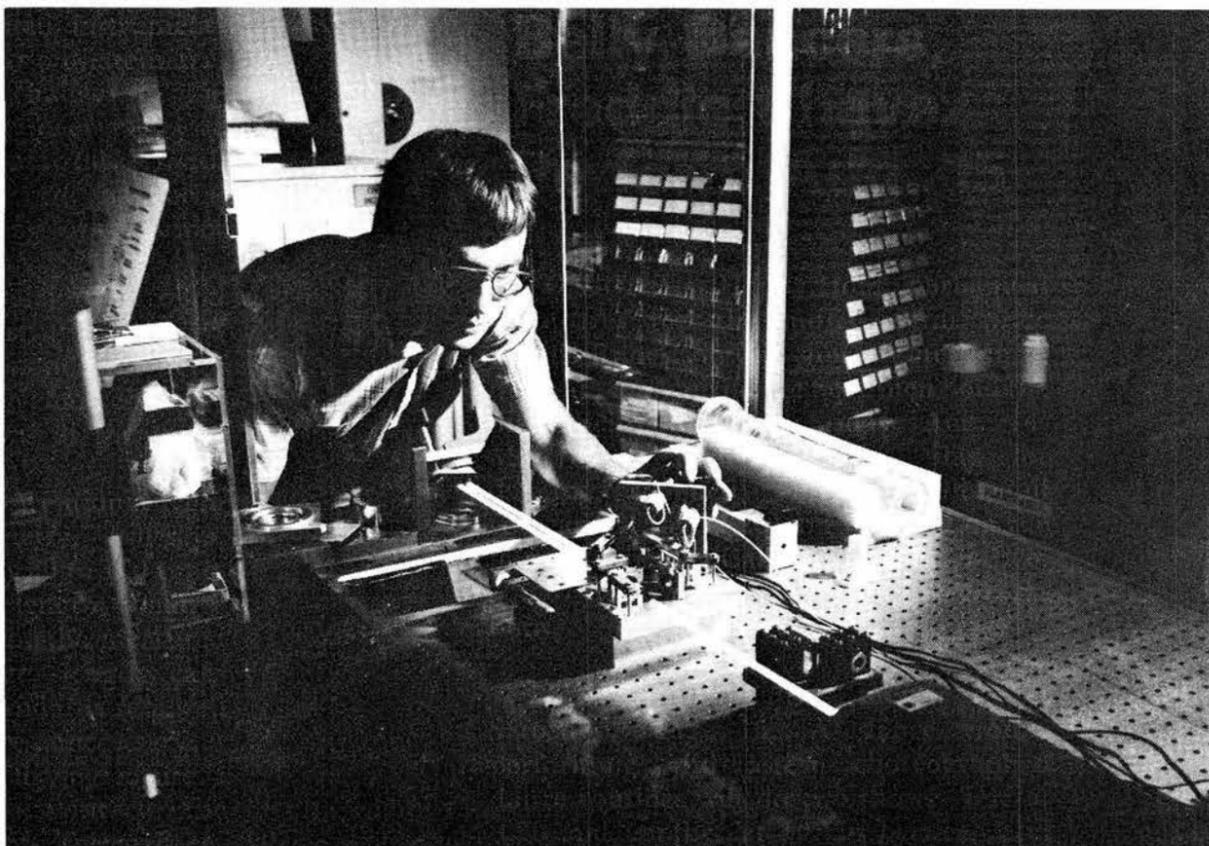


New Instrument Advances Thermal Expansion Measurement



NEW laser interferometric dilatometer which measures thermal expansion of materials with great precision was developed by Bill Drotning (5824). Computer control of laser interferometer alignment provides for rapid setup and quick turnaround time plus automated data acquisition and analysis. The furnace where material samples are heated is directly below the optical table where Bill is standing. The split beams pass through the table into the chamber to reflect off the sample and reference mirrors.

A new, highly automated instrument, called a laser interferometric dilatometer, which measures minute changes in the dimensions of materials over a wide temperature range (ambient to 900 K) with an accuracy of 0.01 micron, has been perfected by Bill Drotning of Thermo-physical Properties Division 5824.

Rapid setup time and quick turnaround are features of the new instrument, plus a precision equalling NBS standards. With laser interferometry, length changes can be resolved to within fractions of the wavelength of light.

"Compared with the conventional technique of push-rod dilatometry," Bill says, "the new dilatometer offers 20 to 100 times greater precision for length change measurements. In addition, the measured length changes are absolute—lengthy calibrations with reference standards required in push-rod dilatometry are unnecessary. A further advantage is not having to use a mechanical probe which contacts the specimen and perturbs its thermal environment.

"Our design," Bill continues, "allows non-critical sample size, shape and finish.

[Continued on Page Two]

LAB NEWS

VOL. 33, NO. 16

AUGUST 7, 1981

SANDIA NATIONAL LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

Solar Total Energy System

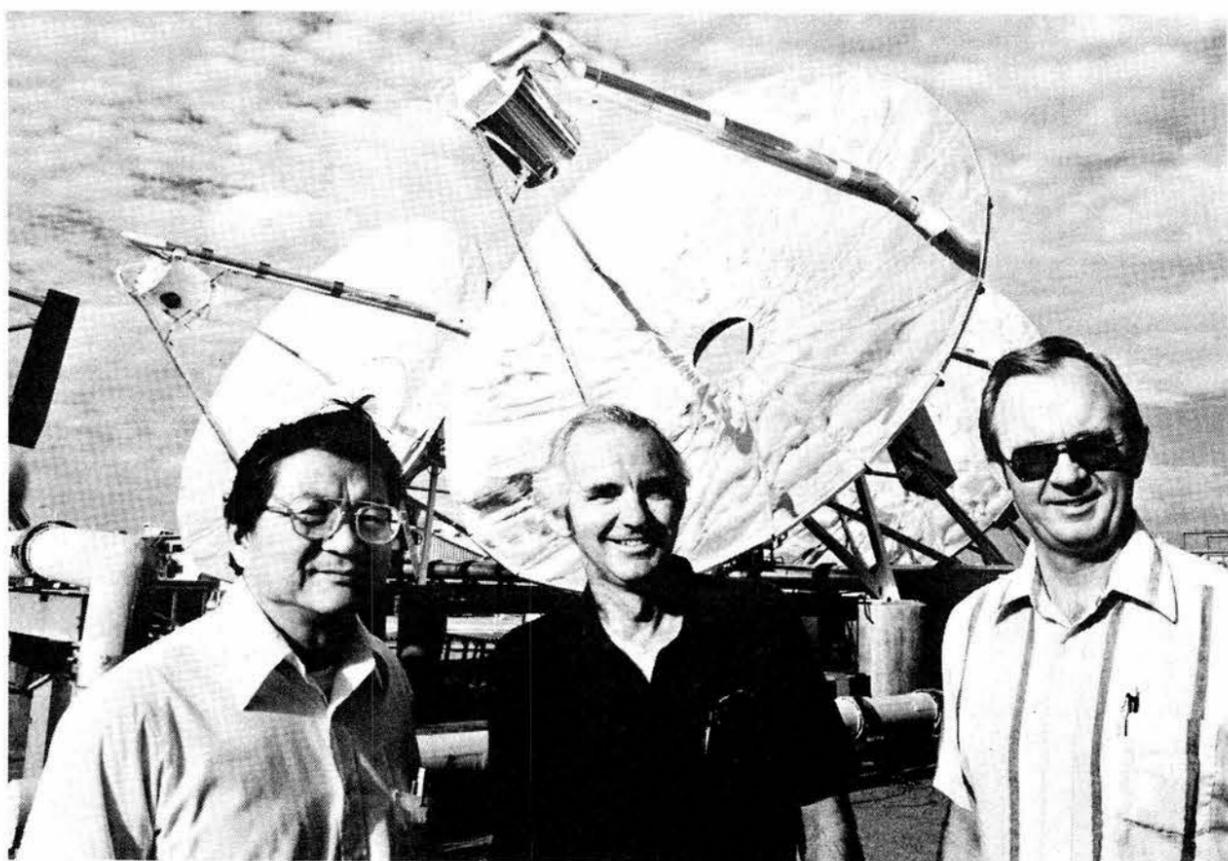
First Solar Collector Production Unit for Knitwear Plant Tested

Final testing of the first production unit of a parabolic solar dish collector, one of a field of 114 to be installed near a knitwear factory in Shenandoah, Ga., is about wrapped up by a team of Sandians from Systems and Applications Development Division 4717 under Jim Leonard. Sandia is providing technical support and management to the \$26.3 million DOE field experiment project.

At the Georgia site, field preparation and foundation work, including extensive piping for the 114-unit collector field, is complete. Delivery of the collectors has started. Fabrication and installation of the collector field is being performed by Solar Kinetics, Inc., of Dallas. Bob Hunke (4717) is the Sandia project engineer at the Georgia site.

When completed in April 1982, the solar system will provide 400 kilowatts of electricity and 1380 pounds of steam per hour to the 25,000-sq.-ft. knitwear plant. Exhaust heat from electrical generation will be further used for industrial processes and for space heating and cooling. The project is the first industrial application of the solar total energy concept and an out-

[Continued on Page Two]



PROJECT TEAM for a \$26.3 million DOE solar total energy system for a knitwear factory in Georgia includes George Kinoshita, John Zimmerman and Bill McCulloch (all 4717). Final testing is under way on the parabolic solar dish collector in the immediate background. Others are earlier prototype designs. The collector will be one in a field of 114 which will provide power, steam, heating and cooling for the knitwear factory.

Afterthoughts

Some slip--In the continuing struggle of the outlanders with our name and address, we've seen some weird variants. But this one causes more-than-usual puzzlement--the return address is "U.S. Dept. of Energy":

President
Sandia Death Labs
KAFB Albuq NM

* * *

Pomp & circumstance--As a young man, I would have ho-hummed the wedding of Charles and Diana, but now I am much moved by the spectacle. Pageantry, ritual, ceremony, rites are all of the same metal, and it takes a certain amount of age to be sensitive to their reassuring role in life. And in death. We have a need to mark the out-of-the-ordinary occasion, I guess to impress ourselves and others that we're serious about this, that we really mean it. If marriage, for example, were performed by the nearest friendly notary, it would probably have all the mystique of a real estate contract.

Now when it comes to pageantry, the British are in a class by themselves--the scarlet uniforms and tasseled hats, magnificent horses, the measured steps of the marchers, gilded carriages, heraldic music. Most affecting was the glimpse of the retired Buckingham Palace housekeeper, watching her telly, softly singing "God Save The Queen" as the musicians played. Of course, the British should be good--they've had more than a thousand years to get it right.

* * *

Dept. of Dismal--Last year the National Science Foundation and the Dept. of Education got together on a 220-page study on technical education. Their conclusion: "American students are headed toward virtual scientific and technological illiteracy." *js

Continued from Page One

Solar Collector Tested

growth of research started at Sandia in 1972.

Operated by Bleyle of America, Inc., the knitwear factory has been using conventional power sources. When the new system becomes operational next year, the factory should derive about 50 percent of its annual energy needs from the sun. The system can operate either in a stand-alone mode or as a supplement to the plant's central boiler and the Georgia Power Company's electric grid.

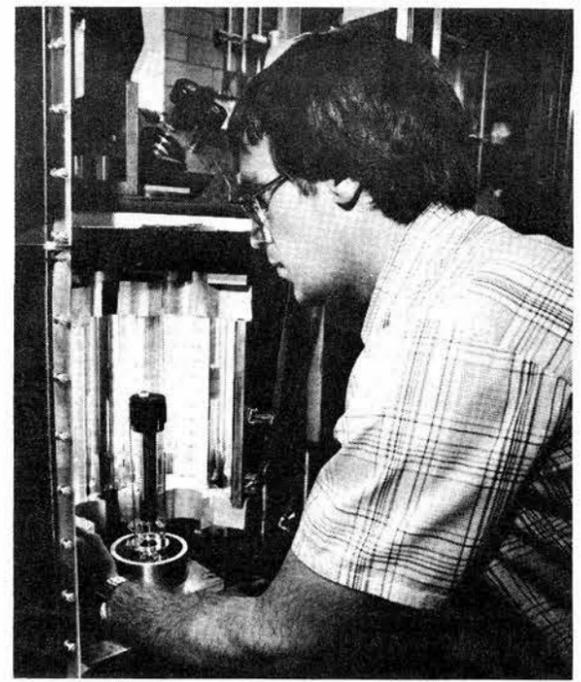
Georgia Power, which provided land for the system and instrumented the plant to obtain an energy-use profile, will become the system operator under a DOE cooperative agreement.

The solar collector, 23 feet in diameter, consists of petal-shaped die-stamped aluminum panels with a reflective film laminated onto the surface. The panels are bolted together to form the solar dish. The collectors focus sunlight into a cylindrical cavity receiver containing a coil of blackened stainless steel tubing.

A silicone heat-transfer fluid is circulated through the receiver where it is heated to 400°C (750°F) and then pumped to an 11,000-gallon storage tank or a steam-generating heat exchanger.

In the heat exchanger, the heated fluid produces super-heated steam to drive a Rankine-cycle turbine and a 400-kilowatt electrical generator. Part of the steam that passes through the turbine is extracted to press knitwear. In a later project phase, the turbine exhaust steam will power an absorption air conditioner or will be used for space heating.

Others on the Division 4717 project team are George Kinoshita, responsible for collector design and operation; John Zimmerman, for test projects; Bill McCulloch, control systems; and Earl Rush, system design coordinator.



FURNACE for the laser interferometric dilatometer opens for sample placement. Containing four quartz lamps, the cloverleaf-shaped aluminum chamber has polished reflective surface, can heat samples to 900 K.

Continued from Page One

New Instrument

This shortens the sample preparation time and allows a wider variety of materials to be measured. Specimen setup and measurement times are comparable to those associated with push-rod dilatometry, but are significantly shorter than those with other interferometric devices. This is accomplished by a unique computer control feature which automatically aligns the laser interferometer. This auto-alignment feature assists the operator during sample setup by performing the final critical interferometer alignment and maintains it automatically throughout the course of a measurement. The computer also controls all data acquisition and analysis and provides for continuous, unattended operation."

The instrument's furnace, used to heat the test sample, is a cloverleaf-shaped aluminum chamber containing four quartz lamps. Water for cooling circulates through the aluminum shell of the chamber.

In making a measurement, the material sample is placed in a chamber (which also forms a vacuum enclosure) and an optical mirror is placed on top of it. A second reference mirror is positioned alongside. The laser beam originates from a commercial HeNe laser and is split in two by a polarization interferometer and both beams are directed into the sample chamber. The interference fringes are electronically detected by an ac heterodyne mixing technique. One of the beams is reflected by a PXT-driven mirror, which provides the computer alignment control.

"In addition to the use of our dilatometer for conventional measurement of the thermal expansion of solids," Bill says, "the instrument's long-term stability over several hours allows high precision time-dependent length change measurements at constant elevated temperature. This is particularly useful at Sandia in measuring length changes that occur during curing and aging of polymers and in measuring length changes during release of dissolved gases from metals."

LAB NEWS

Published every other Friday

SANDIA NATIONAL LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA
Editorial offices in Albuquerque, N.M.

Area 505 844-1053

FTS 844-1053

ZIP 87185

In Livermore Area 415 422-2447
FTS 532-2447

john shunny is editor

&

don graham ass't. editor

carl mora & norma taylor write

louis erne does picture work

aided by gerse martinez

barry schrader reports livermore.

Amanda Is A Tourist

Amanda Clements, a work experience student in Division 8341, takes bike rides. Long bike rides. Very long bike rides.

Taking part in a recent bike tour to Yosemite National Park, Amanda rode 200 miles in less than three days, toting her gear in panniers and camping out each night along the way and on the floor of Yosemite Valley. She was one of 24 cyclists, starting from the Livermore area, who rode to the park from here.

After arriving in Yosemite, the group took part in a bike rally that included some 1000 cyclers. Since it's more fun going than returning, Amanda and the others were met by cars to carry them and their bikes back home at the end of the five-day trip.

An even longer ride is the Davis Double Century—200 miles—which she and her father rode in 19 hours. In this early May event, bikers pedal out of Davis, climb to Lake Berryessa and Clear Lake, then return via Highways 20 and 16. Involving about 1500 cyclists, the Davis Double attracted three other Sandians—Walt Bauer (8340) who made the loop in 11 hours, Don Osbourn (8271) who rode a tandem over the finish line in just over 12 hours, and Doug Hostetter (8272) who completed the route in just under 12 hours.

Amanda was a cross country and track team member at Livermore High School where she graduated this June, lettering in both sports. To condition herself, she runs every day—three to four easy eight-minute miles. She also took part in the recent Corporate Cup with the Sandia team, running the 880 women's relay.

At Sandia, Amanda has been working in scientific computer programming, both developing codes and performing calculations. She plans to attend the College of William and Mary in Virginia in the fall where she will major in biology. A native of Livermore, Amanda has excelled in school and won a National Merit Scholarship. She even captured two ribbons in the county fair this summer for her chalk and color pencil drawings. Her ambition is to become a researcher in biology, after she completes graduate school.

Take Note

Sandia Livermore runners took part in the 1981 regional Corporate Cup relays at Stanford Stadium last month. The Sandia Masters Relay team of Len Hiles (8151), Dick Shimoda (8272) and Barry Bolden (8212) took a fourth place, their time being the fifth fastest in the nation. Other participants were Amanda Clements and Bill Wilson (both 8341), John Martin and Morrie Reynolds (both 8161), Anne Harrigan (8353), Tom Jefferson (8332), Karen Quock (8261), Henry Abeyta (8112), John Smith (8271), Gary Shamber (8255) and Joan Woodard (8451).

Congratulations

Sheila Daigle (8162) and Alex Odom, married in Hayward, July 11.



CYCLE TOURING—Amanda Clements (8341) and Walt Bauer (8340) out for a warmup ride. Both wear special biking shoes with cleats to lock-engage pedals.



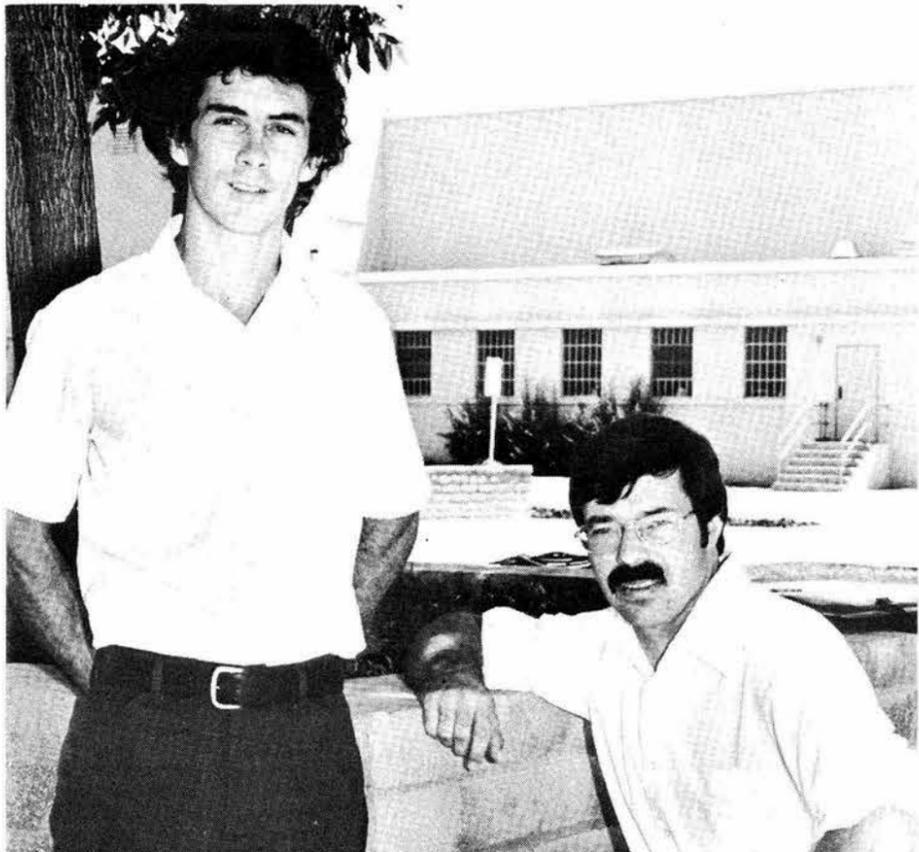
SANDIA LIVERMORE NEWS

VOL. 33, NO. 16

AUGUST 7, 1981



MEMBERS of Sandia Livermore's security force (Wells Fargo Guard Services) were big winners in the 10th annual DOE/SAN Pistol Tournament held June 26 at Oakland's Chabot Gun Club. Winners pictured from left to right seated are Carl Feighner (2nd place—Expert), Betty Moore (1st—Marksman), Wesley Thompson (1st—Sharpshooter), Steve Richardson (1st—Master), and Debra Rock (3rd—Marksman). In back, Leslie Sundberg (3rd—Sharpshooter), Dave Claire (3rd—Expert), Don Menzies (2nd—Open Class), Terry Barnard (5th—Marksman), Todd Keck (5th—Open), Mildred Creager (4th—Open), and Bob Sater (3rd—Master). Moore also earned Top Female Shooter recognition at the tourney. Ken Bennett (8261-1), an NRA certified instructor, served again as this year's rangemaster at the competition meet.



DICK SHAW (1485-4) and BRUCE MILLER (4255)



CHUCK GIBBON (2140) and BOB JAMES (2613)

Supervisory Appointments

DICK SHAW to supervisor of Mechanical Calibration and Electronic Inspection Section 1485-4, effective July 16.

Dick joined Sandia in September 1971 as a mechanical measurements apprentice. Following completion of his apprenticeship (four years), he completed an additional 16 months of advanced mechanical calibration training. During this time he also earned his TI certificate through the Labs' out-of-hours program. Dick then worked as a technician and, for the past three years, has been instructing and training new apprentices.

Dick is building a new home north of the city and, as a former race driver, is interested in cars and enjoys riding a dirt bike. He and his wife Rene have two daughters and live in the NE heights.

* * *

BRUCE MILLER to supervisor of High Energy Beam Physics Division 4255 (newly created), effective July 16.

Since coming to the Labs as a member of the technical staff in 1977, Bruce has worked on pulsed energy programs, primarily on charged particle beam transport

and accelerator design. Before joining Sandia, he was a captain in the Air Force at Kirtland's Weapons Lab.

Bruce earned his BS in engineering physics and his MS and PhD in nuclear engineering, all from Ohio State University. He enjoys skiing and tennis, and plays trumpet in a German band—Die Polka Schlingels. Bruce and his wife Cindy have two children and live in NE Albuquerque.

* * *

CHUCK GIBBON to manager of Semiconductor Technology Department 2140, effective Aug. 1.

Chuck transferred to Sandia three years ago from Bell Labs where he had been a supervisor responsible for integrated circuit processing development. Continuing with that work at Sandia, Chuck was promoted in 1979 to head the IC Process Development & Control Division 2142.

He received a BS in metallurgical engineering from the University of Kansas and his PhD in metallurgical engineering and materials science from Notre Dame. Before joining Bell Labs in 1966, he was a research associate for one year at Argonne National Laboratory.

Chuck and his wife Judy, a language arts teacher for APS, share an interest in American Indian crafts and culture. Chuck is chairman of the education committee for the Friends of the Indian Pueblo Cultural Center. They have three children and live in Four Hills.

* * *

BOB JAMES to supervisor of Word Processing Division 2613, effective Aug. 1.

Since joining the Labs in 1961, Bob has worked with a weapon programming group and with the university relations organization; in 1971, he transferred to a computer consulting and training division. For the past three years Bob has been with Assets Management Design Division 2627

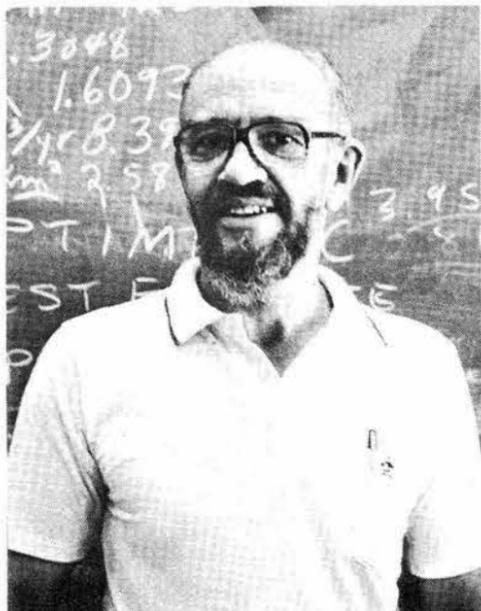
and, since April, has been assigned to the Technical Library, working on the design of a mini-computer system.

Bob earned his BS in accounting and his MBA from Oklahoma State University. He is a member of the Association for Computing Machinery and the Data Processing Management Association. He enjoys bowling, skiing, gardening, and working on various construction projects. Bob lives in NE Albuquerque.



THE MAN AT ALO—Succeeding Herm Roser as Manager at DOE's Albuquerque Operations Office is Raymond Romatowski, who comes here from DOE's Washington office where he had been Acting Undersecretary. Mr. Romatowski's government service dates to work with the Energy Research & Development Administration (ERDA) and, before that, he was with NASA's Langley Research Center. As ALO Manager, he is responsible for ALO's nuclear weapons research, development and production, as well as for its energy and energy-related programs.

R
E
T
I
R
I
N
G



Walter Murfin (4414)

Take Note

A 30-minute film, "Common Sense Self Defense," will be shown in Bldg. 815 (outside the Tech Area) by Sandia Medical on Thursday, Aug. 13, from 12 to 12:30 p.m. The film deals with ways women can avoid attack and, if it comes, can resist it. Family members are welcome as well at the showing.

* * *

"Man—The Fastest Land Animal" is the intriguing title of the next colloquium, set for Aug. 12 at 10 a.m. Allan Voigt, designer and driver of a super bicycle that exceeded 50 mph, is featured speaker and he will discuss the potential of advanced bikes as it relates to mainstream transportation. Ron Malpass (1751), president of the Sandia Bicycle Association, is host for Mr. Voigt.

* * *

The Que Pasa Rec Center is offering a four-day, three-night bus tour, Sept. 29 to Oct. 1, that takes you to Durango, puts you on the narrow gauge steam train to Silverton, and includes travel to Ouray and Alamosa. The package covers overnight stays in Durango, Ouray and Alamosa and a gourmet dinner in Durango. Prices: \$185 for double occupancy, \$230 for single, \$170 for triple. A \$50 deposit is needed by Sept. 1. Contact: Ms. Walker, 4-5420.

* * *

"Ledgers and Legends: Narrative Images from the Plains" opens Sunday, Aug. 9, in Santa Fe's Wheelwright Museum of the American Indian. The art work of the Plains tribes centered upon decoration of tipis, clothing, shields and containers made from hide. With the loss of the buffalo, cotton muslin, pages from army commissary books and traders' ledgers were used instead of hide—hence, ledger art. The exhibit runs through Nov. 14 (Monday to Saturday 10 to 5, Sunday 1 to 5 p.m.).

* * *

Children of Sandians are eligible to compete for Western Electric merit scholarships, and those who will complete high school and enter college in 1983 should take the 1981 preliminary scholastic aptitude test/national merit scholarship qualifying test if they plan to compete for the WE scholarships. The test will be administered in high schools around the country on Tuesday, Oct. 27, or Saturday, Oct. 31, and is the first step in the competition. LAB NEWS has a copy of the lengthy TWX describing this program if you'd like more detail.

* * *

The Albuquerque Museum has a new exhibit, "From All Walks of Life," 64 paintings of the human figure from the National Academy of Art in New York. It runs through Aug. 30 and is sponsored by the Smithsonian Institute.

* * *

Repeats of two super NOVA programs are coming up shortly. To commemorate Voyager II's pass near Saturn, NOVA is



EXPLAINING a point to a student are Jack Jackson and Patricia Allen (both 4724), who taught a course on energy resources for the Sandia/APS Summer Science Program at Albuquerque High School.

Summer Science Program: Aiming At The Young

The Sandia/APS Summer Science Program, a joint project of Sandia and Albuquerque Public Schools, recently concluded its seventh year. The program seeks to enhance interest in science and engineering among promising high school students. The courses were offered at Eldorado and Albuquerque High Schools, and 18 students attended at each school.

Sandians who were instructors included Gary Shepherd, Larry Lane (both mathematics/computer instructors, 2642); Jesus Martinez (material science instructor, 1415); Barry Marder (physics instructor, 2646); John Castle (electronics instructor, 2615); Kathleen McCaughey (energy resources instructor, 2325); Pete Thoma (material science instructor, 1757); and Patricia Allen and Jack Jackson (both energy resources instructors, 4724). Each instructor met with the students one day a week for six weeks from 8 to 10 a.m.

Patricia Allen and Jack Jackson of Photovoltaic Projects Division 4724 taught the Energy Resources course.

Memorable lyrics from country music . . .

"My wife ran off with my best friend, and I miss him."

"If you want to keep the beer real cold, put it next to my ex-wife's heart."

"Don't pay the ransom, honey, I've escaped."

"I wouldn't take you to a dogfight, even if I thought you could win."

—Houston City Magazine

presenting two programs about Voyager I and its encounters with Jupiter and Saturn. "Voyager: Jupiter & Beyond" airs on PBS/Ch5 on Tuesday, Aug. 18, at 8 p.m. The following Tuesday, Aug. 25 at 8 p.m., Voyager's Saturn adventure will be presented in "Resolution on Saturn."

"It's the first year I've taught and I'd enjoy doing it again," says Jack. "On the whole, it was a positive, worthwhile experience—I learned a lot."

As team teachers, Jack and I were good role models for the students," adds Patricia. "It was valuable for them to see practicing scientists and engineers, especially for the girls. Half of the class was girls and just my being there was very positive for them."

Jack feels it's important for Sandia to continue contact with the public schools: "We're a highly technological society and we need more scientists and engineers. This program helps get the young people interested. And the course was useful to the APS teachers because it gave them an insight into what we do at the Labs and suggested a source of guest lecturers for them."

"Next time I'd give more assignments," says Patricia. "The only course requirement was to build a model of an auto engine, in addition to suggested reading. Nonetheless, the feedback from previous years shows that the program has helped the students identify a science or engineering field they'd like to pursue. Many now have part-time jobs as lab assistants."

Bobbie Williams (3511) was the Sandia Coordinator. Besides planning the program with the Director of Science Curriculum at APS, Hollis Stout, Bobbie assisted in the selection of two APS teachers, Ken Falkenberg and Bill Schrandt, who served as consultants. She also handled logistics and budget matters. "This was my first year," she says. "My most difficult task was recruiting Sandia instructors. I'd like to see more Sandia department managers become aware of this worthwhile program and encourage their staff's participation."

Gone With The Wind: The Los Alamos Ranch School

Not many people share their birthplace with that of the atom bomb, but three Sandians—Ted (1580), Allen (1132), and Hugh Church (4544)—can make this unique claim. Ted, Allen, and Hugh were born at the Los Alamos Ranch School that was taken over by the government in 1942 for the top secret Manhattan Project that produced the first nuclear detonation at the Trinity site in New Mexico.

The Churches count back five generations in New Mexico through their mother, Peggy Pond Church, to Governor Hadley of Arkansas. He was a "carpet-bagger who came to New Mexico territory after the Civil War and got into cattle ranching here," says Ted. "Mother was born in Watrous, north of Las Vegas. Grandfather Ashley Pond nearly founded a school near Watrous but the Mora River flooded in 1904 and swept everything away. He decided to find a spot that would be free from floods and chose the Pajarito Plateau about 30 miles northwest of Santa Fe."

Peggy Pond Church chronicled the story of the Los Alamos Ranch School in her book, *The House at Otowi Bridge* (UNM Press, 1959):

The school opened in 1917. From the beginning it was a self-contained community with its own commissary, electric light-plant and machine shops. Each boy was assigned his own horse to ride. Hay from the fields was stored in a huge barn. Silos for grain were built, corrals and saddlerooms constructed. The duck pond was enlarged and a storage house built beside it to hold the year's supply of ice that was cut each winter. Water was pumped from a stream in a nearby canyon and stored in a big tank that stood on stilts near the mound of the small ruin in back of the main building. (pp 7-8)

The school was called Los Alamos after the deep canyon which bordered the mesa to the south and which was groved with cottonwood trees along the sandy trickle of its stream. It was a name that no one suspected would one day be famous through the world. (p.4)

Ashley Pond was more of an idealist than an administrator, so he searched around for someone to run the school. He chose as director A. J. Connell, a ranger in the Santa Fe National Forest and scoutmaster of the Santa Fe troop of Boy Scouts. Connell, no more an academician than Pond, began to build up a staff with strong academic qualifications. Among these was Fermor Church who came to Los Alamos School from Harvard in 1921 and who, in 1924, married Ashley Pond's daughter. Church taught science, geology, and math until 1943 when the school was closed. And Peggy and Fermor Church raised three sons—Ted, Allen, and Hugh.



The Church home in 1927.



The Churches in 1936.

"The school originally was a place where kids from the East with health problems could build themselves up," says Ted. "It offered a unique environment along with a strict curriculum patterned after the best eastern schools. The tuition was \$2400 a year—a princely sum in the '30s. I was the only brother to attend grades 7 through 12, graduating in December 1942 just before the government took over. Allen had just completed his freshman year and Hugh was too young—they both finished high school in Taos."

"We had a lot of fun hiking, skiing, horseback riding, and trapping—I sold skunk and fox hides to the San Ildefonso Indians," remembers Allen. "We rarely got to Albuquerque—in fact, I thought people who lived there should have their heads examined."

"I remember hitching rides on the school truck to Otowi where the train dropped off our mail. Edith Warner lived there in a house beside the railroad bridge—she's the principal subject of mother's book. Edith befriended my mother, the San Ildefonso Indians and, later, the scientists from Los Alamos. She was interesting, friendly, warm—and her chocolate cake has never been equaled even though the recipe's in *The House at Otowi Bridge*. Your heart has to be right to bake a cake like Edith's."

Hugh reminisces: "About 100 people—faculty, students, ranch employees—lived on the 880 acres owned by the school. The Sandoval County district school was located right in Los Alamos—the ranch put up the one-room schoolhouse and the

county furnished books and teachers. Mrs. Rousseau taught the lower grades, Mr. Gonzales the upper ones.

"It was very rural, and I have pleasant memories of growing up amid the trees and mountains. Santa Fe was 35 miles away by a dirt road which spring rains would turn into mud. The drive was hair-raising—visiting parents would ask if cars went over the side very often. We'd answer, 'No, just once.' In fact, the only paved road ran north from Albuquerque to Algodones—about 20 miles. The rest was dirt. But we didn't have to go to Albuquerque much in those days since the train from Chicago stopped at Lamy—then visitors would drive up to Los Alamos."

Allen says that blue jeans were unheard of at the school. "The regulation dress was khaki shorts in summer and winter, and olive-drab wool dress shorts in winter. And Los Alamos winters are cold! On school days we wore black ties. On weekends you could wear a bandana with your Stetson. Our outdoors curriculum later was developed into the Explorer Scout program. Classes were from seven-thirty in the morning to one o'clock—afternoons and weekends were always set aside for outdoor activities.

"All the boys slept on porches year round. We used screens and tarps to try to keep the snow and rain out. But we didn't mind since we didn't know any other way—I'm still a fresh-air fiend and I hate overheated houses."

The idyllic days at Los Alamos Ranch School were numbered. Peggy Pond Church remembers a spring morning in 1942: "But roughly upon the edge of peace that day an airplane droned, circling back and forth among the clouds . . . It flew low, methodically . . . It was then I first knew without doubt that a time was ending. Not even here on these mesas was isolation possible." (p. 82)

"The site was chosen by Robert Oppenheimer," says Hugh. "He did *not* attend Los Alamos School—that's a common misconception—but was familiar with the area because he'd camped in Pecos and Bandelier years before."

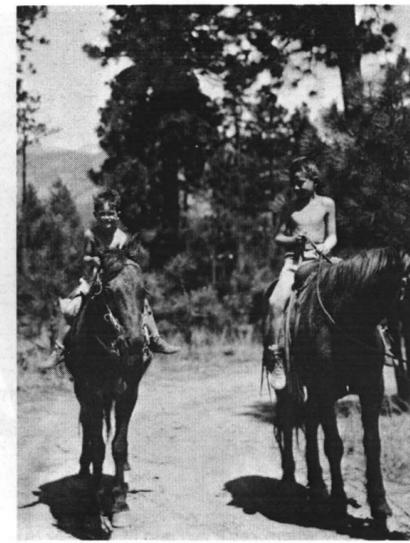
In December the school was closed by government order. Ted graduated with the last, accelerated, class. Fermor Church

went to teach in a California private school and, in 1944, returned to Taos to establish another school patterned after Los Alamos.

"The attempt failed," says Hugh, "because it was the end of an era. People weren't sending their kids out west to school anymore."

Ted went on to a stint in the Navy at MIT. Allen attended Colorado State for two years, then tried his luck in Hollywood: "In three years, I worked in six highly forgettable westerns—one, *Two Flags West* with Jeff Chandler and Linda Darnell, was filmed at San Ildefonso." Hugh attended UNM and UCLA. And they came to work at Sandia in order of seniority: Ted in 1947 (with "Z" Division of Los Alamos in Albuquerque), Allen in 1955 from Stanford, Hugh in 1957.

Once the site of an elite school for the sons of the wealthy, Los Alamos is today a city and county of 16,000 people. The hub of this unique community is Los Alamos



Allen and Ted take their mounts for an outing.



Ted (standing), Hugh, Fermor Church, and Allen about 1934.

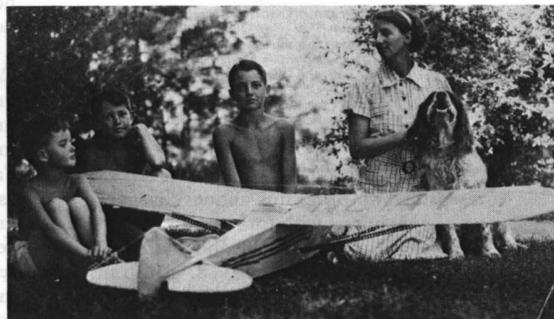
National Laboratory, one of the world's leading nuclear research institutions. Indeed, in their mother's words, the Church brothers' boyhood ". . . and our life on the mesa seems like a chapter in ancient history." (p. 114) •cm



The Church brothers today—Hugh (4533), Ted (1580), and Allen (1132).



Fermor Church and Jaime.



Hugh, Allen, Ted and Peggy Pond Church about 1936.

feed back

Q. I appreciate the effort that is put into the shrubs, plants, flowers and trees around the Laboratories. The fragrance of the Spanish Broom around Bldg. 800 is a nice welcome to the work day. Thank you!

A. You're welcome. We appreciate the comment. That work is done by the people in Ernie Nevada's Support Services Section 3613-4.

Q. Under present procedures, purchase requisitions for classified parts must go through the classification division for review. This is satisfactory, but change orders to the original P.O. changing items like funds, quantities or similar types of changes still require classification approval. How come?

A. As you recognized, there is a requirement for the Classification Division to review purchase requisitions first to verify that the requisition itself contains no classified information and second, to assure that the proper classification level and category have been assigned to the work defined by the contract.

Changes to requisitions also require approval because in addition to using change orders to change funds or quantities as you note, they are also used to modify work statements and to make classification changes in the contract. We discussed this with Purchasing to see if there is a way to improve efficiency in handling change orders while assuring that the proper classification is assigned. There appears to be no feasible system for having every change order reviewed to separate those involving statement of work or actual classification changes for routing to the Classification Division. In order to assure that an appropriate review has been done, it looks as if all change orders will have to continue the current routine sequence.

K. A. Smith—3100

Q. I'd like to suggest more education on the new telephone system. The option of automatic call forwarding to a secretary's line after three rings has created some problems because many employees do not understand this feature. Why not let everyone know what's new in that specific area?

A. The features of the telephone electronic switching system (ESS) which are available on all instruments are detailed on pages 3 and 4 of the Sandia Telephone Book. There are other features which require implementation actions by signal office personnel at the ESS. These features are described in the small blue booklets which were widely distributed at the time the ESS was put into service. If you need a copy of the blue booklet, you should contact your division or department secretary or call 4-6234. Changes will require a written request to Division 3653.

R. W. Hunnicutt—3600

Fun & Games

Horseshoes—The Labs Championship Horseshoe Tournament is scheduled for Aug. 22, with singles to be held at the Los Altos courts at 9 a.m. and doubles at the C-Club at 1 p.m. Refreshments are free to participants. For signup, contact Curley Saxton, 4-6737, or Lyle Davis, 4-6363.

* * *

Running—Here's a new twist: to run in the Blood Donor 5-Miler on Sept. 12 at the north UNM golf course, you have to donate a pint in August (you can do it on Tuesdays over at Medical). Or you can have someone donate a pint of red in your name. The run starts at 8:30 a.m., and participants should assemble at the UNM Med School parking lot on Tucker Ave.

* * *

Triathlon—Five years ago we were first and we should have patented the thing because now everyone's getting in the act. We're talking about the Triathlon of Albuquerque, 10 miles by bike, five miles running and a quarter-mile swim, all back-to-back without pause. They've since got this feeble thing out in Hawaii, another one in Estes Park, Colorado, a pseudo-Triathlon in Los Alamos and now, *mirabile dictu*, right here in River City another Triathlon, sponsored by City Parks and Recreation. It's set for Aug. 16, calls for 10 miles of biking and of running and a 250-metre swim, and you can get more information on it on 766-7427. (Meanwhile, the one, the only, the original Triathlon of Albuquerque is not too far off—Nov. 15)

* * *

Biking—Red River's century ride, a circle trip from Red River to Questa to Taos to Eagle Nest and into RR, is scheduled for Sunday, Sept. 13, blastoff at 8 a.m. LAB NEWS has entry forms.

* * *

Flag football—Interested? Carlos Quintana (6-0494) and Mike Garcia (4-0140) plan to organize a city league flag football team to represent Sandia. Call Carlos or Mike for more detail.

* * *

Swimming—Back in 1967 the Coronado Aquatic Club engaged a swim coach, Reed Barnitz, to direct the fortunes of the CAC Swim Team. Reed took to the job with a passion, and many, many children of Sandians were influenced and motivated over the years by him. Now Reed is leaving the swim business and starting a new career with Dean Witter Reynolds. But first . . . "Reed's Roast" is being staged, Aug. 20 at 6:30 p.m., at Montgomery Park (Comanche between San Pedro and San Mateo), featuring a potluck dinner and roast, and all of Reed's alumni/alumnae and parents thereof are invited. Call Linda Schuler, 821-8944, for potluck information.



YOU NEVER KNOW whom you'll run into at a Happy Hour these days, especially if it's at Alpha Centura, the local science fiction club. From the left—a probably underage Jawa; Michi Wada (2113); a tall, dark stranger impatient with the service; Yoda, who's starting to feel the Force, and Fred Bailey (1754).

LAB NEWS Reporter Goes Far Out

Alpha Centura—the final frontier. These are the voyages of your enterprising correspondent. My mission: to explore new worlds, to seek out new activities of fellow Sandians. To boldly go where no LAB NEWS reporter has gone before . . .

One voyage brings me to a remote nook (or is it a cranny?) of our galaxy—specifically, the bank building on the corner of Central and Washington.

Descending to the basement, I encounter unearthly beings rushing about, driven by some unfathomable purpose, capes flying, tracer guns blasting away. Darth Vader strides silently down the hall—tall, forbidding.

I duck down a passageway and soon come to a door. What will I find on the other side? Should I continue or leave now? Oh shazbot, I say to myself. Open the door!

No warlike orc or fierce dragon guarding a treasure awaits me. Instead, I encounter a thoroughly nonmenacing group which includes Fred Bailey (1754) and Michi Wada (2113).

"Welcome to Alpha Centura," says Fred.

So what is Alpha Centura?

"We started in 1975 as a *Star Trek* fan club, but we've grown beyond that and now we're a general science fiction and fantasy club. We have speakers—SF authors like Roger Zelazny and Suzy McKee Charnas, scientists like Michael Zelick and Klaus Keil from the UNM astronomy department, Senator Jack Schmitt who spoke on lunar mining, and a few from Sandia—one discussed laser holography. Other times we'll show movies—SF, science, fantasy. And every fourth general meeting is Shore Leave: we have costume parties—themes have included the Annual Intergalactic Games, Disco 2079, and Fantasie Faire."

Sounds like fun. How is Alpha Centura organized?

"We have about 60 members grouped in divisions patterned after the Star Fleet organization in *Star Trek*," Michi relates. "The divisions are Command Support, Diplomatic Security, Science, and Cadet—

a newly organized one for the kids. These clubs within the club often have their own activities and meetings in addition to general club activities, although the distinctions between the divisions have largely faded. The club publishes the *Alpha Centura Communicator*, a monthly newsletter and fanzine which carries announcements as well as short pun stories, movie reviews, and artwork—all by members. In fact, its editor, Craig Chrissinger, was a summer employee at Sandia. Other Sandians in the club are Steve Lambert, Fred Boston, and John Phelan."

What's the appeal of science fiction?

"Well, 'hard' science fiction—stories featuring a lot of hardware—has suddenly become real," says Fred. "In fact, there's hardware flying around now that Sandians helped develop which far exceeds anything that appeared in the old fiction. I might say that real science has become more interesting, which might explain the popularity of fantasy in recent years. Contemporary fantasy—sword and sorcery novels, role-playing games such as *Dungeons and Dragons*—has more credibility than the old Edgar Rice Burroughs Mars stories."

Michi adds: "I think this new interest in science fiction is due in large part to NASA's space programs and *Star Trek* on TV. They've helped SF come out of the shadows."

Suppose I want to join Alpha Centura?

"Call me on 296-4093 for the location and date of our next meeting," says Michi. "Our monthly general meetings are usually on the second Saturday, and attendance the first time is free."

Just one more thing. Why the name?

"We chose 'Alpha Centura' and not 'Alpha Centauri' just so we wouldn't be sued by the folks from there—if there are any," says Fred.

Oh. You mean they've got lawyers, too? . . . I'll bet they live long and prosper. •cm

MILEPOSTS

LAB NEWS

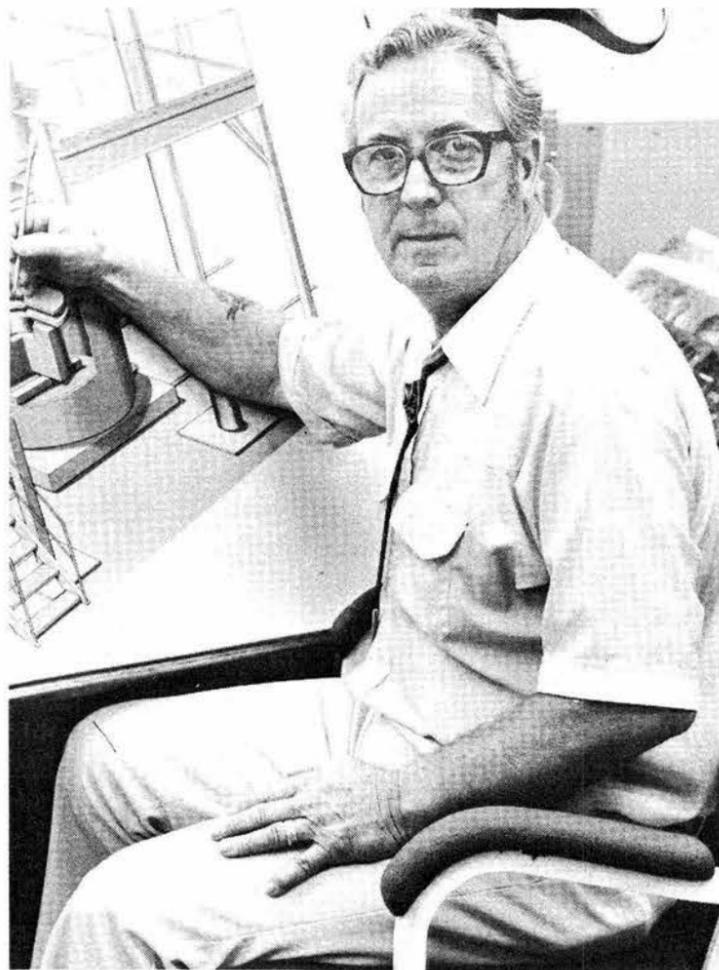
AUGUST 1981



Dave Renninger - 2454 15



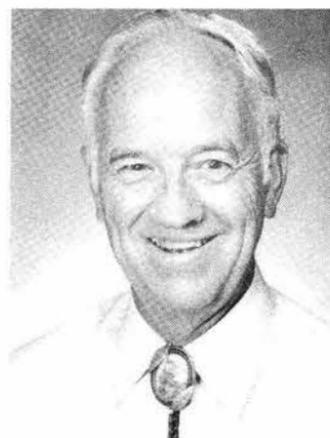
Joe Muench - 1222 35



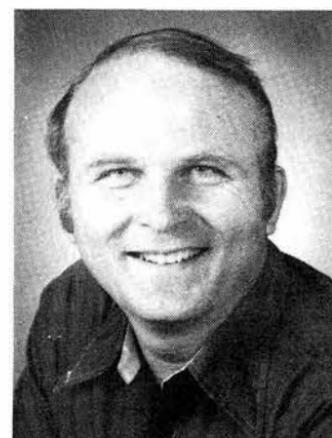
Joe Mickey - 3155 25



Richard Chavez - 1473 25



Bob Summers - 1426 30



Ken Hicken - 8425 10



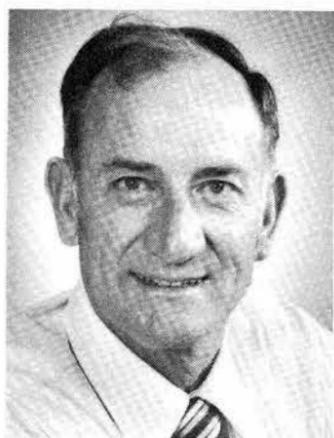
Bill Bopp - 2454 15



Agustin Ochoa - 2144 10



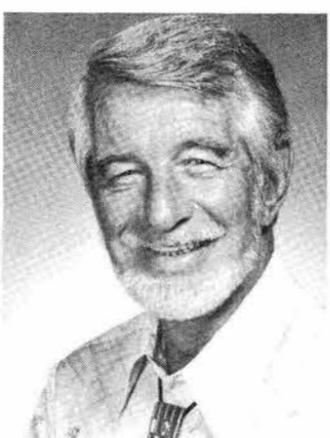
Jim Pergrossi - 8423 15



Arley Turner - 8423 15



John Souza - 4325 30



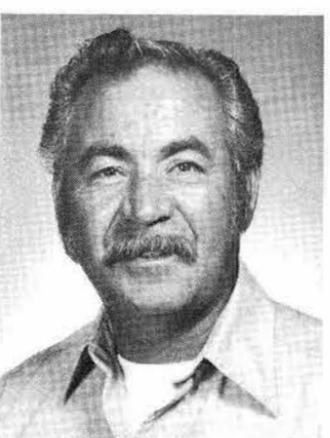
Clyde Walker - 4543 30



Sylvester Tafoya - 1541 15



Tom Strome - 1211 30



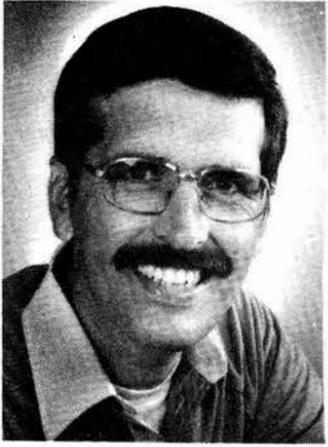
Lumberto Ortiz - 3613 10



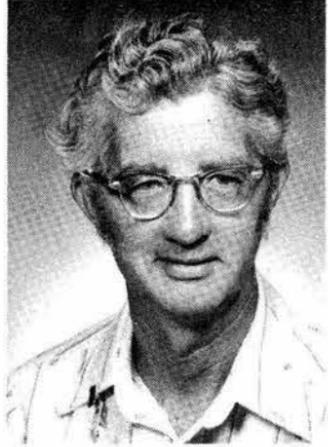
Fred Stixrud - 1543 25



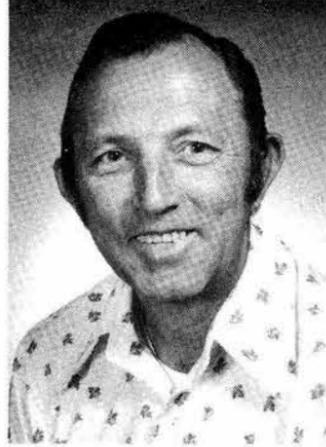
John Barnhouse - 8336 20



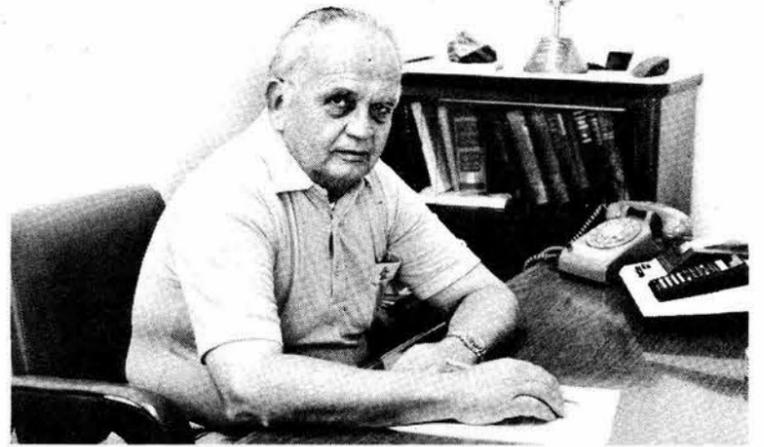
Walter Ghio - 8152 15



Jack Williams - 1714 30



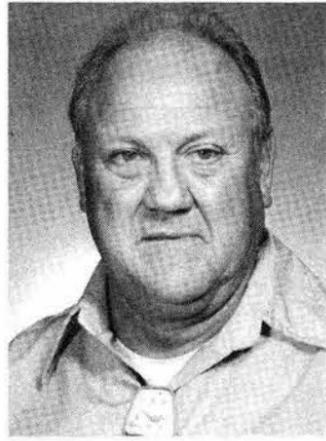
Larry McConahy - 1752 15



Don Shuster - 5600 35



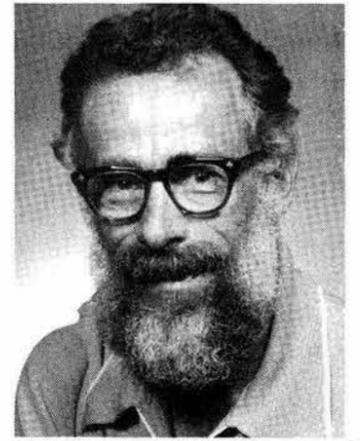
Leo Ortiz - 3155 35



George Reis - 5621 30



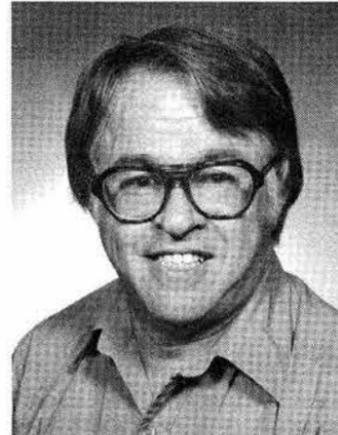
Charles Miller - 3426 10



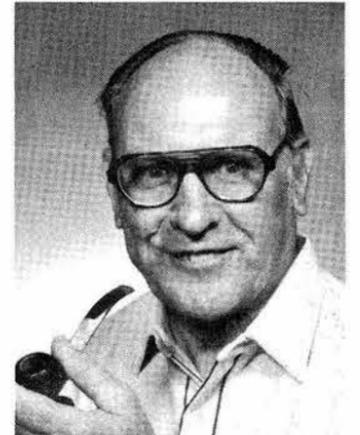
Paul Souder - 4364 25



Bob Evans - 4364 30



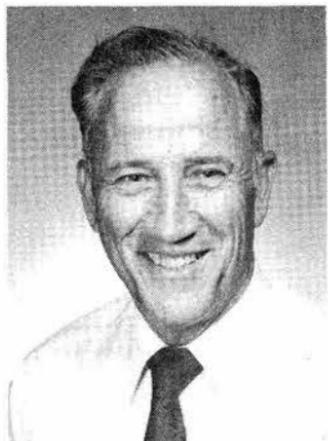
Harry Pike - 2553 25



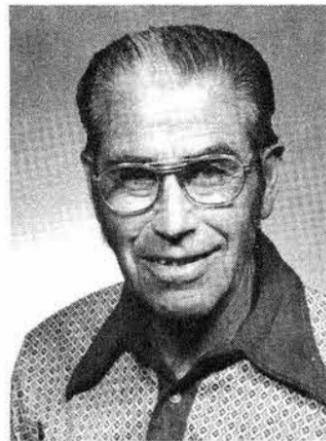
Bill Brion - 2534 25



Adela Cooke - 3413 25



Al Martin - 3641 30



Hermenes Chavez - 3417 30



Dan Tebbs - 1172 20



Jim Taylor - 1473 30



Bob Dawirs - 1252 30



Tom Gardner - 2455 20



Ken Sutton - 3420 30

Now State Financial Help for Violent Crime Victims

On July 1 a new state law came into being to provide some financial assistance to victims of violent crimes. The new statute—Crime Victims Reparation Act—was researched and written by the Crime Victims Assistance Organization (CVAO), a voluntary, unfunded, non-profit group of concerned citizens.

The core membership of CVAO was four mothers whose children had been murdered, the young mother of four children left widowed when her husband

was murdered, and a retired woman, victim of several muggings. This group was then joined by many other concerned citizens.

The Act is administered by five Commissioners appointed by the Governor. Only a victim of a violent crime committed in New Mexico after July 1 may make application for assistance in payment of medical, hospital or funeral bills resulting from the crime. There is no award for loss or damage to property. The maximum award to an eligible victim is

\$12,500, and payments from other sources—medical insurance, workman's compensation, etc.—are deducted from the total award.

Until such time as the State Reparations Office is in operation, victims should contact the CVAO, which will compile information to be turned over to the state office as soon as it opens.

For further information, write the Crime Victims Assistance Organization, P.O. Box 9411, Albuquerque, NM 87119, or call 831-2100.

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 (M0125).

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

YAMAHA YFG30 fiberglass tennis racket, size 4-5/8, weight L, with nylon strings, \$25. Smith, 299-6873.

12' ALUMINUM V-hull boat, 4 HP McCullough motor, trailer, \$575. Marquez, 898-1768.

GE refrigerator, gold, 14 cu. ft., \$75; 9'x12' foam-backed shallow pile carpet, \$25. Schmale, 293-0784.

13' COLEMAN (red) canoe, can be single-handed onto compact car, \$250. Baxter, 344-7601.

REFRIGERATOR, 14 cu. ft., 3 yrs. old, avocado green, \$375. Paul, 299-6387.

S. STEEL TRAYS, 35mm (developing, daylight loading tanks), flash guns, 16mm (editing, splicing, camera) color temp. meter, 4x5 (tank, packs). Cundiff, 256-0043.

OSCILLOSCOPE, Heathkit, single trace, AC coupled, \$35. Hayward, 294-7278.

AUTO BODY TOOLS, roller cabinet, top chest, materials cabinet, pneumatic, hydraulic, elec., porto-power set, Sears tool boxes. Ray, 265-4671.

CAMERA, 35mm, SLR, Pentax K1000 SE w/case, 2X auto. teleconverter, Vivitar elec. flash, cleaning set, \$175. Arenholz, 298-1724.

APPLE computer, two disk drives, printer, RF-modulator, & extras, less than 1 yr. old. Douglas, 298-7446 between 8 & 5:30.

ALL NEW: Burris wall recliner; Smith full sleeper sofa; Sealy twin mattress, box spring & frame, cash only. Chavez, 265-4671.

REMINGTON 12 gage model 1100, vent rib, modified, \$280; extra skeet barrel, \$85; both for \$350. Benson, 268-9727.

BARBELL WEIGHT SET, 110 lbs., includes dumbbells, \$25. Moyer, 881-0754.

SCREEN DOORS: 1 ea. 36x80, 3 ea. 32x80; 3 have hinges & other hardware attached; 1 ea. 32x80, new, \$12.50 ea. Stang, 256-7793 after 5.

TRS-80 peripherals base-2 line printer, \$475; TC-8 high speed cassette system, \$75; Radio Shack line printer, adaptor cable. Shuster, 268-8491.

POOL TABLE, Jordan, 8' 3/4 slate top, table light, cues, balls, & ACC, 2 yrs. old. Molina, 292-2820 after 8 p.m.

BRAIDED RUG, 9x11 oval, \$30. Prior, 296-2930 after 5.

BABY ITEMS: infant/toddler car seat, \$20; walker, \$10; high chair, \$10. Moore, 821-5023.

CARPET, 36 sq. yds., gold sculptured pile w/padding, \$75 or best offer.

Oberkamp, 292-4366.

NARRA WOOD BAR w/5 swivel stools, brass rail, glass top, w/ casters, value \$1700, sell for \$350. Baldonado, 821-5016 after 5.

VINYL cover for swimming pool, 18x34, \$125; clarinet, \$85. Zanner, 281-1789.

THREE alum. storm doors: 2 ea. 31 1/2 x 79 1/2, 1 ea. 36 x 79 1/2. Ruttle, 883-5547 after 5.

WOOD BURNING STOVE, Sears, used approx. 4 mos. Gonzales, 344-9832 after 5.

TIRE, steel radial, 155 SR12, new, w/4-hole steel wheel, \$25; bathroom sink w/Eljer fixtures, \$15. Joseph, 299-6989.

SOFA, 7', high back, rust tweed, \$65. Savitt, 293-0443.

BOX SPRING & frame on casters, 36x72", almost new, \$40. Dalphin, 265-4029.

TURNTABLE; antique pine water bench; antique pine butter carrier; colonial style hanging light fixture. Southwick, 281-3782.

KING SIZE BED: mattress, 2 box springs, 2 steel frames w/casters, headboard, \$265. Davies, 296-6905.

FENWICK glass fly rod, 8'-6" w/line & reel, \$35; belly boat w/chest waders, paddle, flippers, \$50. Anderson, 265-0403.

32' TOWER, free standing w/AR22 rotator & 2 meter 10 element beam, \$125; 35 watt mobile PA system, \$50; Motorola test set, TJ 546 w/speaker, \$75. Day, 881-2664.

2 1/2-yr.-old thoroughbred quarter-horse, blood bay filly, extremely gentle, green broke but easily trained, \$850, non-reg. Lambert, 344-9012.

HAMMOND M3 organ w/reverb, mahogany exterior, \$895. Roelle, 298-4594.

8 1/2' CABOVER CAMPER, 3-burner stove, sink, 20-gal. water tank, sleeps 6 adults, jacks. Padilla, 296-5048 after 5.

2 BUCKET SEATS from Dodge van, \$25 ea. Zucuskie, 881-4086.

ELEC. TYPEWRITER, IBM correctable Selectric, little use, \$800. Orear, 256-1941.

CUSTOM CRAFTED solid oak Taos style furniture: sofa, chair w/footstool, coffee table, complete set \$750, new. Trodden, 268-2273.

VALLEY HIGH flea market for Parent-Student-Faculty Org., Sat., Aug. 8, 7 to 4, 1500 Candelaria NW, refreshments, trash, treasures. Morales, 345-1381.

LEITZ cover glass w/binding tape & masks for 50 2x2 slides, \$1.75; 50 Davidson binders, \$1.75. Henry, 266-6467.

SOFA, 3-cushion, gold floral design, \$115 cash. Johnson, 255-2846.

METAL DESK & 2-dwr. file cabinet; mahogany trundle bed. Grant, 255-6105.

BARBIE-SIZE doll house, \$50; Sears under-counter, copper dishwasher, \$125; vacuum cleaner, \$50; girls' clothing, size 10-12. Adams, 881-6836.

MOWER, Sears reel, gas engine; protective window grate, make offers. Moss, 298-2643.

LAWN MOWER, manual, Sears, 18", \$25. Lyo, 299-6470.

WEDDING DRESS for fall wedding, ivory, size 9, \$500 new, now \$200. Hawkinson, 281-5239.

11' CABOVER self-contained camper w/shower, hot water heater, gas/elec. refrig., & other extras, \$1500. Lovato, 299-1375.

SONY COMPONENT STEREO, 65 WPC integrated amp, digital tuner, turntable, cassette, rack, speakers, 6

mos. old, \$1600 new, asking \$1100. Justice, 293-3487.

REMINGTON model 760 pump action .270 cal. w/Bushnell 4X scope, sling, case, amo. Kessler, 268-8343.

DOUBLE built-in oven, 24", coffee, \$100; under-dash 8-track player, \$10. Keltner, 298-7888.

SMITH & WESSON 30 DA auto. 9mm, nickel, new, \$275; Ithaca pump, 20 ga., modified choke, new, \$190. Haaker, 293-1077.

CAMPER SHELL, slide-in, LWB, carpet, bed, boot, storage, \$350. Schuch, 266-2279.

FLOOR SCRUBBER, polisher, rug shampooer, Sears brand, \$35; pitch back 6'x6', \$15; boys' 10-spd. bike, \$100. Kaiser, 296-5215.

'68 AIRSTREAM travel trailer, 26', equalizer hitch, new tires, \$3500. Janney, 881-4622.

PUPPIES, male poodle-terrier, free, 7 weeks. Azevedo, 821-5522.

SWIMMING POOL, 33'x18' oval, 20-gauge liner, 6 1/2' deep end (optional), sand filter, new cover, instruction manuals, chemicals, cleaning tools, \$350. Talbert, 298-9036.

PUPPIES, Shepherd/Timberwolf-collie cross & Shepherd/Pit Bull cross, 13 weeks, big, great pets or watchdogs, \$10. Gauerke, 281-5876.

PICKUP truck tool box; trade: washing machine for freezer. Bennett, 293-1217 after 6.

SADDLETOTES, soft saddle bags for motorcycles, still in the box, \$95. Garton, 298-8510.

HANDMADE patchwork quilt in shades of blue, 7'x7 1/2', \$60. Turpin, 883-8042.

MOBILE home awning, 8x30', heavy gauge alum., \$300 you dismantle & move, \$400 I do. Danclovic, 869-6086.

SMOKER, new portable Mirro, chips & recipe book included, cost \$62, sell for \$30. Arnold, 898-1467.

AIR CONDITIONER, 6000 BTU/hr., fits sash window, \$120. Smith, 881-8464.

BIKE, 3 spd. girls' Schwinn, \$30; Siberian Husky pups, purebred, \$100 negotiable. Cap, 265-5383.

REEL-TYPE tape recorder, \$75; plywood platform bed (carpeted) for pickup or van (4'x7'), \$25; baby stroller, \$25. Mueller, 296-2973.

RC 98 Garrard record changer, spring mounted on custom stand, \$15. Gregory, 268-2022.

CAMPER, Mitchell 8', refrig., range, oven, intercom, jacks, sleeps 4. Tufts, 255-9663.

DESK w/chair & matching file cabinet, all metal, black w/brown top on desk, \$175. Padilla, 836-2279.

ANTIQUE wood bed w/headboard & footboard, dbl. size, \$100; 20" girls' bicycle, \$20. Kissam, 881-2895.

BABY SWING, winding type, runs 15 mins. Pitti, 256-1629.

CAMPER SHELL for narrow body pickup, includes stove, refrig., & more, \$150. Burton, 869-2541.

TRANSPORTATION

'79 BUICK Regal Sport, loaded, \$5500. Fisher, 299-6697.

'77 YAMAHA Enduro model DT100D, 100cc, yellow & black. Perryman, 294-6113.

'78 SUZUKI DR 370, 4-stroke dirt bike, silver, \$850. Apple, 884-0046.

'67 DODGE Dart, 3-spd., 20-24 mpg, 2 new tires, \$550. Muller, 299-1756.

SELL OR TRADE for camper w/truck: '78 Chevy van, loaded, CB. Garcia, 831-6879 or 844-3948.

MOPED Batavus, 1200 miles, \$365; Schwinn Continental 10-spd. bike, \$95 or best offer. Shuster, 268-8491.

'74 HONDA 550 motorcycle, 4-cyl., extras, recent tune-up, new plugs & filters, \$975. Crooks, 296-6182.

'67 VW BUG, 30 mpg, new clutch, tires & upholstery, \$1700 or best offer. Heinze, 281-1226.

'71 EXPLORER 219, 18.5 ft. motor home, \$3100. Zimmerman, 296-1058.

'79 DODGE 4-wd, club cab, PS, PB, 8000-lb. elec. winch. Vigil, (1) 832-6345.

'76 DODGE custom van, carpeted interior, sink, ice box, AM/FM/8TK, CB, make offer. Scott, 884-8880, 867-3213.

'79 YAMAHA 650cc Special, 50-60 mpg, black & chrome. Hund, 281-5924.

'79 YAMAHA XS-400, 6300 miles, 50 mpg, tools, shop manual, hiway bar, Fiamme horns, black & gold, \$1200. Gubbels, 884-3711.

'78 BLAZER 2-wd, trailer pkg., AC, radials, stereo-radio-cassette, below book, \$4290. Strance, 298-0258.

'70 INTERNATIONAL Travelall, 345-V8, AT, PS, PB, overhauled engine. Rogers, 256-0066.

'74 MERCURY Montego, AC, PS, AT, PB, 77,000 miles, orig. owner, \$1100. Tischhauser, 293-9768.

'60s Volkswagen chassis stripped out for buggy, bad engine, spare engine & trans-axle, some other spare parts, \$250. Fowler, 247-9305.

'76 MAVERICK, 4-dr., 6-cyl., R&H, AT, orig. owner, 25,000 miles, \$2000. Elder, 255-4747.

'67 BMW R60 classic, 6 1/2 gal. tank, touring seat, fairing, shop manuals, \$950. Talbert, 298-9036.

'74 BUICK Regal, 38,000 miles, Blue Book \$2375, asking \$1925. Montry, 821-3758 after 5.

TWO SCHWINN bikes, boys': 24" wheels, Varsity, 10-spd., \$50; Junior sting-ray, 20" wheels, \$25. Von Riesenman, 884-7954.

'68 PONTIAC Firebird convertible, new engine, carburetor, top shocks, tilt steering, \$4000. Falacy, 293-2517.

'74 DATSUN 260Z, white, AT, AM/FM radio, 8-7K stereo, special wheels, radials, \$3800. Prawitz, 268-9614.

'75 NOVA coupe, 350, 2 bbl, std., AM-FM-tape, AC, new radials, NADA \$1975, asking \$1800. Clark, 869-2569.

REAL ESTATE

5 ACRES wooded land, fenced w/ 14x65 MH, Edgewood area. Vigil, (1) 832-6345.

FLORIDA west coast residential lot, sell or trade, valued at \$8395 by developer, recent photos, anything considered. Schubeck, 255-0289.

TIMESHARE CONDO Ruidoso third week Jan. (prime ski time) or exchange time space through Resort Condominiums International. Rainhart, 821-3690.

EDGEWOOD, 32 acres, 10% interest, 4K per acre if you buy it all. Molina, 281-3700 or 247-9671.

3 ACRES, South Valley, irrigated, utilities; 4-bdr. adobe, 3 1/2 bath, on 1 to 5 acres, owner financing, 15 mins. to KAFB. Montoya, 877-1779.

NEAT Ridgecrest 2-bdr., 1420 sq. ft., separate 2-car garage, shop, \$20,000 (or equity REC?) to assumable loan, \$638/mo, no qualifying. Feltz, 293-8732.

14 x 72 MOBILE HOME, Craftmade, 4 1/2 yrs. old, 2-bdr., 2 baths, carpet, 8x20 patio cover, in Univ. Village

MHP, Wade, 242-9534.

NE HTS., 3-bdr. & study, LR, DR, lg. FM, oversize yard, 1960 sq. ft., \$75,000, 8 1/4 mortgage. Slater, 294-5858.

3-BDR., lg. study (or 4th bdr.), 16x33 FR, Roberson, near Comanche-Eubank, 2200 sq. ft., garden fruit trees, 1/2 acre, end of court, \$75,000. Talbert, 298-9036.

MOUNTAIN PROPERTY, 7.5 acres wooded land near Chama, elec. available, view. Linnerooth, 884-8615.

3 ACRES near Tome, cultivated, irrigated, off Rt. 47, 6.6 miles S. of Valencia Y, below market value. Burton, 869-2541.

WANTED

FLOOR BUFFER in good condition. Boes, 268-4481.

BAND SAW, 12" throat, 80" blade length preferred. Roberts, 255-9527.

HOUSESITTER for occasional short trips. Pope, 255-6702.

WEIGHTS & weight bench, reasonable. Hansen, 869-2716.

TV ANTENNA TOWER, 30-50'. McCampbell, 294-8238.

PICKUP, 1/2 ton, Ford or Chev., with AC, PS, about '77 model, in very good condition. Coalson, 298-0061.

LAWN furniture, redwood table, seats & lawn chairs. Maish, 345-6841.

DUPLEX BED in good condition. Harrigan, 266-4143.

EXERCYCLE. Worth, 299-1032.

8' CABOVER CAMPER for LWB std. pickup, good condition. Brandvold, 296-4394.

GAS LAWNMOWER, looking for junk lawnmower to rebuild or repair for home use. Hoffman, 292-1589.

PRINCE PRO tennis racquet, 4-5/8L. Smith, 299-6873.

GARAGE DOORS, roller type, need pair of single doors or one dbl. door; also need one bar stool. Davie, 296-3950.

APPROX. 12'x12' canopy for over a picnic table. Eisenberger, 293-5162.

RENTAL HOUSE OR APT. for visiting Prof., wife & two kids, Aug. 20 to Oct. 31; prefer Sandia bus route. Hughes, 265-1698.

ROOMMATE, non-smoker needed to help occupy 2-bdr. apt. in Mission Hills, \$130/mo., \$150 deposit. Harrell, 292-6850.

TEMPORARY HOME for small pet rabbit (cage included) and B/W kitten, starting 8/15. Sharp, 842-0218.

SHARE-A-RIDE

RIDER OR RIDE WANTED to Moab, Utah, or Grand Junction, Colo., on or shortly before Aug. 15. Weiss, 821-8256.

RIDER NEEDED, will pick up, Paradise Hills, Taylor Ranch, Volcano Cliffs, La Luz, Villa de Paz, Coronado Savings. Chaves, 897-3898.

LOST AND FOUND

FOUND—Numerous pairs of glasses, Rx; turquoise stickpin, car keys, umbrella, brown sweater, 2 men's wristwatches, earrings.

LOST—Sandia blue briefcase, keys, hearing aid, jean jacket.

Please turn in keys to Lost and Found, Org. 3543, Bldg. 814, 844-5677.

Belly Dancers, Freddie Chavez Perform Aug. 15

TONIGHT at Happy Hour, barbecued spare ribs top the buffet menu while Dennis Robertson and guitar entertain in the main lounge and the Scotsmen hold the main ballroom. Next Friday, Aug. 14, Marci and the Talkabouts play for dancing, spaghetti and meatballs (all you can eat for \$4.25) are featured on the buffet spread. Call the Club office, 265-6791, by mid-week for buffet reservations.

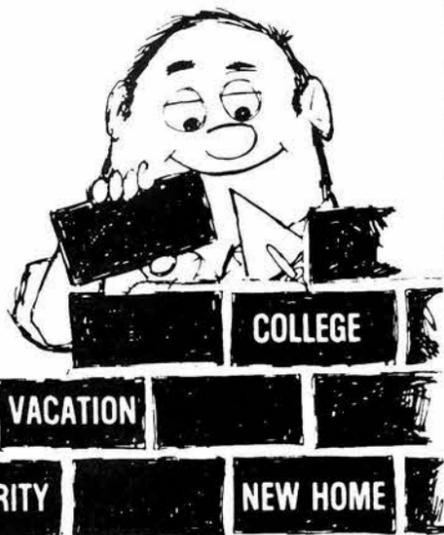
THE BIG ONE this month is set Saturday, Aug. 15. A dance troupe performing Mid-Eastern choreographed dance routines will do two shows—one at 8:30 and another at 10. In between and until 1 a.m., the Freddy Chavez Foundation will play for dancing. Dinner, starting at 6:30, features prime rib with the works. Tickets cost \$8.50 for members and should be picked up *tomorrow*.

CORONADO GRANDSQUARES dance at the Club on Aug. 10 and Aug. 24. A workshop starts at 7 and square dancing starts at 7:30 on both dates. The group will return to its regular schedule of dancing every Monday starting Sept. 7. On that night, also, a beginning square dance class starts. Tuition for couples is \$30 for the 15-week course. Enroll at the Club office.

WESTERN DANCE lessons are offered by the Club with Mike Haley instructing. Classes start Sept. 22 with beginners meeting at 7:30 and intermediates at 8:30. Cost is \$30/couple.

Start Building for the Future

Buy U.S. Savings Bonds



MAKING A SPLASH over Ski Fair IV, sponsored by the Coronado Ski Club, are Therese Barela (1723) and Tim Mooney (EG&G). The Fair is set for Tuesday, August 18, in the Club's pool/patio area after work, and features an abundance of equipment displays, ski area reps, movies, the scoop on Ski Club trips and door prizes. And 10-cent beer . . . You don't have to be a CSC member to attend, and there is no admission charge.

THE REDONDO round dance club meets every Thursday night this month with intermediate waltz lessons from 7 to 8:30 followed by club dancing from 8:30 to 10. Any round dancer, experienced at the basic level, is invited to join the group. Call Charlie Clendenin, 299-2071, for more info.

SKI FAIR IV, an annual pool party, picnic and vendor extravaganza of the Coronado Ski Club, is scheduled Tuesday, Aug. 18, starting at 4:30 p.m. in the pool/patio area. Bring your own picnic goodies or patronize the snack bar. There's a special price on refreshments—10 cents. Ski resort reps and equipment reps from a three-state area will have displays and information. It's also time to renew your ski club membership and learn about trips planned for the upcoming season. Ski movies will be shown in the ballroom later and the club's famous door prizes will be awarded. Anyone interested in skiing and C-Club ski club membership is cordially invited.

TRAVEL—"The recent Cumbres-Toltec trip was very successful," reports Frank Biggs (4231), travel director. "People liked the idea of riding the train all the way across rather than going half-way and back. There's still space on the colorful Sept. 26 trip. It includes transportation from the Club, treats on the bus, and the train ride—\$42 for adults, \$30 for kids 11 and under. A pre-trip meeting is set for 7 p.m. Sept. 23.

"The first bus to Las Vegas filled up so fast that we have now organized a second one," Frank continues. "The tour includes transportation, treats on the bus, lodging, a tour of Hoover Dam and more—Sept. 13-16, \$110. There will be a pre-trip meeting at 7 p.m. Sept. 1 at the Club."

Other travel packages available include Mazatlan (Nov. 2-9 and 9-16, \$369);

Caribbean cruise (Dec. 13-20, \$1031 or \$996 if 30 sign up), and Canyon de Chelly (Oct. 24-25, \$78).

Frank will be in the Club lobby tonight between 5 and 7 to discuss these trips with you. See him there.

Congratulations

Danielle Seager (3142) and Warren Brown (1253) married in Albuquerque, July 3.

Events Calendar

- Aug. 7-9—Adobe Theater, "Arsenic and Old Lace"; Aug. 20-23, 27-30, Sept. 3-6—"The Night of Jan. 16th," 8:30 p.m., 898-3323.
- Aug. 8, 12, 21—Santa Fe Opera, "Daphne"; Aug. 13, 22—"Il Barbiere Di Siviglia"; Aug. 11, 18—"La Boheme," Opera Theater, 9 p.m.
- Aug. 9—Arts in the Parks, Bataan Park, "Carnival Day," performances by the Hollywood Stunt Men Union, 2-5 p.m., no charge.
- Aug. 9—Annual San Lorenzo Feast Day, Sunset dance, Picuris Pueblo.
- Aug. 14-16—Socorro: Fiesta de San Miguel, all day, San Miguel Mission.
- Aug. 15—San Antonio's Day, harvest and social dances, Mesita village, Laguna Pueblo.
- Aug. 15—Annual Our Lady of Assumption Feast Day, corn dance, Zia Pueblo.
- Aug. 15-16—Cat Show, Flower Bldg., State Fairgrounds.
- Aug. 21-23*, 28-30*, Sept. 4-6*—Albuquerque Civic Light Opera Assn., "Finian's Rainbow," 8:15 p.m., *matinees 2:15 p.m., Popejoy, 345-6577.
- Aug. 22—The Chamber Orchestra of Albuquerque, Keller Hall, UNM, 8:15 p.m.