



# LAB NEWS

VOL. 34, NO. 18 SANDIA NATIONAL LABORATORIES SEPTEMBER 3, 1982

A NAVY A-7 operating from KAFB drops a B83 test unit over Tonopah Test Range, one of many weapon systems tests conducted at TTR this summer. A

cluster of pilot chutes is pulling the main parachute from the rear of the unit. Photo was taken with a Nikon with 250mm lens by Diana Root (EG&G).

## At Tonopah Test Range

# A Long, Hot, Grueling Summer

"Grueling," Palmer Nelson (7171), test director at Tonopah Test Range, is saying. We're on the fourth floor of the tower-like Operations and Control building at Tonopah Test Range. The ops room commands a 360-degree view of the main target area of the range. Heat radiates up from the empty dry lake beds and the flats of the valley floor. Low purple mountains lie on the horizon surrounding the valley.

Palmer is talking about the heavy schedule of testing that TTR people have performed this summer. "Grueling," he repeats. "We've had high altitude drops, low level drops, parachute tests, JTA tests, rocket shots, and gun round firings. In one five-week period, we worked only three days on a normal schedule and put in three extra Saturdays."

"Normal" hours at TTR means that Sandians who live in Las Vegas leave the EG&G hangar at McCarran Field at 6:25 a.m. They board the Ross Aviation DC-9, fly 200 miles to the range, and land on the paved air strip west of the small cluster of main buildings at TTR. There, they share 20 or so vehicles and drive to the operations area. Some spread out to remote areas of the 525-square-mile range to man camera stations, TM stations, and radar installations. They start up their equipment (including power generators at most remote sites), check it out, load film or recorders and prepare for the first drop. Ten hours later, after maintenance, modi-

fication, documenting, and planning for upcoming tests, they wrap it up and head for the landing strip to board the DC-9 for the trip home to Las Vegas. Tonopah normally operates Tuesday through Friday, 10 hours a day.

"That's a normal day," Palmer says. "In the summer, with early sunrises, the best time for a drop—we call it 'prime time'—is about a half-hour after sunrise or a half-hour before sunset. This brings sunlight across the range almost horizontally about 6 a.m. and gives optimum optical conditions for our tracking telescopes and cameras. On film we get crisp definition and good separation between the test unit and either the sky or background landscape. But this means that we leave Las Vegas at 3:25 a.m. to have the range operating by 6 a.m. for the early drop—and we've done that a lot this summer. Or else we leave Las Vegas at 9 a.m. and stay late—very late—for an afternoon drop around 8 p.m. On those days, we get home around 10 p.m."

Palmer and Ben Sewell (7171) share the test director load at the range. Each is responsible for the range's response to the requirements of individual tests. Both work with the various agencies involved in any test—the Sandia design or development group; Air Force, Army, and Navy people; and DoD and DOE personnel. With operations supervisor Wayne Lathrop (7173), all activities are coordinated with

range management—Sam Moore, Department 7170 manager; Ron Bentley, supervisor of Instrumentation Division 7172; and Dave Denton, supervisor of Test Measurements Division 7171.

"There's another aspect to range activities," Sam Moore says. "We have people from three separate contractor companies who work with us on the range. ReeCo provides secretaries, craftsmen, and special support people—motor pool, heavy equipment, millwright services. Advanced Security Inc. provides physical security forces and special security for the classified material such as rocket units and gun rounds brought to the range. We have technical support from EG&G—technicians, draftsmen, and other specialists. And most of us wear several hats."

"Most of the contractor people," Sam continues, "live in Tonopah and share a bus to work. It's about an hour's drive each way to town. Their schedule, too, depends on when our first test is set for the morning. It takes all of us working together to get the job done."

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The F-111 is staging out of Edwards Air Force Base, Calif., about 400 miles south of TTR. It takes off at 5 a.m. carrying a development B83 test unit. Test requirements call for dropping the unit at supersonic speed and low altitude, a demanding task pushing pilot skill and

[Continued on Page Eight]

# Antojitos

Is This Call Collect, E.T.?—"If and when a broadcast from an extraterrestrial civilization is picked up on earth, a private ham radio operator will probably be on the receiving end." So says an article in the July '82 *Science Digest*. Chances are that the extraterrestrial communicator will find English a bit foreign to his/her/its tongue, or whatever communication apparatus applies. But if the E.T. does speak English, I can predict (on the basis of spending two years with my neighbor's ham talk arriving through my TV, my radio, and my toaster) just what the earthbound ham's contribution to the dialogue will be: ham operators spend their time talking about the equipment they use to talk about their equipment. Much as some poets write poetry about writing poetry. Both groups, in other words, tend toward the incestuous.

\* \* \*

More on Ancient Romans--Okay, there was a Petronius (not Patronius) Arbiter. His full name was apparently Gaius Petronius, and his title was Arbiter Elegantiae (judge of elegance). According to the Annals of Tacitus, he even committed suicide elegantly (by slitting his wrists, then sewing them up long enough to finish a conversation with his high-class friends) in A.D. 66 (so he didn't live in 210 B.C.). He wrote the *Satyricon*, "a vivid, sardonic, and extremely realistic picture of the luxuries, vices, and social manners of the imperial age of ancient Rome." But, pore over that revolting tome though I might, I could not locate the quotation in question--"We trained hard--but it seemed that every-time we were beginning to form up new teams we would be reorganized..." Even if he did write it, somewhere, we have to remember that his insight may have been skewed--working for Sandia varies in no small way from working for the Emperor Nero. oBH

\* \* \*

Ninguno nace maestro. (No one is born an expert.)

## Our Town

### Y-Groups Organizing

Sponsored by the YMCA, the Y-Indian Guides and Y-Indian Princess programs offer a variety of activities for fathers with elementary school age children. Concentrating on crafts activities and summer outdoor excursions, the groups meet in neighborhood schools every two weeks. They are seeking new members.

Martin Sherman (9441) has been active in the Y-Indian Princess program with his eight-year-old daughter for the past couple of years, and reports that his group "has

great fun and it's very worthwhile." Martin can answer questions about the program. Call 4-0059. The YMCA is a United Way agency.

In the meantime, neighborhood elementary schools have scheduled introductory meetings of the Y-groups at 6:30 p.m. on the following dates:

- Sept. 7—Apache, Chelwood, Mark Twain
- Sept. 8—Osuna, Marie Hughes, Banelier
- Sept. 9—Dennis Chavez, Monte Vista, Comanche, Rio Rancho
- Sept. 10—Eubank, MacArthur, Arroyo del Oso
- Sept. 13—Baker, Emerson, Alameda
- Sept. 14—Matheson Park, Kirtland, Corrales
- Sept. 15—Hubert Humphrey, Alvarado
- Sept. 16—Oñate, Montezuma, Chaparral
- Sept. 17—Eugene Field

### Death

Mary Gallegos, a library assistant in Division 3141, died Aug. 14 after a short illness. She was 58.

She had worked for the Labs since July 1957.

Survivors include a son.



## Julia Gabaldon Coordinates ECP



Julia Gabaldon (3163) since January has held the executive secretary position for Sandia's ECP (Employee Contribution Plan) committee. Working with Glen Kepler (1810), ECP committee chairman, and other members of the committee, Julia's responsibility is to implement the many plans and details of the upcoming campaign.

The annual ECP drive, which raises funds for the Albuquerque United Way and nine other national health and welfare agencies, is scheduled at Sandia Oct. 4-8.

"A number of things make this year's drive different from past campaigns," Julia says. "There is a new donor option plan which provides for designation of funds to specific agencies. This plan will be fully explained in organization meetings of employees. And the upcoming ECP Agency Fairs, scheduled Sept. 27, 29, and Oct. 1, will be much expanded over last year's successful efforts. More agencies will man booths at various Sandia locations and discuss their work aiding the community's welfare and human needs. We'll have several TV and radio personalities handling master of ceremony duties and interviewing Sandians. There's a speakers' bureau set up and tours of agencies for directorate representatives scheduled."

Julia is also assembling the literature to be used in the campaign. She proudly displays the poster with this year's slogan, "Your Choice to Give—Give to Your Choice," which emphasizes the donor option plan. The poster is the work of tech artist Tillie Pierce (3155).

An out-of-hours TV and radio personality, Julia has arranged for Carla Aragon and Gary Doll of *PM Magazine* to tape the Agency Fairs along with Mike Langner of KHFM, Larry Ahrens of KOB-AM, and Henry Tafoya of KOAT-TV to emcee.

Julia is hostess for KOAT's *Somos Bilingües* community service program every other Sunday at 10:30 a.m. and for KABQ radio's program of the same title and format every Saturday from 8 to 10 a.m. She is also co-host for the syndicated *De Colores* program for Channel 14 on Saturdays at 8:30 a.m. The program is shown in several other Southwestern cities.

She joined Sandia's Community Relations Division 3163 in August 1981 after earning her master's degree in bilingual education from UNM and teaching nine years in the Albuquerque public schools. She is married and has a daughter, 10, and a son, three.



Three business executives—one American, one Japanese, and one French—were caught spying and sentenced to death. Each was granted a last request. The French executive wanted to hear his nation's anthem one last time. The Japanese exec wanted to give one last talk on management techniques. And the American? To be shot before the Japanese exec's speech.

—The Ragan Report

## LAB NEWS

Published Fortnightly on Fridays

### SANDIA NATIONAL LABORATORIES

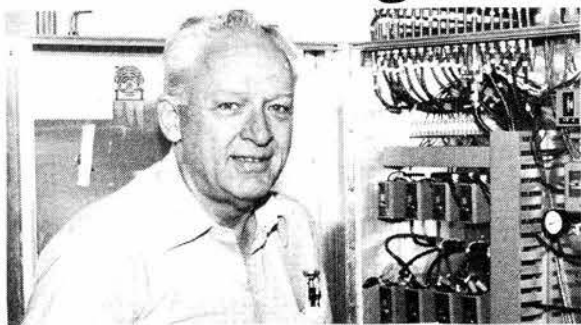
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## Retiring



Bob Carrell - 8254

## Take Note

Several Sandians took part in the recent Billy Ball 8K Fun Run at the Oakland Coliseum. Participating were Ann Harrigan (8521), Nick Wittmayer (8413), Annette Freitas (8343), Bob Pilkey (8413), Bill Rorke (8452) and Linda Hadley (8413) who rode a bike in the five-mile event. There were an estimated 3000 people in the run.

\* \* \*

DOE has released the Final Environmental Impact Statement for Sandia National Laboratories Livermore and Lawrence Livermore National Laboratory. The three-and-a-half pound, 710-page document declares that the environmental impacts from the operations of both Livermore facilities are considered to be well within federal guidelines. The report was prepared in compliance with federal regulations for implementing the National Environmental Policy Act of 1969. Begun in 1976, a draft EIS was published in 1978; a public hearing in 1979 identified issues critical to future decision making at the Livermore sites. The draft copy was expanded and updated for release in 1982. Copies can be seen at the library in Bldg. 921 at SNLL or at the Public Information Division of SNLA.



AGAIN THIS YEAR all of the Wells Fargo Guard Services participants from Sandia Livermore captured trophies in the 11th annual DOE/SAN Pistol Tournament held at the Chabot Gun Club in Oakland. Winners in the top Masters class seated in the front row are Betty Moore (4th place) and Bob Sater (1st place). From left in the second row are Expert class winners Dave Claire (4th), Don Menzies (5th), and Janice Hebebrand (2nd). Standing in the back row from left are Ken Bennett, supervisor of Visitor Control & Guard Force Section 8161-1, who received a special award for being rangemaster the past four years, Terry Barnard (2nd in Marksman class), Todd Keck (2nd - Sharpshooter), Les Sundberg (5th - Sharpshooter), Sue Crooks (5th - Open), Richard Kirchgatter (6th - Open), and Wes Thomson (4th - Sharpshooter). Not shown is Mildred Creager who took 3rd in Sharpshooter class. They competed with shooters from LLNL, LBL, TRW, and DOE/SAN.



# SANDIA LIVERMORE NEWS

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## Foreign Scientist

# Herzlich Willkommen, Herr Professor!

Question. How does one get from Darmstadt to Heidelberg? Well, via Livermore, of course. (*Was ist dieses Livermore? Die Landkarte, bitte!*)

At least that's the route that physical chemist Juergen Warnatz, formerly from the Technical University of Darmstadt, is taking. He's spending six months at Sandia's Combustion Research Facility before returning to Germany and a full professorship at the University of Heidelberg.

"I began my combustion studies in Germany with reaction kinetics," says Juergen. "This entailed taking a detailed look at flame process in flow systems, meaning we tried to isolate discrete parts of flame systems. We then put together those single elements to reconstruct the flame so as to make a whole picture of its general structure."

In Darmstadt, Juergen worked with a team investigating air pollution from engines. Their research was funded by the German government. At Livermore, he works in Bill McLean's Combustion Chemistry Division 8513, where he participates in experiments and modeling of low-pressure acetylene/oxygen flames.

"We measure simple flame systems such as acetylene flat flames and try to model



VISITING SCIENTIST from Germany Juergen Warnatz is on a six-month assignment at Sandia. He's working in Bill McLean's Combustion Chemistry Division 8513 before returning to his homeland and a full professorship at Heidelberg University.

them," explains Juergen. "We try to understand where the soot is coming from, especially on diesel engines, which are always sooting black clouds.

"At Heidelberg I'll continue studying time-dependent processes like ignition and quenching of flames. My main activity will be experiments—especially in simulating the ignition and quenching processes."

Juergen is no stranger to the United States—this is his fourth trip here. But for his wife Christel and their two children, Hans, age 8, and Melanie, age 5, life in Livermore is a new experience.

"We arrived in late spring toward the end of the school year," says Juergen. "So Hans had much fun in school taking such courses as baking classes. In Germany, children more often must sit still and learn.

"My children now are understanding some English. We belong to the tennis club in Livermore and the children learned swimming there. In Germany, the water in outdoor pools is too cold, and the indoor pools are too crowded. We also enjoy taking short trips to places like Yosemite and San Francisco as well as traveling to the Grand Canyon and other places in Arizona."

## Sympathy

To Sandra Bowers (8414) on the death of her mother in Livermore, July 31.

To Larry Brown (8445) on the death of his mother in Phoenix, Ore., July 28.

## Sunny Italy Goes For Photovoltaics

For centuries the sun-washed cities and countryside of Italy were an irresistible lure for many people from northern Europe's generally rotten climate. Lord Byron and a veritable anthology of English Romantics descended *en masse* on the hapless peninsula to scribble their verses while tending to varied ailments.

Although Eldon Boes, head of Photovoltaic Concentrator Technology Division 9724, is not exactly in Byron's league—albeit capable of writing shinningly about photovoltaics—he, like many before him, recently journeyed to the land of pasta specifically because of its renowned sunny clime.

"I attended the Fourth European Community Photovoltaic Conference in Stresa, Italy," says Eldon. "That's on Lago Maggiore, a breathtakingly beautiful place north of Milan.

"This was my first trip to Europe and it was an eye-opener—both in terms of photovoltaics and of experiencing cultures and places centuries older than anything we have here."

The European Economic Community (EEC) subsidizes a large solar program through a consortium. European companies doing solar research receive one-third of their funding from EEC, one-third from individual governments, and one-third from private investment.

"An advantage of the European method is that they avoid supporting internal competition—say two or three companies in Italy working on the same project," says Eldon. "One company per country will work on a specific technology so that international competition still exists, but internally wasteful duplication is avoided.

"The Europeans are working almost exclusively on flat-plate photovoltaics which use both direct and diffuse sunlight. This is because European weather is usually cloudy, and some of the leading photovoltaic manufacturers tend to be in cloudy places like Germany and northern Italy. In contrast, our work at Sandia has pioneered the use of concentrator collectors which need a direct beam—generally no problem in New Mexico.

"Even though many parts of Mediterranean Europe—the southern parts of Italy, Spain, and Greece—receive as much sun as we do here, the Europeans seem to be skeptical about the practicality of concentrators. True, they are somewhat more complicated because they need a sun-tracking mechanism (flat-plate collectors are on fixed racks). Incidentally, this is a skepticism we encountered here among federal energy agencies for a long time."

Eldon visited AEG Telefunken in Germany and Ansaldo in Italy: "They're big companies like GE," he explains, "that do general manufacturing in power equipment and electronics. Both firms are also in the reactor business. They've dedicated a lot of their resources to photovoltaics. Ansaldo and Telefunken collectors are very durable, sandwiching their PV cells in



DAN HARDIN (9350), BILL LUTH (1540), and PAUL PLUNKETT (2122)

## Supervisory Appointments

DAN HARDIN to manager of Arming & Fuzing Department 9350, effective Aug. 16.

Joining Sandia in 1953, Dan worked with a component development organization until 1967 when he was promoted to division supervisor for firing sub-systems development. Since 1976, he has been with the systems organization as head of Advanced Arming & Fuzing Division 9332.

He received his BS in EE from the University of Oklahoma, and has attended graduate school at UNM. A member of IEEE, Dan is also a registered professional engineer in New Mexico.

His primary hobby is amateur radio. He and his wife Vicky have three children—

PVB or EVA between two layers of glass. U.S. manufacturers generally use glass in front and Tedlar in the back.

"To sum up, Europeans think that new energy technologies should have government support during three phases—research, technology development, and some demonstration. In the U.S., we currently think only in terms of federal funding of research and a little technological development. This is one of the biggest energy policy issues between the administration and Congress."

Eldon says that at first he didn't quite know what to make of Italy: "On the basis of press reports, I expected to find the country in chaos. Perhaps it was, but all of us found it beautiful and the people charming.

"I speak only English, but I enjoyed trying to get along in someone else's language. The food was excellent—Italy is replete with one little restaurant, or *trattoria*, after another, each one with a trained chef. I'd planned to drink a lot of white wine, but the beer was so good that's mostly what I had."

the youngest is now in college—and live in Sandia Heights.

\* \* \*

BILL LUTH to manager of Geosciences Department 1540, effective August 16.

Bill joined the Labs on July 1, 1979, as supervisor of a newly created Geophysics Research Division 1541. For six months during 1975, he had been at Sandia on a faculty sabbatical from Stanford University where, for 11 years, he was an associate professor and professor of geology. Bill was also at M.I.T. for three years as an associate professor.

He received his BS and MS in geology from the University of Iowa and his PhD in geochemistry from Penn State. Bill is a Fellow of the Geological Society of America, a Fellow of the Mineralogical Society, and a member of the Geochemical Society and the American Geophysical Union. He enjoys camping, shooting and hand-loading, and photography.

Bill and his wife Betty have three children and live in the SE heights.

\* \* \*

PAUL PLUNKETT to supervisor of Hybrid Microelectronics and Packaging Technology Division 2122, effective Aug. 16.

Paul came to Sandia in 1978 as a staff member in the same division that he now supervises. Before joining the Labs, he was with Rockwell International for six years, working with their hybrids and packaging group.

Paul earned his BS in ME from Oklahoma State University and his MS in materials science from the University of Texas.

He enjoys sailing, hunting, and fishing. He and his wife Patricia have two children and live in NE Albuquerque.

## Union Labels Reaganomics

In a recent colloquium entitled "Economic Scenario for the Future," Gus Tyler—syndicated columnist and assistant president of the International Ladies' Garment Workers' Union—took some swipes at Reaganomics and offered his own alternative growth policy.

Tyler began by reviewing U.S. economic policy since 1970. He said the economy has been fundamentally "nongrowth"—a metaphor for slow, and even negative, growth: "The policy of restricting growth as a way of containing inflation has been maintained through four presidents—one a Democrat."

Tyler explained that raising the interest rate is the principal method of restricting economic growth. Higher interest rates make it difficult for both producer and consumer to borrow, thus slowing down the economy.

"Does this work?" asks Tyler. "In part, yes—it slows down the economy but unemployment is the immediate result. In 1970, joblessness was at three percent—today it's 10 percent. We haven't contained inflation, either—our inflation rate is double what it was in 1970."

Prices have not been restrained because high interest rates are inflationary. Small businesses find it hard to survive and are replaced by big business. This leads toward concentration of ownership resulting in monopoly. Supply goes down, driving prices up.

"Reagan promised to increase supply by increasing employment—this is supply-side economics," says Tyler. "He's trying to implement this through the Tax Bill of 1981. Its objective is to put more money in the hands of the investing class."

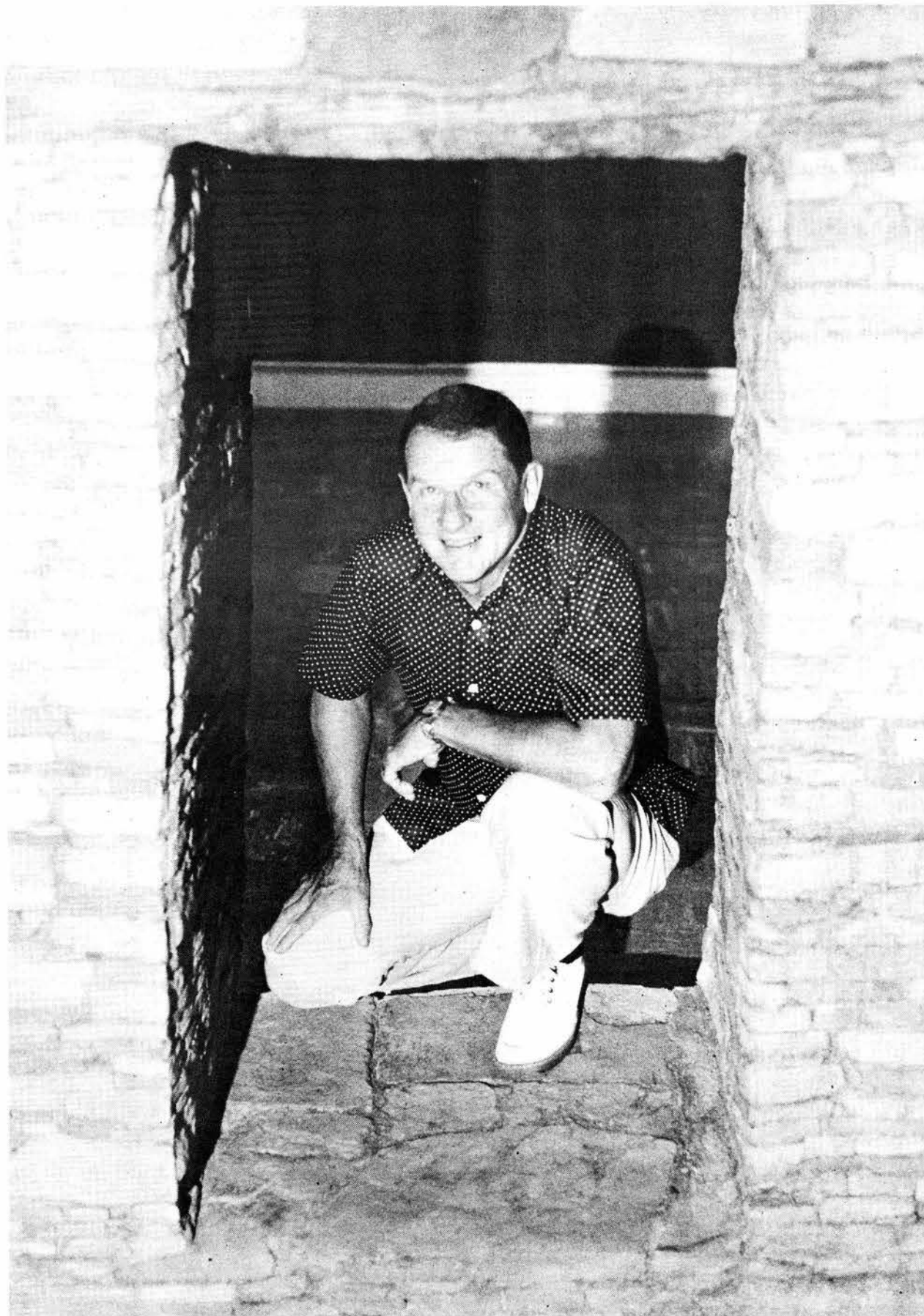
"However, investors haven't put up new plants because the market isn't there. So they won't invest until the market expands, which is a Catch-22 situation."

"There are better places to put your money. For instance, U.S. Steel decided not to build a new steel plant and bought Marathon Oil instead. Billions in useful capital employed in a useless way—the merger didn't produce more steel or oil, or new jobs (except for some lawyers)."

Tyler explained that the administration's lower tax rate would be applied to an expanded economy, so we could afford increased military spending. This would have worked if the economy had expanded. But it hasn't, so we end up with the greatest deficit in U.S. history.

"If the economy is compared to a cow, the government lives on its milk," says Tyler. "The cow is now weak, anemic, and undernourished. We can kick and squeeze the cow, but it still won't give more milk. Meanwhile, the population expands. This is the classic formula for social explosion. When things get tight, people get uptight. Street crime leading to rioting, then terror—this is the history of civilization when ends don't meet."

An advocate of growth, Tyler advocates a national "multi-trillion-dollar enter-



**CHACO CANYON CULMINATION**—A host of Sandians and retirees worked on the simulation of Chaco Canyon walls and entryway for the Maxwell Museum on Anthropology's traveling exhibit. That exhibit, now completed, is on display in the Bldg. 802 lobby, where Gene Frye (7472) poses in an entryway. Others who donated time and expertise to the project include: Bob Weaver (7472), Lynn Peters (3155), Fred Sena (7472), Cathy Sifford (7473), Ken Wishmann (7472), John (ret.) and Paige Shunny, Ralph Wilson (ret.), Ric (2424) and Barbara (9001) Davis, George (7222) and Alice Merren, Glen (1810) and Carol Kepler, Karen Shane (3163), Hank Willis (3100), Andy Landis (3163), Rebecca Russo (1522), John Finger (9741), Bob Bradley (9364), Kathe Korak (former Sandian), Cherry Burns (former Sandian), Wilson Brooks (9332), David (2511) and Cecilia Williams, Marvin Moss (1824), Leslie Berky (2458), Bob Anderson (1815), Corky Searls (9773), Johnny Ulibarri (0313), Barbara Bradford (1524), Lew Suber (9254), Steve Shope (1255), Martin Peterson (3612), Bert Lindsay (2101), Jim Klocinski (2543), Pam Hund (3651), Nancy Pruett (3144), Virginia Kupferman (wife of Stuart, 4734), Mary-Anne Mitchell (2141), and Dan Alpert (9415).

prise" to achieve energy independence by the 21st century. An all-out development program to fully utilize all alternate energy sources would provide full employment and get the economy on a growth track again.

"My scenario for energy independence would move more people into sparsely settled areas, creating new population centers as we build wind and solar installations in prairies and deserts. It would be a modern version of the 19th century population redistribution achieved by homesteading."

Concluded Tyler: "We have to break out of the present box in which we've put

ourselves. My alternative scenario offers a ray of hope for the future."

### Sympathy

To Juliette Wolff (3417) on the death of her brother in Albuquerque, Aug. 11.

To Michael Patton (3485) on the death of his mother in Albuquerque, Aug. 17.

To Charlie Bild (2400) on the death of his mother in Albuquerque, Aug. 14.

To Ed Sisneros (3153) on the death of his son at Coronado Monument, Aug. 29.

To Delmar Klinetobe (2457) on the death of his father in Albuquerque, Aug. 26.

## Take Note

Retiree Fred Sweet earlier this summer participated in the graduation exercises at the Colorado School of Mines. As a member of the class of '32, Fred was awarded a silver plaque honoring their 50th anniversary. Through the years, Fred has recruited students for his alma mater, and it was one of the schools where he recruited graduates for Sandia. Fred retired in 1972 after working 17 years in materials and field test organizations. Recovered now from heart surgery six years ago, Fred is active in volunteer work—crime prevention, community education, and the Mended Hearts counseling group.

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Don't forget KAFB's Labor Day Weekend Extravaganza—rodeos, carnival, fiddlers, big band sounds, discos, and the grand finale with Tammy Wynette. More info from 4-7815.

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Your city bus ticket gets you free admission to the State Fair again this year. Avoid the parking hassle by boarding at the old Terrace drive-in location on Central between Zuni and Moon. Or board at Mountain Road and 18th near Old Town. On weekends the buses will also depart from the south side of Central across from Johnson Gym at UNM. Tickets cost 50 cents for adults (25 cents for students and seniors with IDs); no passes or tokens. Buses run at 8:30 a.m. and every 15 minutes thereafter until after the rodeo.

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"Parlez-vous français? Voulez-vous apprendre?" Then join the French conversation class that meets one hour a week for 10 weeks starting the first week in October. This intermediate-to-advanced level class emphasizes speaking French correctly, with ease, and for fun. Stephanie Kunz (1814) teaches it and has the details (4-5604 or 293-0225). If you'd like to brush up your French or learn from scratch, a beginning class will be offered if enough are interested.

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The Counseling Department of Presbyterian Hospital Center is offering a series of bereavement group sessions for anyone who has experienced the death of someone close. Each session will include a short educational presentation followed by the opportunity to participate in small support groups. The group will meet Sept. 8, 22, 29, Oct. 13, and 20, from 5 to 6:15 p.m. in the classroom of the Zia Building, Presbyterian Hospital (corner of Central and Spruce). Cost is \$5 per session; individuals may attend all sessions or any number of them. To register, call 841-1634.

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The grand opening of the newly restored Kimo Theater is being held Sept. 8-12. The program includes: Sept. 8—Spirit of the Kimo—Native American performances reminiscent of the opening ceremony for the Kimo Theater in 1927, 7:30 p.m. (couples \$25, singles \$15); Sept. 9—Watermelon Mountain Jug Band, 7:30

p.m. (adults \$5, children \$3); Sept. 10—New Mexico Jazz Workshop, 7:30 p.m. (adults \$5, children \$3); Sept. 11—La Compañía de Teatro de Albuquerque, 7:30 p.m. (adults \$5, children \$3); Sept. 12—Dance Review with Elizabeth Waters, Oma Sandoval, Albuquerque Ballet Company, Karen Steele, and Miguel Caro Dancers, 7:30 p.m. (adults \$5, children \$3). The Kimo is located in downtown Albuquerque at Fifth and Central.

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The Albuquerque Parks and Recreation Department and Albuquerque United Artists will host the 1982 multi-cultural Very Special Arts Festival on Oct. 18-23 at Longfellow Community School. Workshops in all arts disciplines will be conducted. Performers, craftspersons, and visual artists are needed to conduct these workshops. Artists interested in participating should contact Myrene Eklund at 266-3703 or Beth Rudolph at 766-7430, for application and more information.

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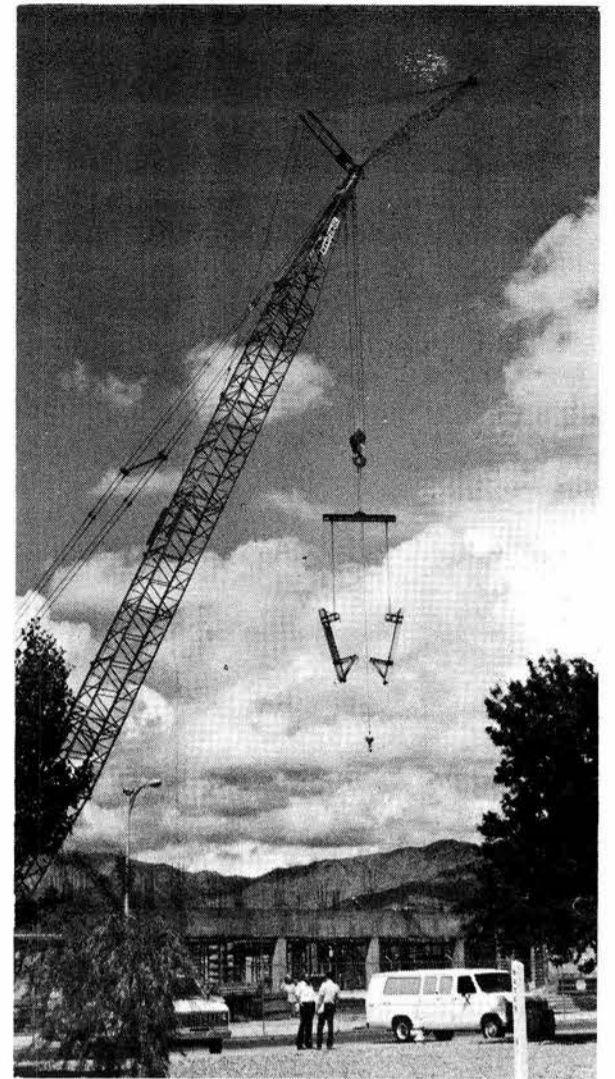
If you were part of the 483rd Bombardment Group (H), 15th Air Force (based in Italy during WWII), or if you know of someone who was, contact Don Ritter (2452) for info on a late October reunion in Ft. Worth. Don is at 294-3339.

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If joining an orchestra is on your list of things to do, note that the Albuquerque Philharmonia is looking for experienced adult (post-high school) musicians, especially string players. Rehearsals are at Highland High School on Monday evenings. More info from Dawn Kouba on 883-7624.



**TORRID T**—Larry Azevedo (1152) bought this 1926 Model T Speedster during his high school days in California, rebuilt everything behind the hood in sheet metal shop, and has driven it ever since. "It was the street rod of its day," says Larry, "and very similar to the racers." He's added a foot throttle and a two-speed rear axle, so it now has four speeds forward—"Moves right out, even up hills." Larry took part recently in a 200-mile endurance run out of San Jose where—"Well, it survived."



**BIG BOOM THEORY** of building erection is exemplified by this neck-craner crane now working on the new Energy Technology Laboratory. The four-story structure north of Bldg. 892 is now due to be occupied in the summer of '84.

Offered at the Sept. 15 GSA vehicle sale will be a Ford Fairmont, school buses, vans, pickups, stake trucks, flatbed trucks, fifth-wheel tractors, and forklifts. Inspect them at the Interagency Motor Pool (1800 12th NW) on Sept. 13 or 14 between 8:30 and 3:30. The sale begins at 10 a.m. at the KAFB-West Base Theatre (use Truman entrance, turn right at traffic light, go two blocks west). Vehicles are not guaranteed.

\* \* \*

Parentcraft has announced another series of "one-shot" workshops for parents of infants, toddlers, and preschoolers. All the workshops are held Tuesday mornings or Monday evenings and cost \$5 per family. A list of the 25 workshops and registration forms is available in the LAB NEWS office (MO125).

\* \* \*

The Albuquerque Museum Foundation's Fifth Annual Doll and Miniature Fair and Sale is Oct. 16-17 at the State Fairgrounds. The Foundation is interested in finding special dolls or doll collections to show. If you're interested in selling or exhibiting, get an entry blank from the Foundation, Box 7006, Albq. 87194. Deadline is Sept. 17.

## Speaker

R. L. Iman (7223), "Sensitivity Analysis to Reduce the Complexing of Computer Models in the Face of Limited Data"; "A Modern Approach to Statistics" (both invited papers); "A Comparison of Asymptotically Distribution Free Procedures for the Analysis of Complete Blocks"; and "Analysis of Covariance Using the Rank Transformation," 142nd annual meeting of The American Statistical Association, Cincinnati, Aug. 16-19.

## Parsons Builds Model Airplanes

Retiree Dan Parsons' almost-lifelong hobby of building and flying radio-controlled airplanes has led to a second career in the mail order business. Dan and his wife, Betty, market a very lightweight fiberglass cloth, 0.001-inch thick, that is ideal for covering model airplanes. The name of their company, now showing a promising profit after three years of struggling, is R/C Consultants.

The word about Dan's product is spread in the field by a dozen articles Dan has written for various magazines, such as *R/C Modeler*, which report activities of modelers.

"And there are lots of activities," Dan says. "Events all over the country. I attend a half-dozen regional model aircraft competition events in the Western states annually. We have competitions in flying and in model appearance—particularly scale models which accurately duplicate details of the 'real' aircraft in everything but size."

Dan is putting the finishing touches on a combat interceptor—the twin-engined DeHavilland Hornet that Britain fielded just after WWII. It had the highest performance of any propeller-piston fighter aircraft. Dan wrote to the factory for plans and managed to cajole them into releasing a few drawings which he converted into construction design plans for his 6½-foot wingspan model. He will enter the plane in competition in Los Angeles late this month.

The model will have all control surfaces (rudder, elevator, ailerons, flaps), retractable landing gear, and engine throttles connected to tiny servo-mechanisms which respond to radio signals from a transmitter which Dan holds while "piloting" the craft.

A twin engine model is an achievement for any model builder. The small engines (.60 cubic inch displacement) are occasionally mule-stubborn to start, difficult to synchronize. Good flying characteristics are achieved only after a long effort of adjusting control tabs, weight shifting for proper center of gravity position, and engine thrust angles.

Dan built one other twin-engined model, a scale Messerschmidt 210, which he successfully flew in competition for a number of years. "It was a great airplane," Dan says, "but one day the canopy flew off, carrying the radio antenna with it. The resulting crash was horrendous."

A crash is a painful experience for a modeler. Dan invests about 700 hours of design and construction time into a model plus several hundred dollars in electronics and engines in each plane he builds.

"I enjoy both aspects of modeling," Dan says. "The designing and building is a challenge, and most satisfying when completed, and the flying is fun. I always have a plane on the drawing board, one in early construction, another in the final phase of painting and trimming, and a



MODEL of DeHavilland Hornet, a British WW-II combat interceptor, nears completion in Dan Parson's garage workshop. Fuselage was carved from a solid log of balsa wood, then hollowed out. Two .60 cubic inch engines will power the aircraft. Its features include radio-controlled ailerons, elevator, rudder, flaps, and retractable landing gear. Dan estimates some 700 hours of design and construction time are invested in the model. Photo at right shows Dan's Martin Baker 5, a scale model of another WW-II combat interceptor, coming in for a landing at a Los Angeles model aircraft association competition. Dan has a shelf full of trophies collected over the years from meets throughout the West.

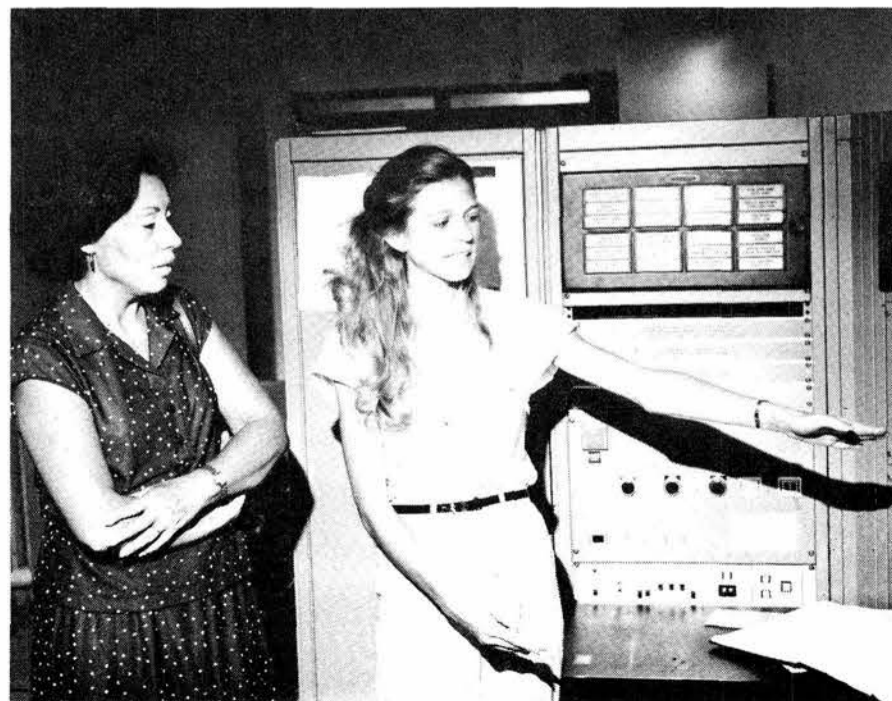


selection of several that I can choose from to fly."

Dan retired from Sandia in 1977 after 25 years in optical instrumentation development. He was project engineer for the development of the ME-16, the first of Sandia's large tracking telescopes used to photograph drop tests at Salton Sea and Tonopah Test Range. He used R/C models in a training program for the tracking telescope operators (much less expensive than renting "real" airplanes); later he suggested using model planes to carry air sampling instrumentation in explosive testing and, subsequently, to drop small projectiles in a seismic sensor development program. He designed "The

Beast," a five-engined R/C model built in Sandia's Pattern Shop that could carry up to 20 lbs. of payload and drop it accurately into a target area.

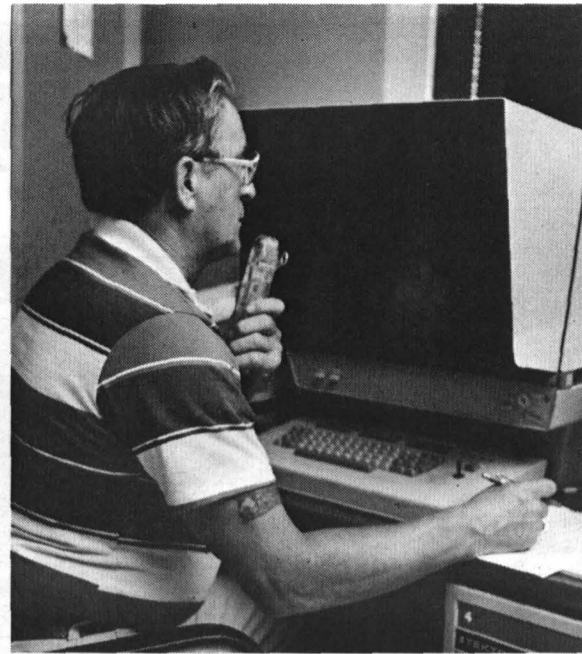
Dan reports that his retirement days are his busiest yet. "I spend most of my time thinking, building, talking, and writing about R/C models," he says. "Since the mail order business started, I spend a lot of time talking with model builders who call from all over the country asking questions about model construction. The published articles bring in a lot of mail and more questions—I answer all of them. And at the competition events, I visit a lot with model builders—there are hundreds of them out there."



HOW HELIOSTATS MOVE is described by Debra Hutchins (9722) for Astrid Galindo Sardo, a member of the Mexican consulate. Mrs. Galindo Sardo toured Sandia's photovoltaic site and the vertical axis wind turbine in addition to the central receiver test facility.

Continued from Page One

# A Long, Hot, Grueling Summer



LLOYD YOUNG (7173) controls air drop from his graphics plotting screen in the TTR Operations Room. The screen displays maps of the target areas at TTR, is pre-marked with test parameters. Radar blip of drop aircraft is shown in real time on the screen as it progresses across the map of the range.



BOB SCHOWERS (7171) displays new tracking camera with lightweight mount, 60-inch telescope, and TV camera. The new unit is easily moved, can be positioned at any point on the range to provide additional coverage of air drops. The unit's minicomputer has RF link to the range's Operations Center for target acquisition.

aircraft performance close to their limits.

Earlier that morning at TTR, at 3 a.m. and 4 a.m., men of the TM group (who had remained overnight at Tonopah) had released radiosonde balloons carrying meteorological instrumentation. These provided a profile of wind directions, velocities, and temperatures—data that are essential to controlling a precision drop. Also, Palmer Nelson (wearing his safety officer hat) confers with Bob Beasley of the TM group about a temperature inversion. If the upper air is warmer than surface temperatures, a shock wave from a supersonic run across the range could reflect from the inversion and cause considerable damage.

The weather is cooperating. Conditions are fine.

The F-111 begins its run 35 miles south of the range. Its video screen image is bright in the operations room and on Lloyd Young's computer graphics CRT plotter. From the big radar on the hill the tracking will shift to two smaller radars positioned at lower levels across the flight line to eliminate background noise created when the large radar looks downward.

From 26,000 feet altitude, the F-111 starts a dive to pick up speed. It levels out above the deck, almost on the target approach line.

In the control room, Lloyd Young corrects the flight path slightly, communicating directly with the pilot. Lloyd has pre-plotted the desired test profile, and his graphics system overlays the test parameters measured on the screen.

Everything looks good. Bomb bay doors are open. As the plane's radar blip crosses a pre-marked point on the graphics screen, Lloyd punches a button on his control panel, sending the release signal.

The orange-colored unit drops from the aircraft half a mile south of the target, falling in a flat trajectory toward the dry lake bed target.

At this point in the test, the unit is sending pulse-modulated coded signals

from on-board TM packages monitoring individual system and component performances. These are received and recorded in TTR's telemetry room.

Three radars are tracking the aircraft and the falling unit. From a half-dozen stations, high-speed cameras (part of the tracking telescope systems) are filming the falling unit.

Five Askania/Cinetheodolite instruments are also tracking the unit, measuring azimuth and elevation, and automatically recording these data on each frame of film.

Radar information, pinpointing the location of the falling unit, is fed into the range's central computer where it is converted into tracking signals for test control and camera reference. Minicomputers at each camera station process the radar data to position and focus the telescopes. Tracking telescope operators manually control the movement of the instruments, but the computer data automatically focus the telescopes and keep track "in the ballpark." The human operator can do a better job of keeping the falling test unit in the center of the frame.

About a half-second after the unit drops from the F-111 bomb bay, a rear cover plate pops off, and small pilot chutes emerge. These, in turn, pull a large parachute from the rear of the unit.

Here, the camera operator is indispensable. Anticipating the sudden braking of the test unit from the parachute drag, the operator is able to slow the swing of the telescope and keep the test unit in the center of the frame. The film record of parachute deployment is important to the parachute development group in Carl Peterson's Parachute Systems Division 1632.

Although slowed considerably, the test unit and parachute fall rapidly onto the soft target on the dry lake bed. The unit is recoverable, and the impact point is marked on Lloyd Young's plotting screen. With the aid of radar to track the recovery

vehicle, Lloyd quickly guides the recovery crew to the impact point. The unit is wrapped up (it's classified) and brought back to the TTR secure bunker. It will be shipped to Gayle Cain's Test Projects Division 8412 at Livermore where post-mortem analyses of systems and components will be performed.

In the TTR Operations Center, the dual Perkin Elmer 8/32D computers have started playback of the TM data, converting it to a digital printout. The graphics plotters also provide hard copy records of the test. Film will be processed by EG&G in Las Vegas or by Sandia's Division 3155 within a couple of days.

In the operations tower, Palmer Nelson and Gayle Cain watch a video playback of the test. Several TV cameras, coupled to the radar systems, have recorded the drop. It's a good test. The F-111 pilot, hurrying to Edwards for refueling, is congratulated by radio.

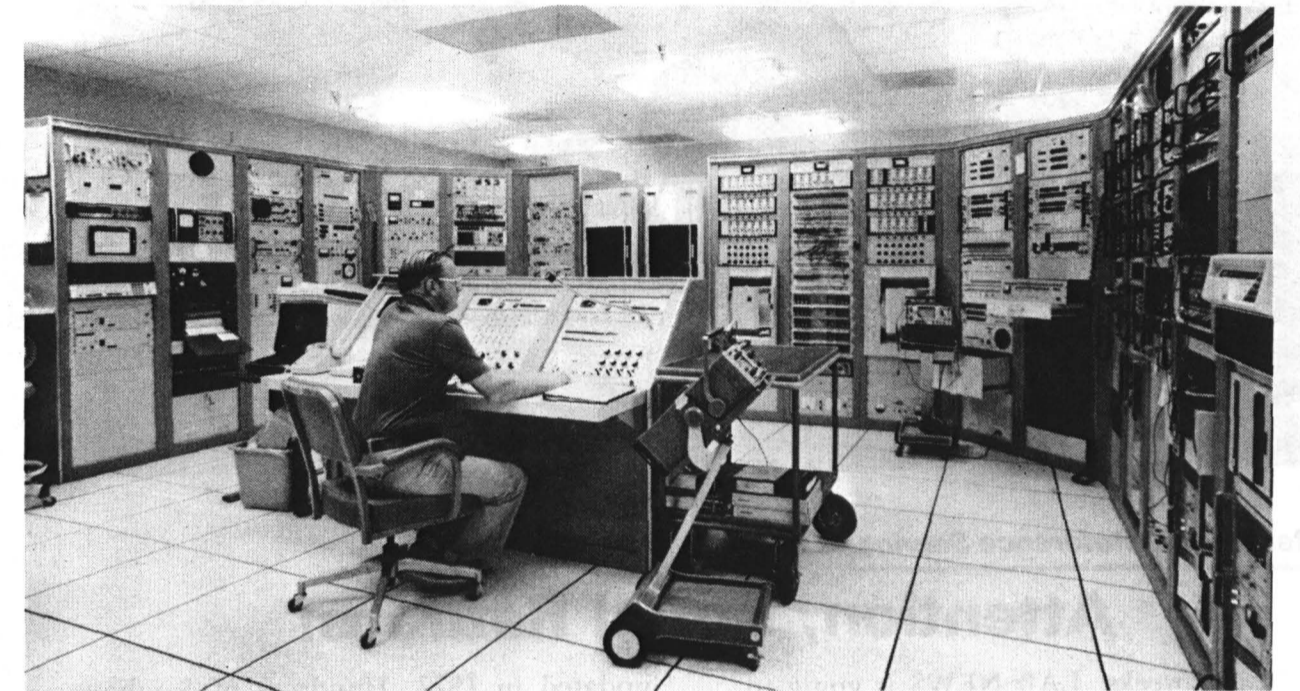
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"It's been a tough summer," Ron Bentley says. "Range people have worked long hours on an erratic schedule. The F-111 supporting our operations had a number of troubles that cancelled some tests and required constant juggling of our other test activities. In the meantime, between test operations, we are continually upgrading our instrumentation systems. We are designing a new, more powerful graphics system, for instance, and installing lighter camera mounts and modifying our existing equipment with the latest technology available in radars, telecommunications, and data processing.

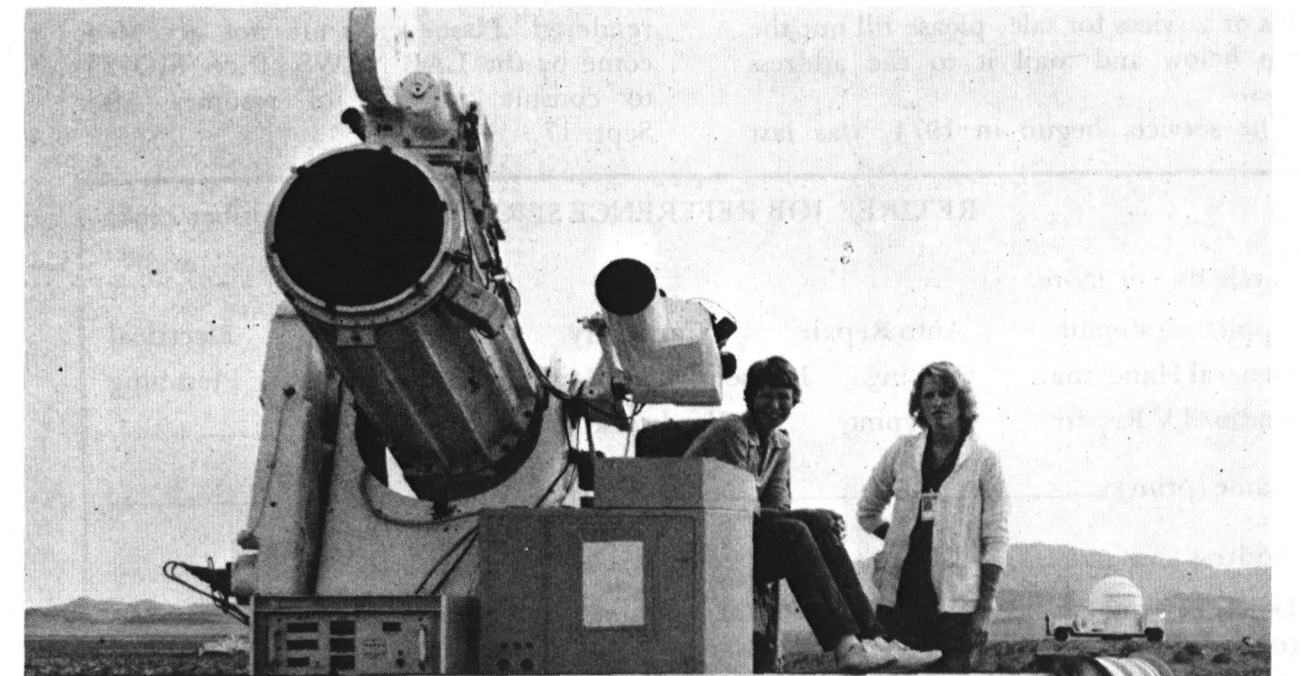
"TTR is unique," Ron continues, "in that here, unlike most other national test ranges, the people who operate the equipment also design and maintain it. And this is a credit to our range people—they're professionals—and they find the job both challenging and rewarding. Why else would anyone get up and commute 200 miles to work?" • dg



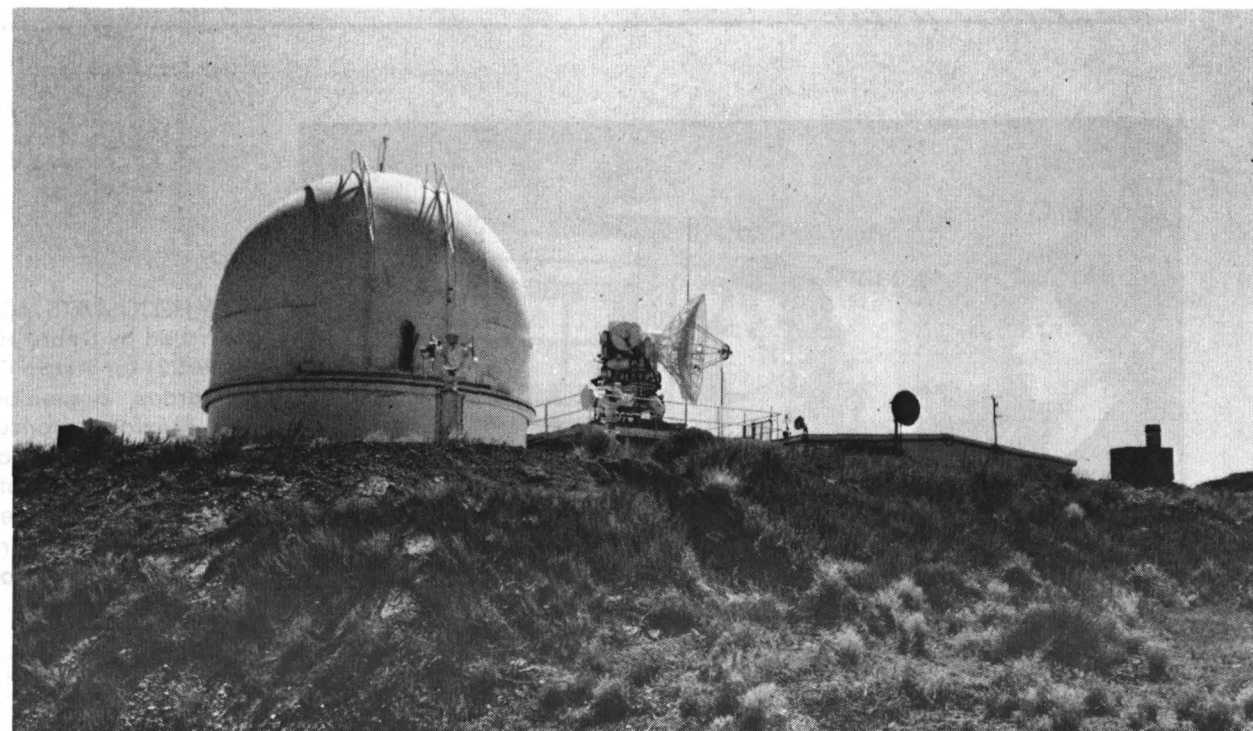
TEST DIRECTOR Palmer Nelson (7173) surveys the dry lake bed target from the Operations Tower at Tonopah Test Range.



KEN GOEN (7172) monitors telemetry signals during test operations from the master console in TTR's TM room.



CAMERA OPERATORS Diana Root and Nora Hakala (both EG&G) at TTR also perform other duties. Diana is the range photographer, Nora a draftsman/designer.



RADAR HILL, the highest point on the range, is site of a primary radar facility and an LA-24 tracking telescope.



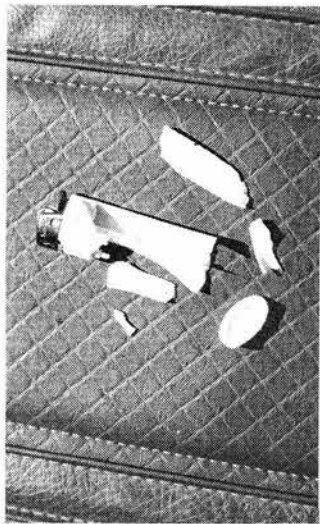
TECHNICAL SUPPORT SERVICES at TTR are provided by EG&G. Here, draftsmen Frank Ozuna, Ed Mabury, George Webb, and Nora Hakala discuss a drawing.



WILD MUSTANGS that inhabit Tonopah Test Range ignore jet aircraft and falling objects but stampede at human approach. There are a few springs for water in the surrounding mountains.



KIDS AND PETS aren't the only things that shouldn't be left inside closed cars in the sun. Len Talley (wife of Orval, 3425) had this disposable butane lighter that went to pieces under the foregoing conditions. In fact, the bottom of the case, held here by Orval, came to rest on the back-seat shelf. Tests indicate that 120°F, a temperature easily reached inside a vehicle, is enough to do a bang-up job with a lighter; some experts suggest that a lighter explodes with a force equal to that of a two-inch firecracker.



## Events Calendar

Sept. 3-19—Albuquerque Little Theatre, "Special Occasions," 8 p.m., 242-4315.

Sept. 6—National Radio Theater, KUNM 90.1 FM, 10 p.m.: "Frankenstein"; Sept. 13—"Casey: Which Is Myself," Casey Stengel, enacted by Pat O'Brien.

Sept. 10-12—270th Annual Fiesta de Santa Fe: parades, arts & crafts, street dancing, food booths; burning of Zozobra, Sept. 10 at dusk; re-enactment of De Vargas *entrada*, Sept. 11; candle-light procession to Cross of the Martyrs, Sept. 12.

Sept. 12—8th Annual Paul Bunyan Day: Real or make-believe lumberjacks compete in speed-cutting contests (power & hand saws), canoe jousting, tug o' war, axe & hatchet throws; flea market, barbeque, at Angel Fire Lake.

Sept. 12-Nov. 14—The American Gemstone Jewelry Collection, Albuquerque Museum, 766-7392.

Sept. 14-26—101st New Mexico State Fair. Sept. 16-17—New Mexico Symphony Orchestra opening night concerts with guest violinist Ani Kavafian, 8:15 p.m., Popejoy.

Sept. 17-19—Laguna Pueblo San Juan Feast Day: eagle, buffalo, and corn dances; barbeque, rodeo, 243-7616.

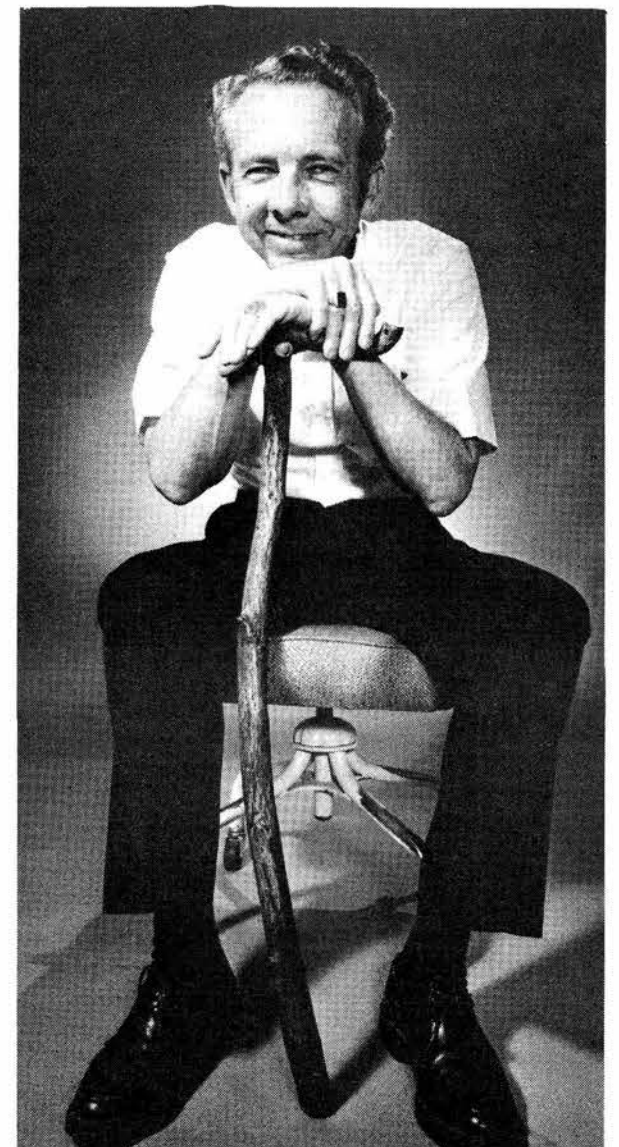
### Retiree Job Reference Service

## Attention, Bored Retirees!

In two weeks, LAB NEWS is going to throw out all of the Retiree Job Reference Service resumes because too many of them are out-of-date. So if you're a retiree with skills or services for sale, please fill out the form below and mail it to the address shown.

The service, begun in 1974, was last

updated in 1977. Hundreds of Sandians and DOE people, both active and retired, have consulted it over the years and have generally been pleased with the services rendered. Phone calls are not accepted; come by the LAB NEWS office (MO125) to consult the file of resumes—after Sept. 17.



JIM FLEMINS (3154) carved this handsome cane during his recent convalescence from knee surgery. The wood came from a branch of white oak tree cut in the Manzanos. After six weeks on crutches, Jim says using the cane is a relief. The finish on the wood includes stain and coats of waterproof varnish.

### RETIREE JOB REFERENCE SERVICE (September 1982)

Circle one or more:

Appliance Repair    Auto Repair    Carpentry    Child Care    Electrical  
 General Handyman    Hauling    Housework    Painting    Plastering    Plumbing  
 Radio/TV Repair    Typing    Yardwork    Other \_\_\_\_\_

Name (print) \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ ZIP \_\_\_\_\_

Describe your skill(s). Mention relevant training, experience, licenses, references (optional), etc. (Use extra page, if necessary.)

\_\_\_\_\_

\_\_\_\_\_

Do you have your own transportation? \_\_\_\_\_

Do you have your own tools? \_\_\_\_\_ Fees (optional) \_\_\_\_\_

Comments \_\_\_\_\_

Signed \_\_\_\_\_ Date \_\_\_\_\_

Mail to: LAB NEWS, Div. 3162, Sandia National Labs, Albuquerque, NM 87185

# feed **feedback**

*Q. With more and more employees being relocated to the south end of the Tech Area, it seems appropriate to shift more of the bus routes so they pass closer to Buildings 821 and 823. Why not have all the city buses pass through or near gate 10 on their circuit through the Tech Area? Affected would be the Chelwood, Comanche, and Eubank buses.*

A. We agree that the shift in population within Tech Area I has caused the bus service to be less effective for the people presently occupying Buildings 821 and 823. However, the Traffic Liaison Committee and Commuter Assistance see some problems with rerouting the buses:

1. Construction has to be completed on 17th Street and the street opened to allow passengers to exit buses at Gate 14.

2. Rerouting the Chelwood, Comanche, and Eubank buses through Gate 10 will more than double the pickup and dropoff times. This increased route time in the evening may affect transfer points. A study is being made to determine how much of an impact the increased evening route time will make on transfers and how many people it will affect.

So at this time no route change is planned, but it is being evaluated and definitely considered.

J. R. Garcia—3500

*Q. Why is stuff allowed to pile up around buildings and parking areas? Things pile up and collect trash and dirt—for example, the things dumped south of 880: crates, wire [rotted by the sun], chunks of metal, and even a new equipment rack still lashed to a pallet lying on its side. It is true that construction on the wall is just ending, but the problem was there long before. They just pushed the junk aside to make room to work. Do we not have a storage area for such items?*

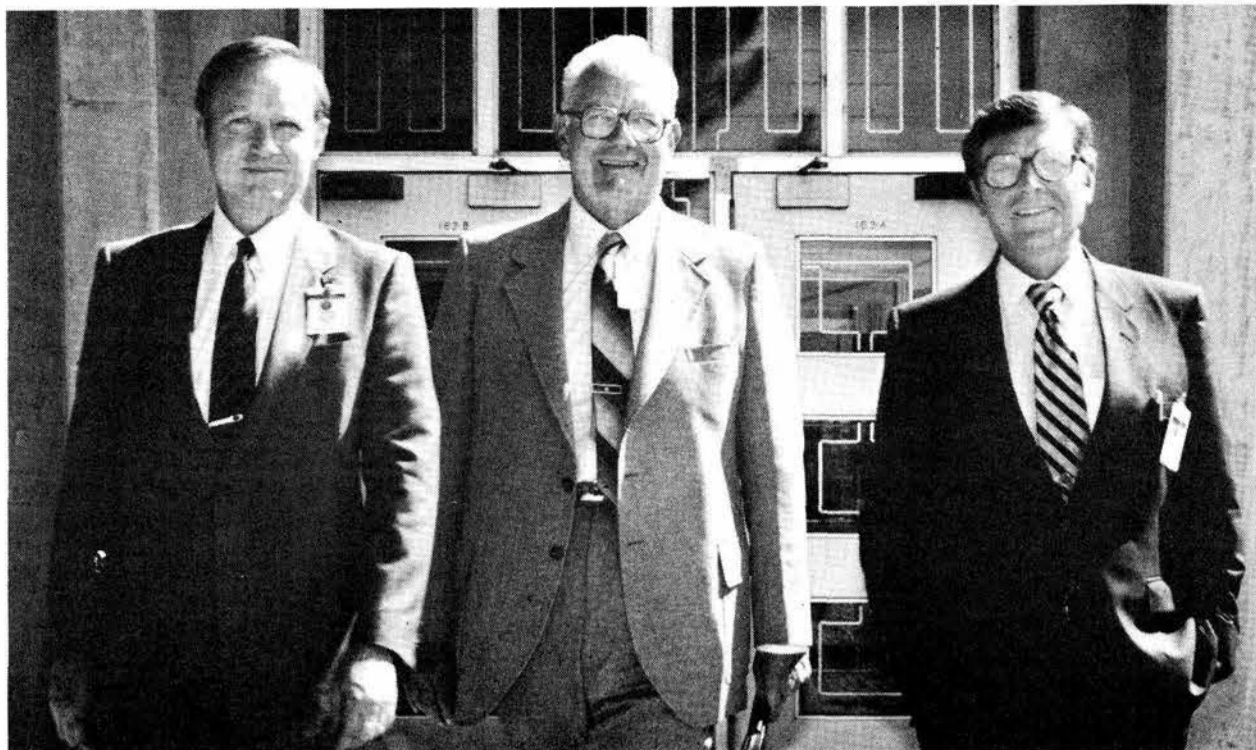
A. I agree with your concern over "stuff" piled up in the Sandia areas. We, 3400 and 3600, attempt to keep things picked up regularly, and periodically a group assigned to clean up makes a direct assault on the problem by inspection, searching for owners, and making out paperwork for the organization if required.

But cleanliness starts with individual employees. For light trash, trash cans are scattered throughout Tech Area I. Use of the containers will minimize the amount of papers, etc., blowing around the area.

For removal of heavier, bulkier items, or for storage, call one of these people:

1. Waste—Jim Winter (3613) on 4-6743
2. Reclamation—John Miller (3418) on 4-3260
3. Short term storage—Ed McClain (3423) on 4-1574
4. Movement between locations—Jim Davis (3423) on 6-0342

D. S. Tarbox—3400



TWO SENATORS who play key roles in Sandia programs had an on-the-scene look at the Labs last week. On the left is Sen. James McClure of Idaho, chairman of the energy and natural resources committee; on the right is New Mexico Senator Pete Domenici, chairman of the budget committee. President Dacey provided an overview of the Labs. Directors who described their programs were Bob Peurifoy (9300), Gerry Yonas (1200), Everet Beckner (9700), and Bill Snyder (9400).



A MODEL of the Particle Beam Fusion Facility was recently explained to two visitors from DOE's Office of Public Affairs in Washington: from right, Ann Morgan, director of the Office, and John Bradburne, chief of OPA's presentations and audio-visual branch. Dave Jackson, director of AL's public affairs office, also looks on as Glenn Kuswa, manager of the Particle Beam Fusion Research Department 1240, does the explaining.



HOSTING THREE MEMBERS of Germany's Bundestag (legislature) plus the secretary of the Bundestag committee involved with nuclear energy is Glenn Fowler (9000), here amused at some unofficial document. From left are Paul Gerlach, Secretary Klaus Schmolling, Lanny Messersmith (of the local German consulate), Glenn, Harald Schafer, and Klaus Kubler. The group discussed mutual concerns in the area of nuclear materials and reactor safeguards.



**BLACKSMITH AT WORK**—Both the forge (in background) and the 100-year-old anvil were located through a LAB NEWS "wanted" ad. Robb Gunter made most of the tools hanging in the rack around the forge from steel auto springs found in a junk yard.



**THE KING PIECE**, as yet unfinished, of a projected chess set is hammered out of hot steel by blacksmith/artist Robb Gunter.

**Clogging**—The Sandia Mountain Stompers are sponsoring clogging instructions at the YWCA (downtown at Fourth and Lead) starting Tuesday, Sept. 21. (As we understand it, clogging is defined as hillbilly tap dancing and appeals to hyperactive square dancers.) The class, for adults and children, will meet Tuesdays from 7 to 9:30 p.m. and costs \$1.50 per lesson. Call Virginia O'Neill (3152), 4-1477, for details.

\* \* \*

**Running**—As part of a scholarship fund-raising effort, the New Mexico Society of Hispanic Professional Engineers is sponsoring a four-mile run Sunday, Sept. 12, at Kit Carson Park at 9 a.m. Entry fee before the race is \$5 (and you get a T-shirt

## Robb Gunter Is Blacksmith/Artist

Robb Gunter (7473) is an artist in metal. Currently, he's creating a series of realistic life-size roses—handsome pieces that sell as quickly as he makes them. He also creates chandeliers, grills, grates, railings, hardware for antique furniture, fireplace tools, and speciality tools, including tools for his own craft of blacksmithing.

Robb's workshop, housed in his garage, includes a 100-year-old anvil, an antique forge of uncertain vintage, several heavy steel hammers, and assorted tongs, drills, chisels, and files.

The forge burns a high-grade, low-sulphur coal at temperatures up to 3000°F. Robb controls the heat with a hand-cranked blower.

Robb heats a piece of iron until it glows red hot, then places it on the anvil. With quick, precision blows from the hammer, he shapes it to the desired form. He works the metal until it cools and hardens, then heats it again and keeps hammering until he's satisfied.

Working on a rose, he eyeballs a rose catalog to make his leaves, stems, and petals true to natural form. Or, he uses a real rose as a model. He shapes the pieces individually, joining them as he perfects them. Then he mounts the finished piece on a stand of varnished hardwood. By accident, he says, he discovered that brushing the rose while still hot with a fine brass wire brush transfers highlights of brass color onto the iron, giving the finished rose a golden glow.

"This is my most popular work," Robb says. "I can't make them fast enough."

The reason, logically enough, is that each rose takes from 10 to 15 hours to complete.

"I work at the forge weekends and evenings," Robb says, "and I love it. I took a blacksmithing workshop in Santa Fe two years ago, and I've been having fun ever since. An ad in the LAB NEWS brought me my anvil and forge. I scrounge auto junk yards for metal. I'm learning as I go along—different kinds of steel need more or less heat, are easy or difficult to work with, and have more or less hardness when finished. I can match the metal to the job now, and I'm feeling very good about my increasing skill."

## Fun & Games

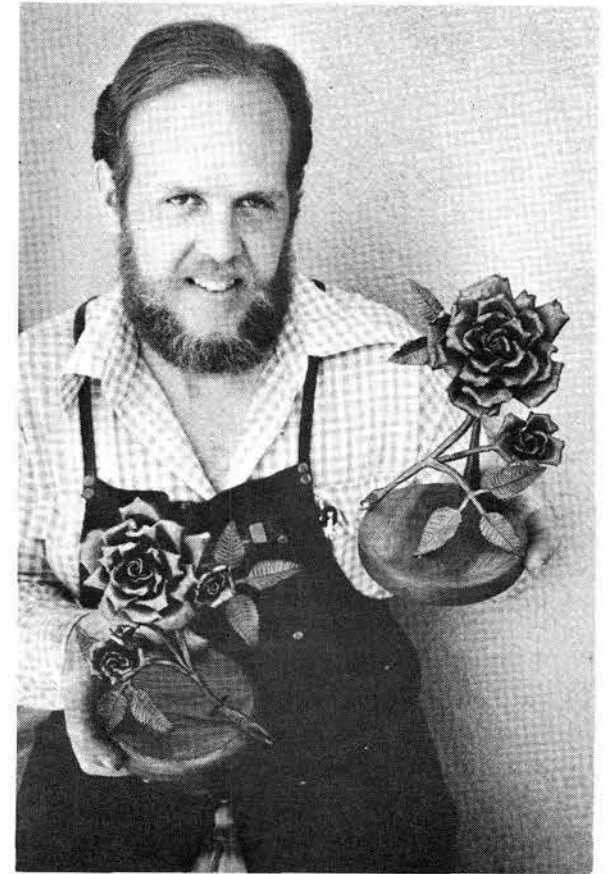
or \$3 without) or \$6 on the day of the race. Entry blanks are available from Ernie Garcia (9225), 4-8764, or at the LAB NEWS office, MO125.

\* \* \*

**Tennis**—A Base-wide tennis tournament is scheduled for late September and early October for civilian as well as military people and their dependents. A small registration fee is involved. More info from Steve Schmidt at the Youth Center or from the tennis instructor, Cynthia Copenhaver. Preregistration on 4-9975.

\* \* \*

**Horseshoes**—The annual Sandia horseshoe tournament was held Aug. 14. Tom Towne (9316) again won the champion-



**FINISHED METAL SCULPTURE** is displayed by Robb Gunter (7473). Each metal leaf, petal, and stem is shaped on an anvil after the metal is heated in a forge.

At Sandia, Robb is a Craftsman II in the Sheet Metal Shop. He says that Sandia work is "precision" and that his personal work with metal is "artistic." Before joining Sandia in October 1976, he worked two years at the Transportation Test Center in Pueblo, Colo. A native of Albuquerque, Robb first learned metal working in his father's sheet metal business. Robb's own son, Chad, age six, is also learning blacksmithing on his own miniature anvil.

Robb has several immediate goals for his personal work. Next year he wants to have enough pieces on hand to enter the Arts and Crafts Fair. He wants to finish a chess set with realistic figures that he's started, and he wants to teach.

"Blacksmithing is such great fun and such a practical skill—you can make all kinds of neat things that are useful around the house—that I want to share it with everybody," he says. "Right now, I'm looking for several more anvils and forges."

ship; Leo Bressan (ret.) was runner-up. Class B honors went to Jim Reed (1473), second place to Bob Evans (4364). In Class C, Jim Fisher (2436) took first place, and Carnella Towne second. Doubles champs were Lyle Davis (2113) and Evans. Bressan and Fisher took second.

\* \* \*

**Boating**—Once again the Coast Guard Auxiliary is offering courses in Basic Power Boating and Sailboating to the general public. Instruction is free; a nominal fee will be charged for text and workbooks. Both courses begin on Sept. 15 at 7 p.m. at the Reserve Training Center at 400 Wyoming NE. Each course runs about 13 weeks. Early enrollment is wise; call 294-0349 or 296-4936.

# MILEPOSTS

## LAB NEWS

SEPTEMBER 1982

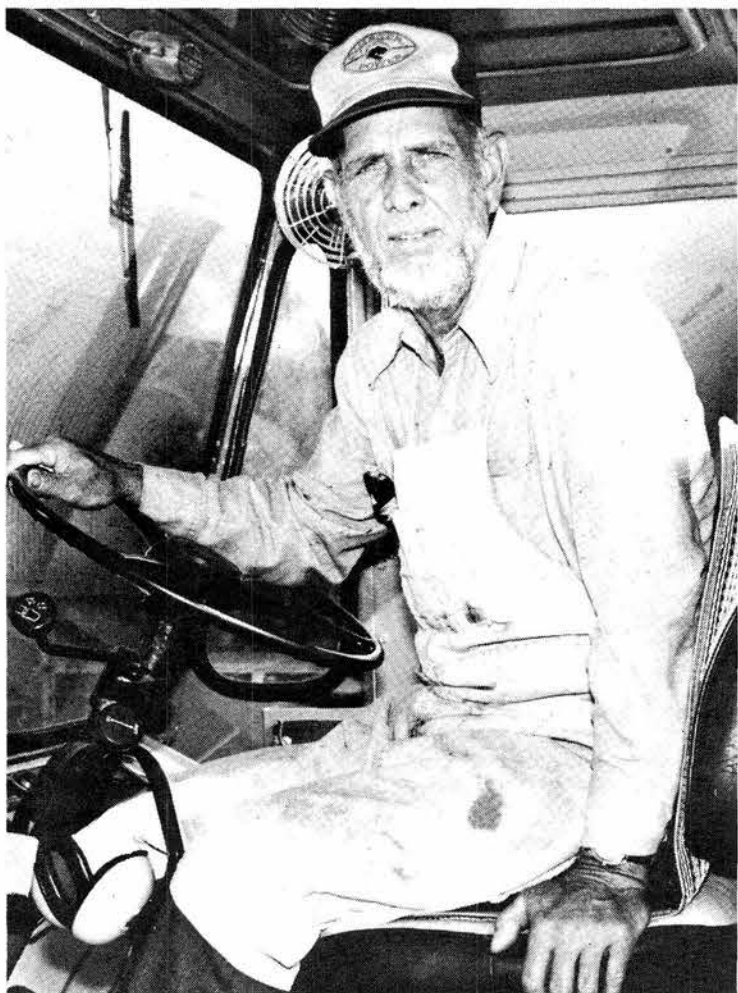


Virginia Padilla - 3163 15



Joe Curzi - 2422

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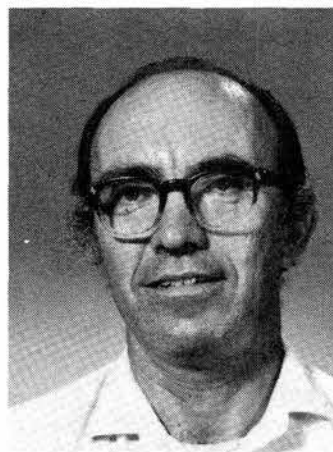


Joe Billings - 3418

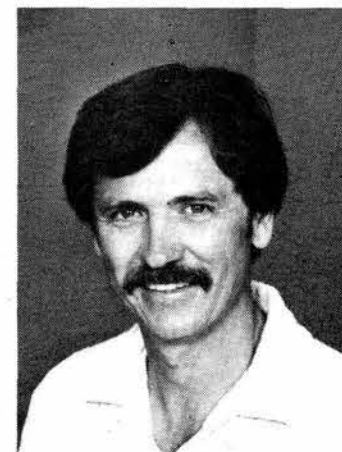
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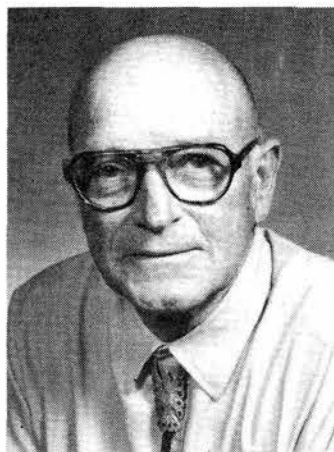
Curtis Warthen - 7581 25



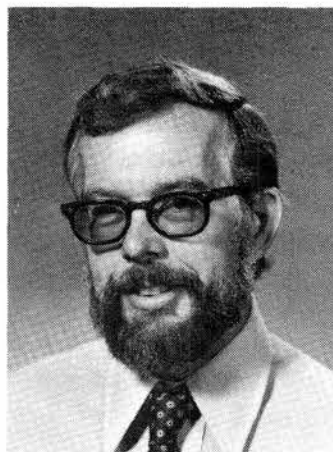
Joseph Walter - 9213 30



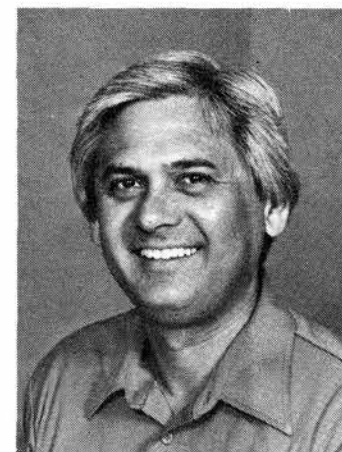
Anton West - 8314 10



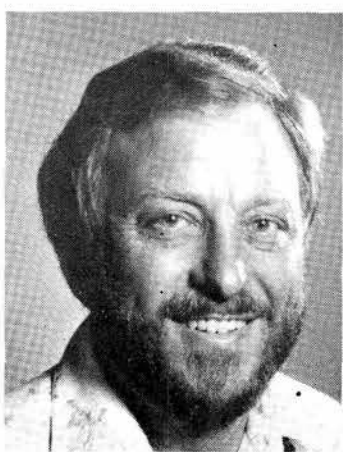
Bob Weaver - 7472 25



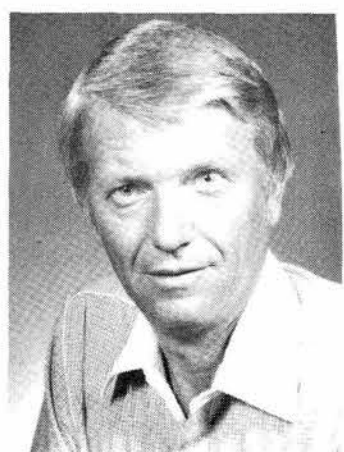
Tim Taylor - 7242 15



Pete Oliver - 8264 15



David Schafer - 7542 20



Lew Bartel - 9756 15



Kenn Shrock - 7581 25



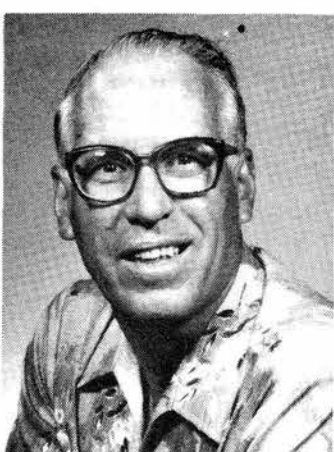
Dan Garst - 9268

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Mattie Williams - 3154

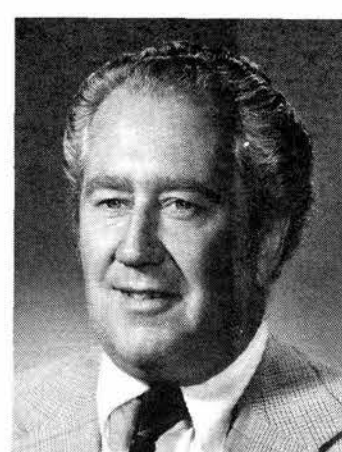
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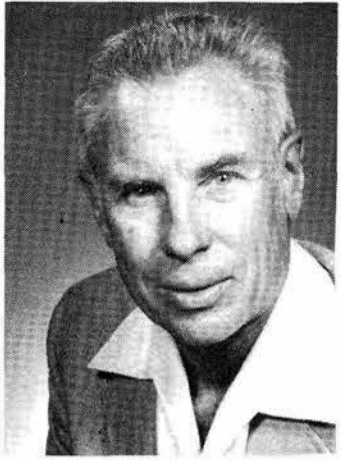
Orelia Montoya - 1813 30



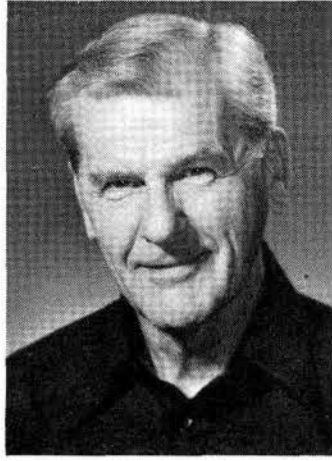
Troy West - 3424 30



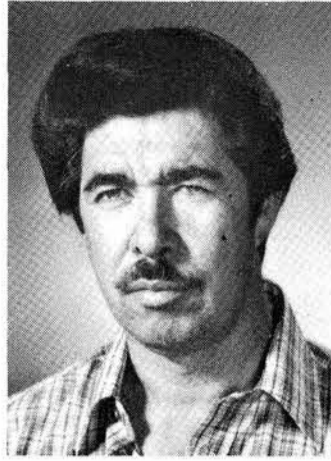
Heinz Schmitt - 9340 20



Carter Broyles - 7100 30



Charles Jennings - 2153 25



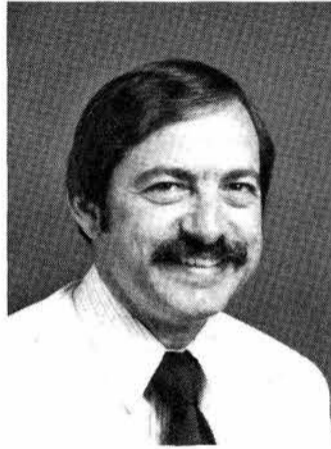
Tony Marquez - 7473 10



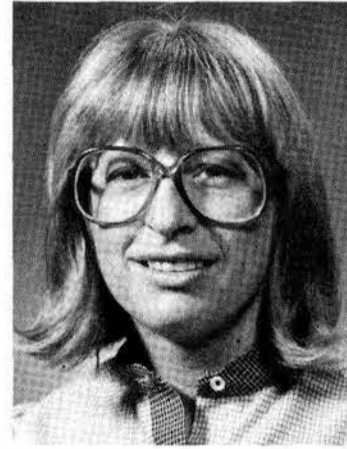
Bill West - 7135 30



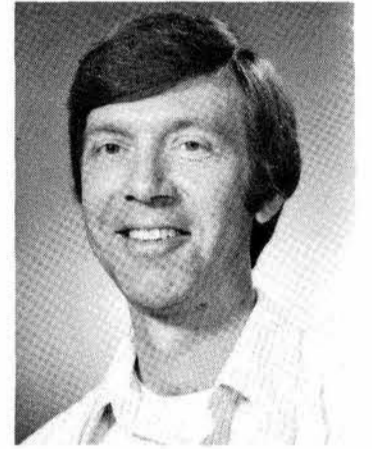
Alex Maestas - 2632 15



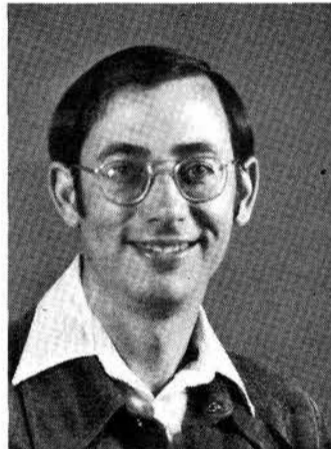
Ray Smith - 8522 15



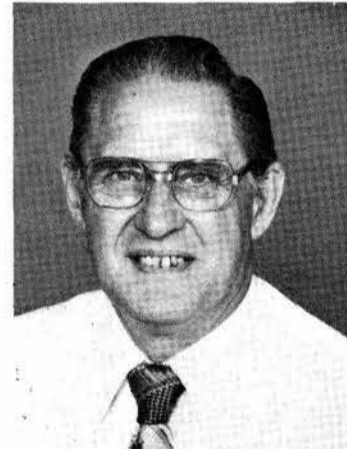
Pat Neiswander - 2523 20



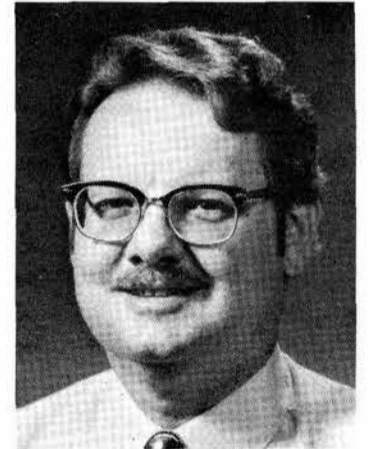
David Benson - 1534 10



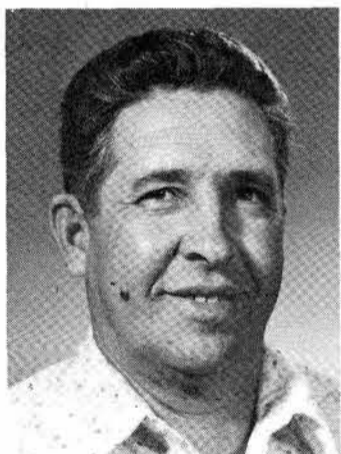
David Ottesen - 8315 10



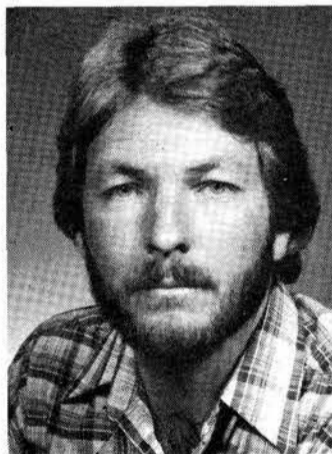
Gordon Miller - 8332 30



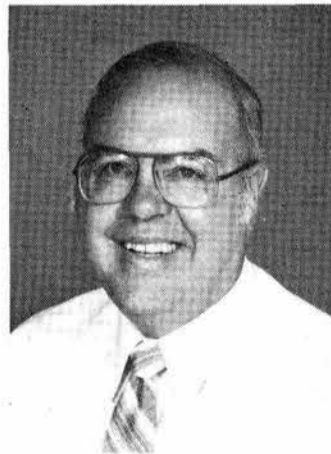
Curtis Mueller - 9263 20



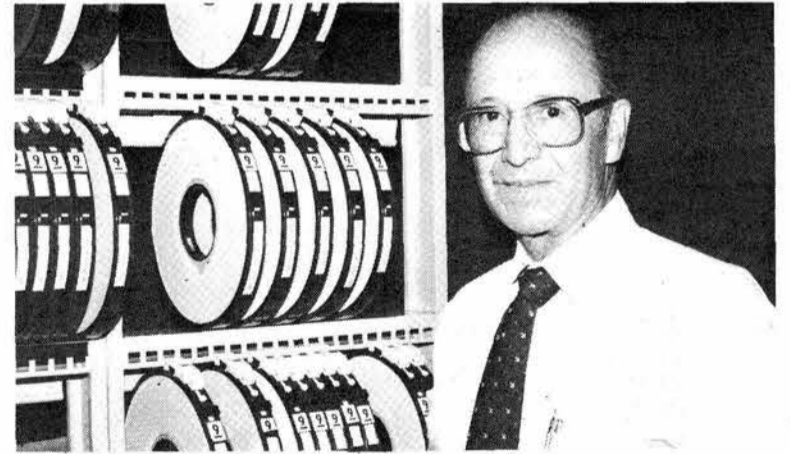
Francisco Sanchez - 3423 10



Robert Aragon - 3612 10



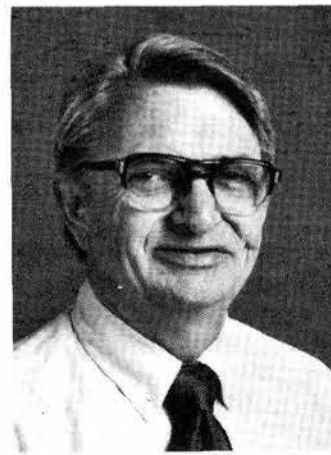
Arnold Schuknecht - 8210 30



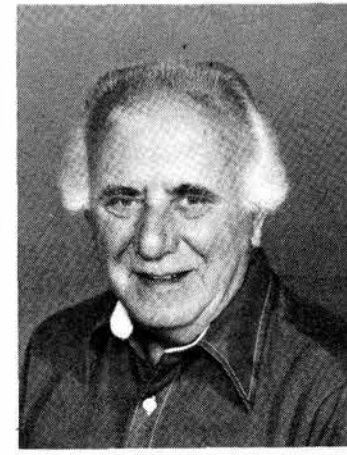
Kelly Montoya - 2630 30



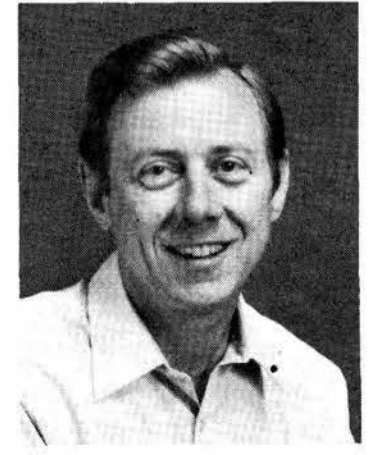
Art Eiffert - 2450 35



Don Adolphson - 8445 25



John Barnhouse - 8414 25



Jim Boehmke - 8522 10

YOU'RE INVITED to the Annual Pool Closing Party by lifeguard Carol Plugge and recreation manager Tom Lenz. The Party begins at 11 on Sept. 6 and features all manner of fun and games for kids and adults.



## Programmers Contest Open

A computer programming contest will be held at UNM in the Engineering Annex on Saturday, September 11. This traditional "Student Programming Contest" will again be 'PRO/AM' this year—a professional division as well as a student division. Sandia employees are eligible for the professional division. Entry forms and further information are available from Jack Tischhauser (2640), 4-1041.

## Congratulations

Joy Lutheran (9451) and Dennis Arnold, married in Albuquerque, July 17.

Joseph (2627) and Nancy (SNL Credit Union) Schofield, a son, Joshua, July 19.

# 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 (MO125).

### 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

**ANTIQUES:** theatrical trunk, phonograph, drop-leaf cherry table, 30" brass telescope, mando-banjo, violin; tilt bed boat trailer, 8' long, 2 spare wheels & tires, \$250. Miller, 294-5373.

**SANKYO** sound movie camera w/zoom mike, \$50; Dynaco FM5 tuner, \$30; Sears bicycle child carrier, \$12. Tyner, 294-5289.

**OBOE & CLARINET.** Blottner, 298-9459.

**DOG HOUSE,** insulated & carpeted, \$10. Reeder, 298-0816.

**ELECTRIC DRYER,** 220 volt, any reasonable offer. Strip, 255-7230.

**BEDROOM furniture:** king size headboard/frame, triple dresser, armoire, all hardwood, \$600 or best offer. Whiteman, 293-0846 after 8.

**TAPPAN elec. range** in 36" oak cabinet; 30" white Frigidaire elec. range, \$75 ea.; carpet samples, all sizes. Daniel, 268-8335 after 5.

**EVERETT PIANO,** ornate, antique; Kingston Ludwig 5-piece drum set; antique oak wheelchair. Gleason, 836-5612.

**TWO "T" clothesline poles;** baby swing; Gerry cuddle pack baby carrier; 12' wire fence; 2 pieces alum. siding. Follstaedt, 299-5941.

**NEW stereo cabinet w/glass doors** (purchased for \$75), sell for \$50. Kelly, 299-7190.

**PROJECTOR,** Sawyer's "500-ER," for 35mm slides, 16 rotary & slide trays, Lenticular 50"x50" tripod screen, \$95; Electrolux vacuum power head w/attach., \$50. Browning, 299-6384.

**COUCH & CHAIR,** \$100; stereo system, best offer. Robles, 298-2456.

**PIGEONS,** Indian Fantails & Rollers, \$5 ea. Edrington, 881-2395 after 5.

**ATARI video game w/7 cartridges,** \$125; air hockey table, 5'x2.5', \$50. Holmes, 292-0898.

**.41 MAGNUM** ammunition, 5 boxes, \$10/box; elec. duplicating machine, Copyrite model EL-57, \$20. Smiel, 865-9081.

**SOFA,** tufted lemon colored tuxedo style w/brass trim, \$85. Bickel, 266-3187.

**K2 SKIS,** 200's, w/Marker competition bindings, \$175; Kaber Bio Rhythm boots, size 10 1/2, \$125; Solomon 444 bindings, \$30. Mason, 281-3052.

**PIMENTEL** classical guitar, concert model #2, made 1972, \$750. Fisher, 268-3296.

**ELECTRIC** trolling motor w/foot control, 16-lb. thrust, battery included, \$125; propane stove, \$10. Garcia, 293-3937.

**1 PAIR L60x14 tires** on white spoke wheels, \$55; 2 wood doors, 29"x78", 31 1/2"x79"; screendoor, 30x79 1/2, \$12 ea. Nelson, 881-0148.

**WEEDWACKER,** Sears Craftsman, gas, 2-cycle engine, almost new. Pitti, 256-1629.

**TURNTABLE AR-XB w/new M-91 cartridge,** \$50. Scheibner, 345-9351 after 6.

**DINETTE set w/laminated wood top,** chairs have easy roll casters, \$150. Schwartz, 294-1113.

**GRILL assy. for 1971-72 Chevy pickup or Blazer,** \$75; grill for 1973-74 GMC pickup, \$30. Aragon, 294-0225.

**WOODBURNING STOVE,** model 101 Earth stove, has fp convertor screen, chimney pipe, liner, etc., incl., \$300. Romine, 281-5682.

**2 CHAIRS w/ottoman,** reupholstered in cut velvet, \$350; drop-leaf table & 4 chairs, antique gold chairs upholstered in pumpkin, \$150. Spradling, 292-4680.

**PATIO SALE,** Sat. 9/4, 10-5: 3 families, 4613 Burton SE, Zuni to Jefferson, south 1 blk. to Burton. Young, 256-9158.

**S&W mod. 629, .44 mag., 6" barrel,** \$550; Browning BL-22 Grade II, \$220; Fenwick FL-7 flyrod, 8 1/4', w/case, \$30. Aheron, 883-0513.

**FREE: Border Collie cross, white & ginger,** 2 yrs. old, spayed & shots, good Frisbee catcher, shy, prefers women. Nelson, 298-0720.

**ROLLAWAY BED,** full size, \$50. Lewis, 296-3676 after 5.

**THOMPSON CENTER Hawken muzzle-loader,** .50 cal.; S&W model 29 .44 magnum; T/C .357 magnum barrel; AMF hunting bow. Ma, 883-4438.

**SKI BOOTS,** men's size 10, 2 yrs. old, Lange, plastic shell, LangeFlo insides, \$35. Kelsey, 266-6460.

**WOODBURNING STOVE,** red enamel Lange w/glass doors, 4000-6000 cu. ft., orig. cost \$1500, used 2 seasons, \$1000. Shane, 294-4920.

**FULL SIZE mattress & box springs,** \$50. Matlack, 256-7371.

**CAMERA** Speedgraphic 4x5, view camera, case, 2 lenses, filters, many film packs & manuals, \$350. Trompak, 298-6671.

**BINOCULARS,** new 8x-17x zoom lens, 40mm, Sears, half-price, \$40. Weems, 281-5837.

**REFRIGERATOR-FREEZER,** approx. 16 cu. ft. Sears Coldspot, brown, \$50. Carrigan, 821-5856.

**GARAGE SALE:** hide-a-bed, dinette, other misc. furniture & household items, Sat., Sept. 4, 14228 Domingo NE (east of Copper & Tramway). Attermeier, 293-7088.

**SIMMONS** rollaway bed, 48" wide, metal coil spring frame, innerspring mattress. Bailey, 294-4218 before noon.

**3 AUTO ENGINES** for parts, make offer. Padilla, 877-2116.

**SWIMMING POOL,** 15x25x4, \$250 without solar heat, \$300 with; homemade lean-to greenhouse, \$100. Shaut, 299-8569.

**KENMORE port. dishwasher,** avocado green, butcher block top, water miser, 4 yrs. old, little use, \$60. Armijo, 256-3895.

**COMPLETE queen-size water bed w/baffled mattress;** massive wooden rocking chair; fp screen which fits opening approx. 28"x36". Peters, 293-6356.

**TWO matching flex-steel chairs,** \$50 ea. or 2 for \$80; carpeting, off-white color, 10'x14', \$35. Garst, 884-5176.

**75-'76 FORD** repair manuals for all models, 6 volumes, \$15. Baxter, 344-7601.

**POWERGLIDE** transmission from '65 Corvette, rebuilt, used 4 mos., make offer; 305cc Honda motorcycle engine, \$30. Marquez, 344-8455.

**CLARINET,** \$75; stereo receiver & turntable w/speakers & stand, \$50. Jojola, 294-7354.

**APPALOOSA MARE,** 8 yrs. old, 15.1 hands, trained Eastern & Western, many blue ribbons, \$1200; reg. half-Arabian mare, 8 yrs. old, 14.2 hands, \$1050. Baker, 294-3334.

**MECHANICS TOOLS & tool chest w/top & bottom,** name brand hand & power tools, \$1200 or best offer. Pacheco, 821-2706.

**GARAGE SALE,** Sat., Sept. 4 only, glassware, clock, bookends, misc. items. Simons, 821-9343, 7309 Christy NE.

**PVC PIPE,** 1 1/4" schedule 40; Redi-2 mix mortar cement; some 3/4" galvanized steel conduit; 75% of store price. Hughes, 299-6674.

**CONVERT.** vinyl top for 1979 & up TR-7 Triumph, \$110; color TV antenna, \$12; washer, minus timer, \$20. Chavez, 842-6374.

**THREE 4-wk.-old kittens,** white, avail. after 7 wks., free to good homes. Klinetobe, 298-2315.

**SIGHT LAMP,** chairside model, \$40; Smith Corona port. typewriter w/tabulator & case, \$40. Klecotka, 821-1466.

**NIKON 35mm camera,** case, lens cover, tripod, 2 yrs. old, very little use, \$300. Adriance, 292-7471 after 7.

**BUNNY clarinet,** \$75. Zanner, 281-1789.

**FISHING FLIES,** custom tied, w/quality materials (metz, mustad, etc.), std. patterns, \$6/doz. Swanson, 884-8650.

**REFRIGERATOR,** Norge frost-free, separate door for freezer compartment, white, \$100. Cameron, 292-4635.

**PAN-AMERICAN clarinet,** \$100; Sangiorgio ski boots, 4 1/2-5, \$20; walnut pedestal TV stand, cost \$50, sell \$25. Bliss, 296-3752.

**GUITAR,** classical Guild, hardshell case, \$375 or best offer; Taos sofa, worn cushions, \$300. Todd, 255-3463.

**BEDROOM SET:** dresser, chest of drawers, twin size bed, firm mattress, \$275. Coleman, 884-5009.

**1/2 LEWIS violin w/case,** \$225. Munford, 884-4216.

**CHAIN SAW,** Sears, 3.7 cu. in., 17" blade, all accessories, \$95. Grear, 344-2009.

**RIVIERA combination golf bag/cart w/folding seat,** almost new, \$35. Mancuso, 296-4178.

**SHOTGUN,** Remington 870, 12 gauge, full choke, \$200. Madsen, 294-3235.

**TODDLERS' car seats,** G.M., \$25, Cosco, \$30; baby's swing seat; baby furniture. Stephenson, 296-9330.

**COMPLETE waveless waterbed,** queen, \$250; couch, \$75; backpack, \$75; machine tools, offer; stereo receiver, speakers, still boxed, \$300. Kovacic, 281-1754.

**MALE & FEMALE long-haired indoor cats** to good home; both declawed & fixed, 1 1/2 yrs. old, free. Molina, 1-864-2148.

**SKI RACKS,** locking, rain gutter mounting, used 1 season, \$45. Kelly, 299-7190.

**AKC German Shepherd puppies,** males, 8 wks. w/shots, excellent pedigree, \$250. Kramm, 281-5379.

**TRUNDLE BED w/cover & bolster,** \$90; drafting machine, \$50; two 1.5 diameter decorator rods, cafe rod, \$10, traverse, \$15. Peterson, 299-6197.

**CORNET,** \$150. Nielsen, 299-0198.

**TENT TRAILER,** Apache, 1969, sleeps 6, includes stove, sink, ice box, spare tire, \$1450; 4 tires, GR78-15, \$35. Carrillo, 836-4072.

## TRANSPORTATION

**'73 VEGA stn. wgn.,** \$250. Detorie, 266-2504.

**'78 VW Diesel Rabbit,** low mileage, 4-dr., sun roof, \$3900. Nuttall, 293-2250.

**'75 BRICKLIN,** gull wing doors, (air system), \$10K. Perkinson, 299-9334 days, 821-5206 evenings.

**1 1/2 TON** step van camper conversion, completely self-contained, Dodge chassis, \$2995 or best offer. Karver, 299-8229, 268-1436.

**'64 CHEVROLET Impala,** maroon w/black interior, PS, AT, AM/FM/8TK. Archuleta, 268-7325 before 3 p.m.

**'75 CORVETTE conv.,** 2 tops, low mileage, \$8700. Perryman, 281-3020.

**'75 SCOUT-II, V8,** 4-wd, PS, PB, R&H, rear seat, new radials, low mileage, \$2995. Alvis, 298-3906.

**'67 HONDA 90CL,** \$125. Swier, 298-8435.

**'78 PONTIAC Trans Am "Bandit Coupe,"** 403V8, AT, PS, PB, T-top, tilt, glass packs, \$6800. Cerutti, 822-0662.

**PEUGEOT 10-spd. man's bicycle,** 23 1/2" frame, \$95. Binder, 299-2937.

**14' BOAT,** Gamefisher, fiberglass w/25hp Johnson outboard on Sears tilt trailer, \$1500 w/accessories. Caskey, 296-1696.

**'70 BUICK estate wagon,** AT, PS, PB, AC, tape deck, \$400. Mathey, 345-6312.

**'68 CHEV. Camaro,** 6-cyl., 25 mpg hwy, all original, \$2699 or best offer; '68-71 std. Volkswagon sedan model heater, \$60. Hitchcock, 294-5153.

**'81 HONDA XR 500R** four stroke Enduro, shop manual, Enduro jug, licensed, \$1350/offer. Stronach, 294-5271.

**'74 CAPRI,** one prior owner, \$1750. Adriance, 292-7471 after 7.

**'67 17' Silverline inboard** outdrive w/canvas & tilt trailer, \$1300. Hole, 255-1444.

**'79 FORD Fiesta** Ghia, 4-spd., AC, AM-FM-Cass., orig. owner. Steigler, 883-0112.

**'78 CHRYSLER 2-dr. red** Cordoba, fully equipped, less than 12K miles, \$8500. Welch, 299-8764.

**'56 T-BIRD,** HT convertible, continental kit, AT, peacock blue. Sandoval, 293-6261.

**SAILBOAT,** 17' O'Day Daysailer II w/trailer, cover, & misc. gear, \$3200. Wenger, 821-0838.

**SAILBOAT,** "Super Snark" small, lt. wt., carry on car, \$290. Stoker, 821-3354.

**'73 FORD stn. wgn.,** 400 cid V8. Burchett, 299-1689.

**MOTORCYCLES:** '72 Honda CB100, 3866 miles, \$185; 1974 Kawasaki 175, windshield, 6212 miles, \$500. Ashworth, 296-9126.

**'71 SUBARU FF-1,** 35/42MPG, new brakes-starter motor-paint-seals; engine & trans. recently overhauled, \$950. Salmi, 294-3022.

## REAL ESTATE

**DOUBLE-WIDE** mobile home, 24x44, 3-bdr., skirted, workshop, covered patio, \$75 lot rent includes all utilities except electricity. Mowry, 292-1527.

**3-BDR. house,** landscaped, NE, assumable 9 1/2% interest rate. Jojola, 294-7354.

**DUPLEX,** 11 1/2% assumable mortgage. Altwies, 292-3884 after 5.

**5 1/2 ACRES** in Jemez Mtns., electricity, pure spring water, natural gas, Nat'l Forest surrounding, Ponderosa pine & meadow, \$48,500, terms. Hughes, 299-6674.

**BLUFF LOT** in exclusive subdivision, view of river & Manzanos, southern exposure, fully developed, terms available, \$27,000. Hoover, 292-4961.

**ESTANCIA,** 6 lots in middle of downtown-Highway 41, across from Co-op restaurant, terms w/\$8000 down. Johnson, 255-2846.

**2-BDR. townhouse,** Sandia Heights, low down, 74K assumption or refinancing at \$8K below appraisal, 841 Llave Ln. near Tramway/Live Oak. Key, 298-7988 or 292-5770.

**TIMESHARE** 18th week, Innsbrook Village, Ruidoso, NM, 2-bdr. w/loft, 2 1/2 baths, sleeps 8, lifetime deed \$3500. Gaither, 298-1043.

## WANTED

**HOT TUB.** O'Neil, 292-8921, 892-6754.

**LARGE, sturdy doghouse.** Arnold, 898-1467.

**1968 plus/minus 2 yrs. Volvo 144** owner's manual; I'll buy yours or pay for a copy. Mathey, 345-6312.

**SEWING MACHINE,** Singer Featherweight portable. Mikkelsen, 881-3921.

**SLIDE TRAYS** for Revere or Wollensak slide projector. Coleman, 884-5009.

**CHILD'S kitchen set—refrigerator,** stove, sink set. Mitchiner, 281-1755.

**AIMPOINT MK II SCOPE;** Thompson Center barrels in .22, .22 mag., & 30-30 calibers. Ma, 883-4438.

**EXERCISE BICYCLE.** Weems, 281-5837.

## SHARE-A-RIDE

**RIDERS** wanted to join the SLA VanPool from Belen. Pay only when you ride. 40-ride pass, \$50. Graham, 864-1960.

**UNM class carpool** wanted, Wed., Fri., 11-11:50. Hudson, 884-7621.

## LOST & FOUND

**LOST—Receiver,** Realistic Model 20-103, serial 128659; \$50 reward for return in any condition, lost at KAFB Aero Club, 8/21. Tippy, 298-3758.

**Coronado Club Activities**

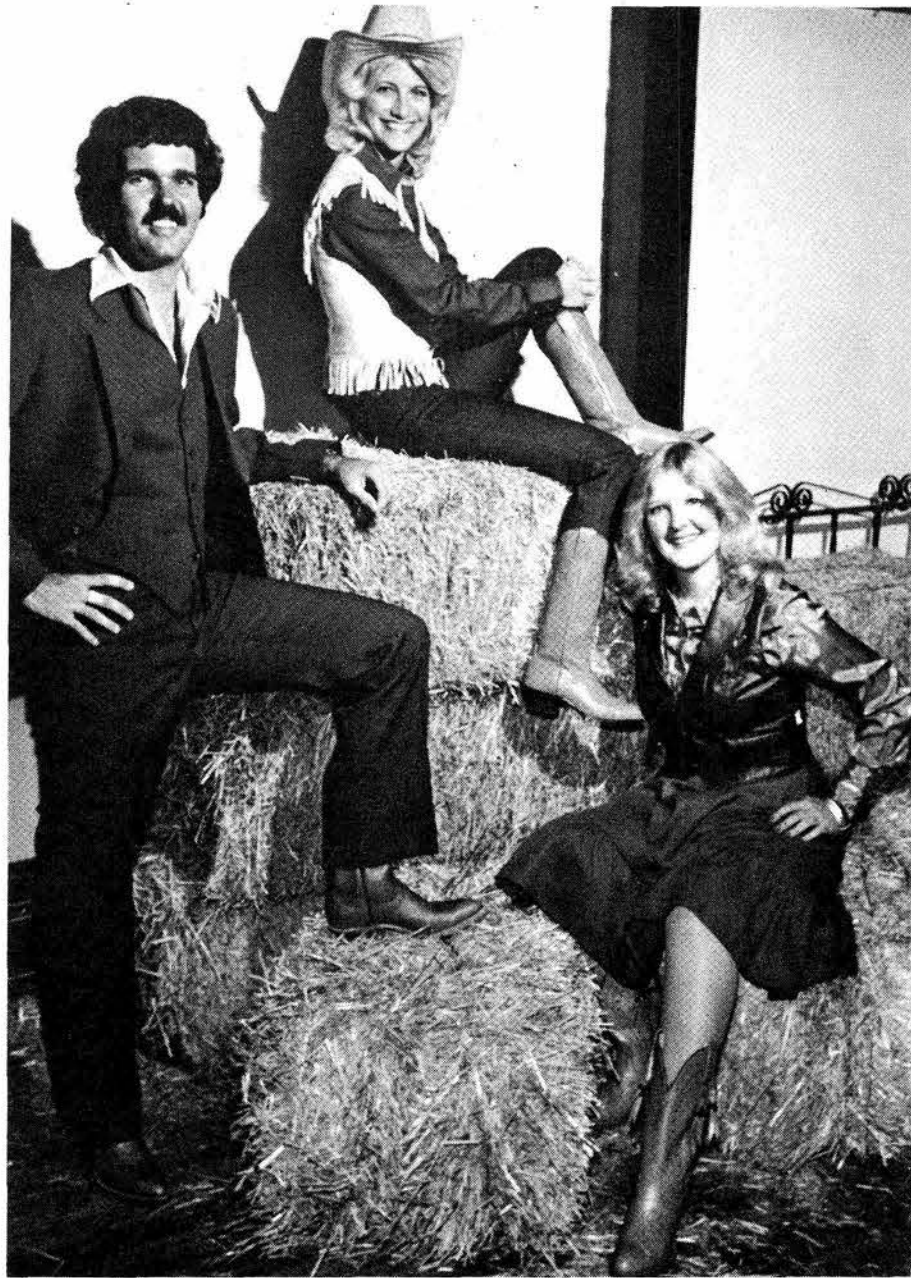
# Single Mingle Tonight

**TONIGHT AT HAPPY HOUR** the music starts at 5 with 12-Gauge on the bandstand. With a couple of intermissions, they'll play until midnight. In the meantime, singles mingle! A fantastic steamship round of roast beef is spread for the buffet with all the goodies including salad bar and desserts. Special prices are in effect all evening. Single members may bring one guest; others pay \$1 for admission.

**TOMORROW** at Variety Night, the Walt Disney production of *Swiss Family Robinson* is the movie shown at 6 p.m. Super sandwiches, pizza and other goodies are available at 5 p.m. Admission costs 25 cents per person.

**NEXT FRIDAY**, Sept. 10, is a biggie—it's a western dance extravaganza with a "rodeo" buffet for \$5.75. A group of pretty cowgirls and handsome cowboys will model a selection of western fashions from Pioneer Wear and Ramblin' Boots during intermission. Door prizes—a couple of tickets to the State Fair rodeo and gift certificates—will be given away while Youngblood plays stomping music all night long.

**THE ANNUAL MEETING** of the Club membership is set for Monday, Sept. 13, at 5:30 p.m. in the ballroom. Seven vacancies on the board of directors will be filled by membership vote. Following the



MODELS for the Western Dance fashion show on Friday, Sept. 10, include Kevin Leach, Annie Coleson, and Vicky Gentry (daughter of Ken Gentry, 2454), coordinator. Fashions are provided by Pioneer Wear and Ramblin' Boots. Door prizes to be awarded that night include tickets to the State Fair rodeo and gift certificates.

business meeting, an open bar and a spread of munchies and goodies will be available for one hour. Door prizes—\$100, \$50 and four \$25 prizes—will be given away. Only members are eligible to vote, and to receive prizes.

**SWIM SEASON ENDS** with a pool-closing party on Labor Day, Sept. 6. There'll be fun and games for kids and adults starting at 11 a.m. The snack bar

will be open. Members and families are admitted free.

**CORONADO GRANDSQUARES** offer a refresher square dancing class for those with some previous experience starting Monday, Sept. 13, at 7. The Club dances every Monday from 8:30 until 10. For more details, call Bob Butler (7233), 4-4880.

**A BAR PROMOTION** by the Schlitz Light people is set for the main lounge on Thursday, Sept. 9, starting at 4:30. Prizes will be given away every half hour until 8 while cans of their brew sell for 50 cents.

**TRAVEL DIRECTOR** Frank Biggs (1231) announces four new trips to Las Vegas—two by bus and two by air. Go by bus Nov. 25-28 for \$127 or on Dec. 26-29 for \$105. Go by air Nov. 26-28 for \$164 or Dec. 26-28 for \$138. The packages include lodging at the Maxim Hotel, transfers, and a tour of Hoover Dam. In addition, the bus trips include a continental breakfast, drinks, and treats while on board. Deposit \$50 now, balance due 30 days before departure.

Other Club trips include: *New England-Québec City*, Sept. 25-Oct. 3, \$410 plus airfare (currently \$210); *Cumbres & Toltec*, Sept. 26 and Oct. 2, \$42 adult, \$30 child; *Mexican Pacific Coast cruise*, Oct. 23-30, from \$789; *Canyon de Chelly*, Oct. 30-31, \$82; *Mazatlán*, Nov. 1-8 and Nov. 8-15, \$359; and *Dallas Cowboys*, Nov. 25-27, \$225.

See Frank in the lobby tonight between 5 and 7 to talk travel.



"I wish some of those Sandia guys would make it a little earlier for their Tonopah flight. That just doesn't look safe to me."