet tickets, call the Club office, 265-6791, by mid-week.

KIDS age six and under have their special day at the Club on Saturday, March 29, starting at 9:30 a.m. Board members volunteer to hide an astounding

number of Easter eggs in the patio area and the kids go wild finding them. There are also games and entertainment and goodies for all. Members' kids only, please.

SINGLES MINGLE starting at 4:30 in the dining area by the main lounge on Wednesday, April 2. Honcho Zip Zipprich (1272) promises door prizes, fellowship, music and dancing.

SPRING BREAK BASH is what the new teenage advisory program committee is calling the dance set for Wednesday, April 2, from 8 to 11. "Off-the-Wall" is the name of the group plugged into the bandstand. Admission is \$1 for members' kids, \$1.50 for guests. Member parents must pick up tickets for their youngsters.



For years, Taiwanese fishermen have smuggled food and other consumer goods across the Straits to Mainland China under the indifferent eye of both governments. Now, says *Newsweek*, both countries are cracking down—for reasons that seem inscrutable to this Western mind. It seems the Taiwanese fishermen were selling contraband Parker pens, Rolex watches and copies of *Playboy* in exchange for gold bars and antique coins. That, apparently, was O.K. The crackdown on smuggling only began when authorities on the Mainland discovered the pens and watches were counterfeit—and the authorities on Taiwan discovered that the gold bars and antique coins were only gilded lead.

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