

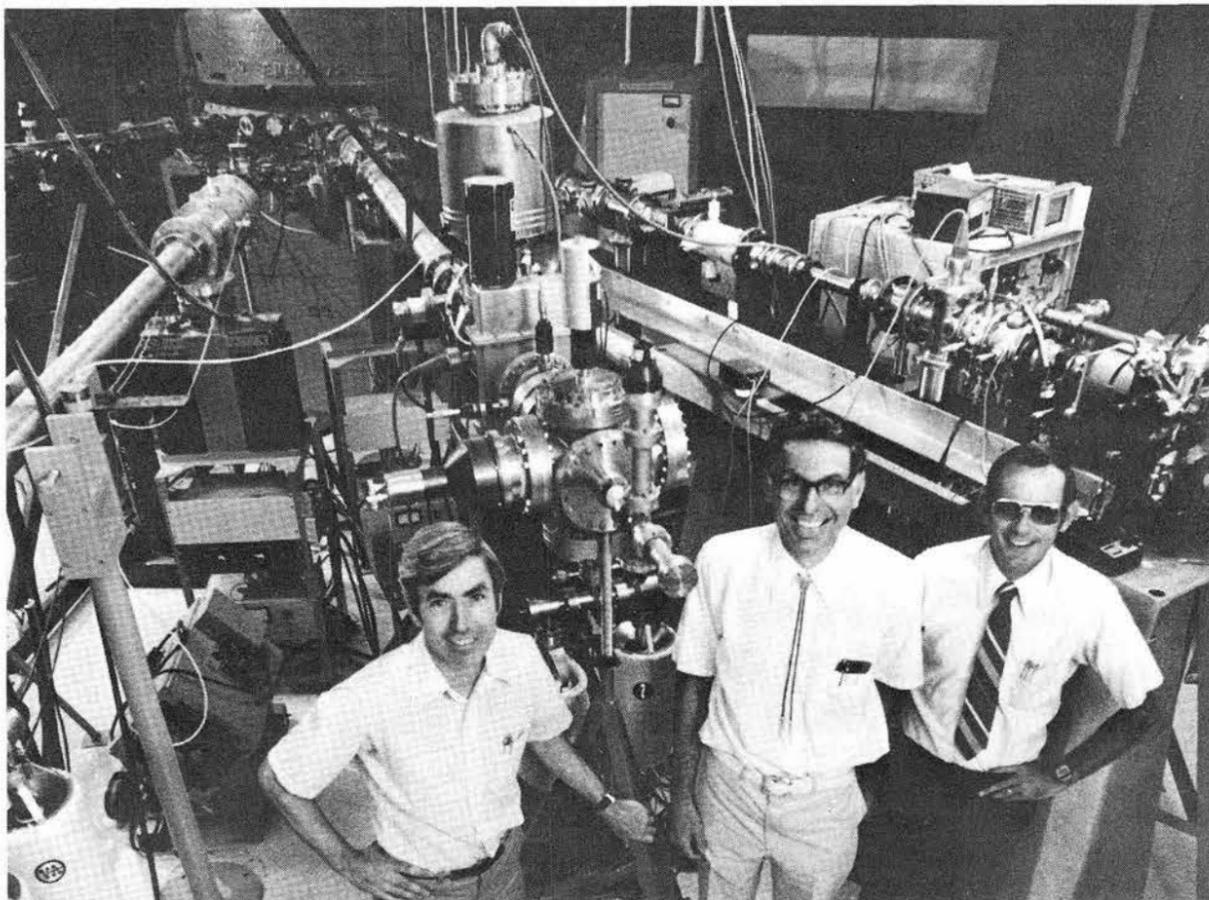
## Uncovering the Behavior of Hydrogen in Metals

Hydrogen (it means "maker of water" in Greek) is a ubiquitous element — it constitutes fully three quarters of the matter in the universe and is present in vast quantities on the surface of the earth as the  $H_2$  in  $H_2O$ . But it wasn't recognized as a separate substance until 1766 when Henry Cavendish, the English chemist and physicist, demonstrated that hydrogen was distinct from other combustible gases. (The element was called phlogiston then, Greek for "inflammable air.")

Deuterium and tritium, two heavier isotopes of hydrogen with nuclei that have neutrons in addition to the single proton characteristic of the element, were discovered in 1931 and 1935 respectively. All three forms of hydrogen have more recently become widely used in such technologies as chemical processing and fusion energy. They're widely used, but they share a troublesome characteristic — their strong and complicated interaction with metals.

For the past five years Sam Myers, supervisor of Ion Implantation Physics Division 1112, and his colleagues in Dept. 1110 have been investigating the ways in which hydrogen, deuterium, and tritium interact with metals. These studies employ novel methods based on the use of high-energy ion accelerators. Through *ion implantation*, hydrogen and other elements are injected directly into materials. *Ion beam analysis* is then used to examine the way in which the hydrogen behaves.

Both ion implantation and ion beam analysis are relatively new techniques, whose development began at Sandia and  
(Continued on Page Four)



THREE PIONEERS in ion implantation research pose in front of the accelerator in the Ion Implantation Physics Laboratory. From the left, Tom Picraux (1111), Fred Vook (1100), and Paul Percy (1110).



# LAB NEWS

VOL. 35 NO. 18

SANDIA NATIONAL LABORATORIES

SEPTEMBER 2, 1983

### Stops Spike

## New Thermal Battery Additive Awarded Patent

DOE has been awarded a patent for a new additive that improves lithium (silicon)/iron disulfide thermal batteries. Inventors are Jim Searcy and Rudy Armijo of Exploratory Batteries Division 2523.

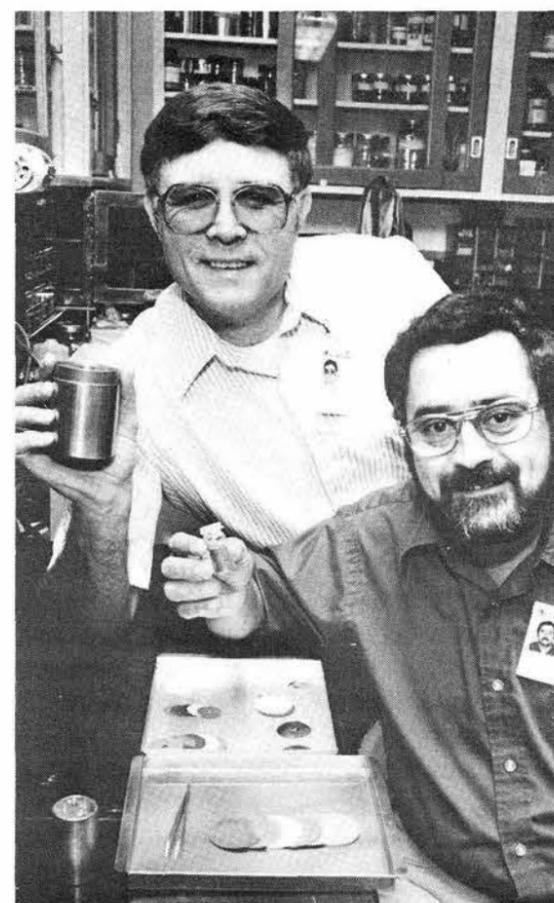
The lithium (silicon)/iron disulfide chemistry in thermal batteries was developed several years ago at Sandia in response to a requirement for a small-volume (no more than 400 cubic centimeters), long-lived (up to one hour) power source of constant voltage (around 28 volts). The new chemistry could meet this requirement except for one problem. After ignition, the thermal batteries would "spike" — produce an initial pulse of excessive voltage damaging to electronic components designed to operate within a narrow voltage range.

Jim and Rudy's invention was the addition of a small amount (about two weight percent) of calcium disilicide to the iron disulfide cathode material. In essence, after ignition of the thermal battery, each grain of calcium disilicide functions to short circuit the surrounding cathode material. Grain size and weight percentage is tailored so that this short circuit effect occurs only in the period immediately following ignition. The calcium disilicide is "used up" after ignition, allowing the electrochemistry of the lithium (silicon)/iron disulfide to maintain its constant energy out-

put until the temperature of the battery falls below 352°C.

A thermal battery is activated by firing an electric match to ignite a pyrotechnic train. Ignition raises the internal temperature to about 550°C, which melts the electrolyte instantly. Electrochemical reactions take place milliseconds after the electrolyte melts, and the battery goes to full power in no more than two seconds. A thermal battery ceases to operate when the electrolyte turns back to solid or the electrochemical reaction is exhausted. The electrolyte solidifies about 352°C.

"To understand the significance of the patent," Jim says, "you have to understand the revolution that Sandia has brought about over the past few years in thermal battery chemistry and technology. Thermal batteries have been part of weapon systems since the early days at the Labs. We had developed a calcium/calcium chromate chemistry and pellet technology that served us well for many years. Then came a requirement for a 28-volt battery that would last for an hour. About 10 minutes is all we could do with calcium/calcium chromate chemistry. In addition, the calcium/calcium chromate batteries were experiencing



INVENTORS Jim Searcy (left) and Rudy Armijo of Exploratory Batteries Division 2523 display components of lithium (silicon)/iron disulfide thermal battery. Rudy is holding a vial of calcium disilicide which, when added to the battery chemistry, prevents an initial voltage "spike" after ignition. The additive was recently patented.

(Continued on Page Two)

# Antojitos

Sign-tific Stupidity--I'm not a human factors expert. But as I grow indisputably older and disputably wiser, I've become less tolerant of easily remedied stupidity.

Yes, this is another in my Curmudgeon Series, this one directed against signs along freeways that indicate distances to exits. Every vehicle sold in this country has an odometer, and every one of those odometers measures distances in miles and tenths of miles. So what units of measurement do freeway signs use? Miles (great) and quarters of miles and three-quarters of miles and thirds and two-thirds of miles (stupid). While driving in three or four lanes of congested traffic, I'm supposed to look at the sign, look at my odometer, and add, say 2/3 mile to 39.8. I've known some engineers who couldn't handle that one without paper and pencil, calculator, or at least a slide rule--and none of these are recommended for use while driving. The signs might as well say Pretty Soon, Soon, and (just before the exit) Damned Soon.

I'm not willing to excuse the current signs on the basis of numeric legibility either. To those who whine that 1.8 miles, for example, could be misread as 18 miles, I say "Poppycock! Write 1 & 8/10 or 1  $\frac{8}{10}$  or 1.8, like the British do; typographers are a resourceful lot."

While I'm at it--the current rash of freeway repairs means that we have a plethora of signs warning of flagpersons and various impersonal barriers due ahead. These signs aren't even in fractions of miles--they're in multiples of 500 feet, for Heaven's sake. And Heaven is where you may well end up when you take the time to calculate that a mile is 5280 feet so 500 feet is 25/264 mile, which is... too late! Your car now has an orange barrel embedded in its grille. And you're lucky to be living.

I am not (here) advocating the metric system. I am simply aware that current odometers read in miles. And I simply don't understand why sign-makers (who presumably are also aware of that fact) have not yet been able to master human factors skills well enough to make signs that inform people rather than deform vehicles and perhaps re-form bodies in ways they were never meant to be formed.

●BH

Enseña más la necesidad que un año de universidad (Necessity teaches more than a year at the university.)

## Death



Harry Doro of Health Physics Division 3312 died Aug. 25 after a long illness. He was 61.

He had worked at the Labs almost 32 years.

Survivors include his wife and a son.

Continued from Page One

## New Battery Patent

unpredictable failures when new lots of calcium or calcium chromate were used. We simply could not solve production problems using the toxic chromate. The reliability wasn't there.

"In 1978, John Crawford [then 2500, now 5100] organized a task group within the Labs to address the problem. A lot of very good work was accomplished in a short time under pressure. Production schedules were in trouble. Except for that initial spike, the lithium (silicon)/iron disulfide battery that the task group developed could meet all requirements -- reliability could be maintained and costs were much lower.

"We had analyzed a lot of materials in the development program," Jim continues, "and we remembered the short circuiting characteristics of calcium disilicide and thought the right amount of the material might short circuit the spike. We got lucky -- we had success after about four attempts to adjust the composition. We found that matching the grain size of the materials was very important."

The resulting thermal batteries -- for examples, the MC3656, MC3174A, MC3714, MC3800, and MC3794 -- are now standard in new weapon systems.

## Livermore Take Note

Jackie Garrett (8214) is manager/coach of the Arrow women's slow pitch softball team that recently won the California State Championship at a tournament in Visalia. Jackie has been a coach and manager for slow pitch the past 10 years, she also played on the California state championship team in fast pitch several years before that. Her team members hail from Tracy, Pleasanton, Dublin, Concord, Modesto, Lodi, Turlock, and Pittsburg. On Labor Day weekend she will take the team to Las Vegas for the national championship tournament. Their won-loss record for this season is 47-19, which includes 17 shutouts.

\* \* \*

Dr. John Rhodenbaugh, Sandia Livermore's physician, was recently honored by St. Rose Hospital in Hayward where its main entrance drive was dedicated as "Rhodenbaugh Drive." He was formerly chief of radiology there and opened the radiology department at the hospital in 1962.

## Sympathy

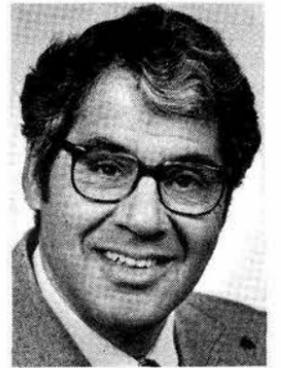
To Sam Price (8255) on the death of his wife in Danville, Aug. 9.

To Ferd Thome (8251) on the death of his son in Reno, Aug. 9, and the death of his brother in Wichita, Kan., July 25.

To Jerry Cashen (8329) on the death of his father in Denver, July 27.



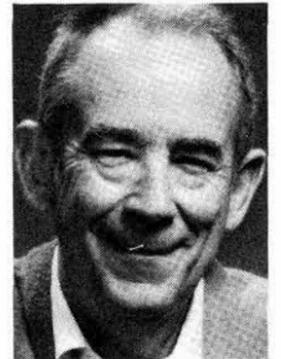
Roger Baroody then



... and now



Bill McGuire then



... and now



Connie Visbeck then



... and now

## LAB NEWS

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# Sandians Witness Surrender Ceremony

It was 38 years ago today, Sept. 2, 1945, that the Japanese formally surrendered to the U.S. aboard a ship in Tokyo Bay. The anniversary is special for six Livermore Sandians — they were there.

It wasn't until recently that Ken Finders (8254) discovered that two coworkers, Val Black (8414) and Wes Estill (8415), had been near the surrender just as he was; in recent weeks three more Sandians, Roger Baroody (8410), Bill McGuire (8444) and Connie Visbeck (also 8444), have found that they also had the same historic event in common.

Ken was flying overhead in a B-29 while the documents were being signed below on the deck of the *USS Missouri*. He recalls being low enough to actually see the Japanese and American officers around the table where the surrender documents were signed.

Ken's first combat mission of the war had been aboard the "Ernie Pyle," a B-29 named after the famous war correspondent from Albuquerque. He said the crew often used two (instead of one) bullet-proof vests, the second one to sit on. "When we got only one, it was a tough decision to make — where to put it," Ken says. "Flying conditions were just as portrayed in the Hollywood movies, with all the anti-aircraft shells exploding near the planes," he recalls. Over the target areas the Japanese searchlights were so bright you could even count the rivets on your plane's surface."

Val probably had the best continuous view of any Sandian in the area that day. He was on the deck of the battleship *USS*



ABOARD THE *USS MISSOURI* on Sept. 2, 1945, the Japanese foreign minister signs the surrender document. Man with back to camera is probably Admiral Halsey. General MacArthur stands at the microphones. (Official U.S. Navy Archives photo)



## SANDIA LIVERMORE NEWS

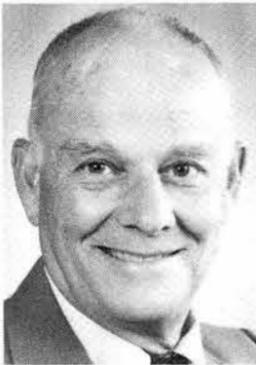
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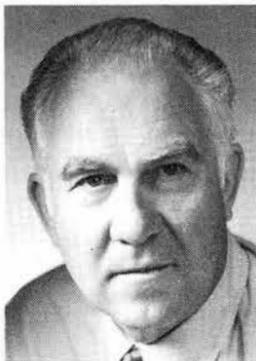
Ken Finders then



... and now



Val Black then



... and now



Wes Estill then



... and now

*Wisconsin*, sister ship to the *Missouri*. The *Wisconsin* was close enough for Val to see the Japanese delegation as well as Gen. MacArthur, Admirals Nimitz, Halsey, and Sherman, and other officials taking part in the ceremony. The 21-year-old ensign spent his duty time in the engine room of the battleship, but he got ashore twice after the surrender — at Yokohama and Tokyo.

Wes, attached to the cruiser *USS Flint* as a gunners mate 2nd class, was actually on shore at Tokyo during the ceremonies. He recalls unloading boxcars full of weapons that had been turned over to the occupation forces by Japanese military and civilians, all of whom had been armed for a fight to the finish in case the Allies had chosen to end the war with a shore offensive on Japan.

Roger was some 30 miles out to sea on the destroyer *USS McGowan*, a part of Admiral Halsey's task force. Its role in the occupation was to do mine sweeping. Roger was a petty officer 1st class working in the boiler room as a water tender. He recalls the captain's announcement over the intercom of the surrender signing.

Bill, a Navy flier off the aircraft carrier *Yorktown*, had been flying air strikes over Japan until the armistice. The ship was a part of the fleet near Tokyo Bay on Sept. 2. He was probably the first of the six future Sandians to return home — his ship left

Japan two weeks later and he was discharged as soon as he returned to the U.S.

Connie was assigned to the *USS Oklahama City*, a light cruiser that escorted the aircraft carriers. On Sept. 2 it was stationed just outside the Bay. He also heard about the signing over the ship's radio. Later he became part of the occupation forces in Japan and had shore liberty at both Hiroshima and Nagasaki, so he saw firsthand the devastation caused by the atom bombs dropped on those two cities.

Connie recalls that on his first visit to those cities the children would sneak out of shelters to take a peek at those "strange American servicemen" and their frightened mothers would pull the little ones back inside. On his second visit to the devastated cities, he and other troops brought gum and candy for the children, thus breaking the ice between the servicemen and some of the Japanese civilians. Not all, however — while on shore in Sasebo they came under fire from snipers hidden in the hills. Japanese police were required to search out these gunmen whenever possible.

All six men returned stateside to attend school or seek jobs, and all eventually worked at Sandia Albuquerque before accepting transfers to Livermore during the sixties.

Continued from Page One

## Hydrogen Behavior

other laboratories in the 1960s. Applying these techniques to hydrogen effects is leading to new and fundamental insights into a wide range of hydrogen-based technologies.

Hydrogen-metal interactions are often quite detrimental. One example is the phenomenon called hydrogen embrittlement: hydrogen atoms migrating through steels cause a reduction in ductility and thereby lead to brittle fracture. This degradation is a serious design limitation when, as in the chemical industry, exposure to the gas is coupled with mechanical stress.

Additional concerns arise in fusion reactors; their vacuum chamber walls of alloys like stainless steel or Inconel are bombarded by deuterium and tritium. One problem is that a substantial fraction of the expensive and radioactive tritium inventory can be tied up in the walls.

Another difficulty is the diffusion of tritium through the vacuum chamber wall and into the coolant or the environment. A third problem is the recycling of hydrogen isotopes from the walls back into the plasma, an effect that can perturb the fueling of the reactor.

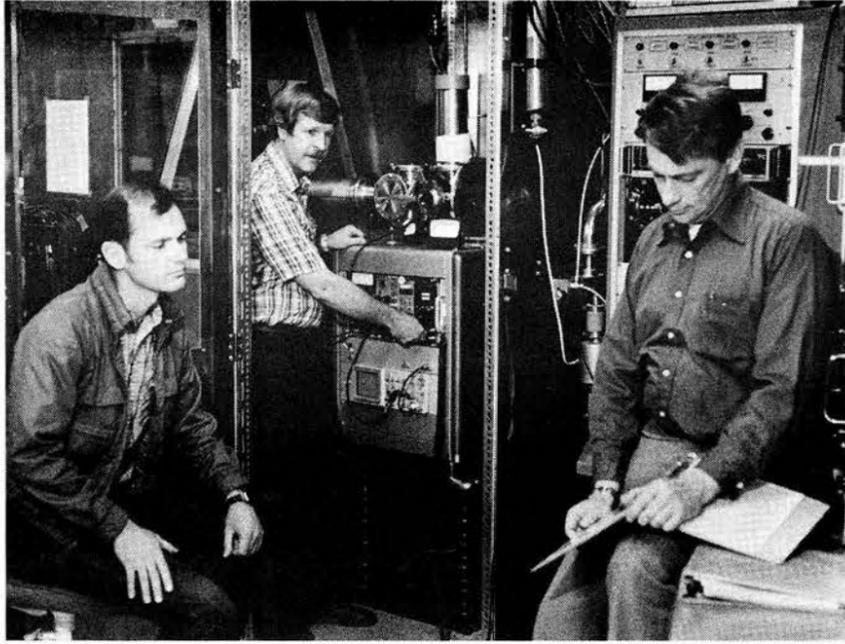
"Our program has two principal objectives," says Sam. "One is to achieve a better fundamental understanding of the behavior of hydrogen in metals. The other is to provide a data base characterizing technologically important alloys, such as stainless steels and Inconel, in hydrogen environments. This information is necessary for the proper design of systems like fusion reactors and hydrogen-processing facilities."

A special feature of the program is the way in which hydrogen is introduced into a metal. Although charging is sometimes accomplished by the usual method of exposure to gaseous hydrogen, ion implantation of high-energy hydrogen ions from an accelerator directly into the target is used more frequently. A major advantage of the latter approach is the ability to tailor the starting spatial distribution according to the needs of particular experiments. Moreover, ion implantation can also be used to produce locally high concentrations of the entities that affect hydrogen migration, such as vacancies and helium bubbles.

Sam's group also employs ion accelerators to examine the position and movement of hydrogen within metal matrices. In one approach, materials containing the isotope deuterium are bombarded with helium-3 isotopic ions (two protons and one neutron in the nucleus) at energies up to 2.5 million electron volts.

The helium isotopes penetrate into the solid and undergo a nuclear reaction with the deuterium, producing protons with energies exceeding 10 million electron volts. Some of the protons emerge from the solid and are then detected and counted. In this way, the depth distribution of the deuterium is measured with a resolution of 0.2 micrometer and a sensitivity of better than one deuterium per million host atoms.

In a variation of the method, called ion



NEW METHODS to observe the behavior of hydrogen atoms in metals have been developed by (l to r), Bill Wampler, Jim Banks, and Sam Myers (all 1112). Here they prepare the ion implantation accelerator that shoots high-energy hydrogen ions into a metal target. The ions penetrate the metal sample and can then be studied in detail.

channeling, the helium ions are directed along open channels in the crystalline solid. Under suitable conditions, this technique can determine the position of the deuterium within the host lattice with a greater than 0.02 nanometer resolution.

"Ion beam techniques have double duty here — first to prepare metal specimens and then to observe the behavior of the hydrogen during heating," says Sam.

With these techniques each of the important processes and properties have been characterized: *dissociation*, in which molecules of hydrogen gas break apart at the surface and enter the metal; *diffusion*, where the hydrogen atoms migrate by hopping between the interstices of the metal matrix; *trapping*, the retention of hydrogen at such lattice imperfections as vacancies, helium bubbles, and precipitates; *recombination*, the formation of gas molecules of hydrogen at the metal surface; and *solubility*, the concentration of hydrogen within metals in equilibrium with the gas phase. Such experiments have been performed on stainless steels, Inconel, the glassy alloy Metglas, and a number of pure metals.

The program has had several technological payoffs. First, the diffusion rate and solubility of tritium in stainless steels have been measured for the first time at ambient temperatures. These measurements allow tritium absorption and penetration to be predicted more accurately. Second, surface treatments have been identified that reduce tritium absorption in stainless steels by as

much as 1000 times, a significant step in reducing tritium embrittlement.

Third, helium bubbles have been shown to be strong traps for hydrogen in all of the metals studied. Such bubbles are known to result from tritium decay,\* and their presence can significantly increase the quantity of tritium within the material. Finally, detailed measurements of trapping and surface recombination for stainless steel and Inconel allow the retention, recycling, and external release of tritium in fusion-reactor walls to be predicted with greater accuracy than ever before.

This program on hydrogen behavior in metals is part of a much larger effort taking place at other laboratories in the U.S. and abroad as well as at Sandia, where Dept. 8340 is doing related and complementary ion-beam studies. However, the ion-beam methods developed at Sandia have substantially extended previous experimental capabilities, resulting in a large body of new information.

The work described here represents the collaboration of a number of researchers. They include Tom Picraux (supervisor, 1111), David Follstaedt and Bill Wampler (both 1112), Jim Schirber (1150), Steve Robinson, (8314), George Caskey (Savannah River Lab), and Flemming Besenbacher and Jørgen Bottiger (both University of Aarhus, Denmark).

\*Tritium is an unstable radioactive element with a nucleus consisting of a proton and two neutrons. One neutron changes to a proton; then with two protons and one neutron in the nucleus, tritium becomes the light isotope helium-3.



AT RIBBON CUTTING ceremonies last week for the new periodicals wing of the Tech Library, Bldg. 804, President George Dacey did the honors while George Dalphin (3144), left, and Danny Brown (3140) felt proud. The new 6100-square-foot, \$635,000 addition is now open for business. In earlier remarks, President Dacey said he was "pleased, indeed" with the new addition. "It is a sign of maturing civilization," he said, "when resources are used in a library."

## Sandia — A Pioneer In Ion Implantation

Sandia was a pioneer in ion implantation studies 20 years ago and remains a leader in this revolutionary technology. Originating with radiation damage studies in the 1960s, ion implantation was developed to change the chemical composition of the near-surface region of a solid.

Ion implantation is most widely used in the microelectronics industry for the controlled "doping" of semiconductors — the high-energy implanting of foreign atoms into a semiconductor, thereby tailoring its electrical properties.

The work on hydrogen behavior in metals is only the latest application of ion implantation research. "Sandia's ion implantation research aided rapid commercialization in the semiconductor industry," says Fred Vook (1100), "and then Sandia applied it to our own semiconductor device fabrication effort in Org. 2000. Now we're using it to look at metals in a field we call implantation metallurgy. We're planning to buy another high-energy accelerator for our current research in compound semiconductors.

"Another new research area we have pioneered is the application of ion implantation to optical photo-ferroelectrics, thus increasing optical sensitivity up to 40,000 times. An important area of research at both Sandia Albuquerque and Sandia Livermore is the application of ion implantation to the study of hydrogen and helium interactions with surfaces in magnetic fusion research."

At Sandia, 11 accelerators are now being used for ion implantation experiments and device fabrication. These accelerators are located in three organizations, 1100, 2100, and 8300.

Since 1970, Sandians have been instrumental in organizing and participating in ion implantation conferences, which are held at least every two years in different parts of the world. Among the Sandians who have played and continue to play prominent roles in these conferences are Fred Vook (1100), Paul Percy (1110), Tom Picraux (1111), George Arnold (1111), Dave Brice (1112), Jim Borders (1823), and Walter Bauer (8340).

### Foreign Scientist

## 'I Love the Chili' — Hisashi Nakamura

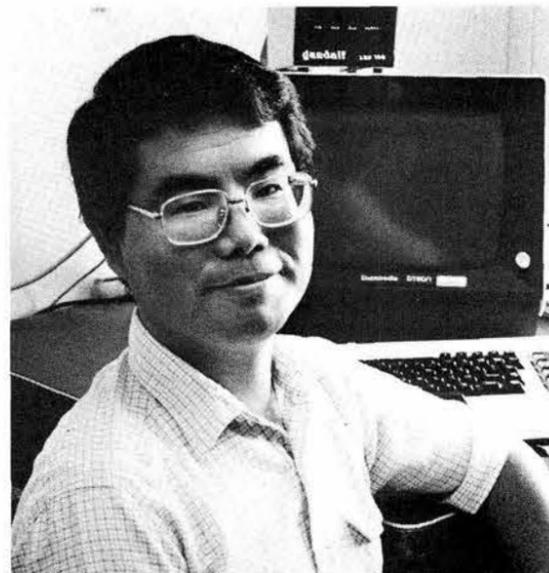
(Ed. Note — This is another in a series of articles about the foreign scientists working under various international agreements in Jack Walker's Advanced Reactor Research Department 6420.)

Hisashi Nakamura is a reactor safety engineer with Japan's Power Reactor and Nuclear Fuel Development Corporation (PNC) headquartered in Tokyo. He joined the firm eight years ago after earning a master's degree in mechanical engineering from Ibaraki University. He will be at Sandia for a year working on the joint debris bed coolability program in Ted Schmidt's Post-Accident Heat Removal Studies Division 6421.

One of the last programs Hisashi worked on in Japan concerned post-accident coolability considerations for the Monju fast breeder reactor, a prototype of a new generation of power reactors that produce more fuel than they burn. The Monju's 280 megawatts of power will eventually be absorbed into Japan's electricity grid, about 30 percent of which is currently generated by light-water-cooled reactors.

"Monju" is a word that doesn't translate well into English. It is a bodhisattva of wisdom and intellect. (*Bodhisattva* — one whose essence is enlightenment: a being that compassionately refrains from entering nirvana in order to save others.)

Monju, the fast breeder reactor, is currently under construction. It is Japan's hope for the future, Hisashi says. "Japan has no oil or coal or uranium. We must have nuclear power. It is the only economical way for us. The Japanese understand this,



HISASHI NAKAMURA is a senior reactor safety engineer with Japan's Power Reactor and Nuclear Fuel Development Corporation. He's spending a year at Sandia in Division 6421.

and there is very little opposition from the people."

Currently, his wife Tashiko and his 18-month-old daughter are visiting here. Tashiko teaches English in Mito City near the PNC research laboratory.

"In Japan all children are taught English for at least three years," Hisashi says. "As the students enter advanced grades and college, more English courses are required."

Earlier this month the family took a sight-seeing trip to the Grand Canyon. Hisashi is enjoying showing his family the Southwest. "I like it here," he says, "particularly American food. And I love chili."

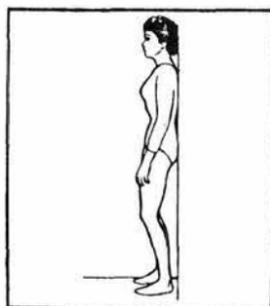
### Who's the Strongest?

## Wall Slide Competition Set

It's not sliding down walls. It's not sliding walls off foundations. A wall slide is an exercise that strengthens the large quadricep muscles in the thighs.

And Sandia Medical is sponsoring a contest — call it a slide-off — to determine the owner of the strongest quads at Sandia.

"Having strong quadriceps and using your legs correctly when lifting can help prevent back injuries," says Larry Suzuki, Sandia's physical therapist. "The wall slide exercise also strengthens legs for skiing and other sports."



**WALL SLIDE**  
1 Get Into Pelvic Tilt Position



2 Slide 1/2 Way Down Wall And Hold

So it's an excellent exercise to perform at home. But if you think you're pretty good (the average person should be able to hold the position for about three minutes) and you want some publicity for your quality quads, you'll want to compete in the slide-off. That's set for Oct. 25 and 26 in the Coronado Club patio from 11:30 to 1. Drop by and lean against a wall (see the sketch) during your lunch hour either day.

Everyone who enters is eligible for prizes. The grand prize is a weekend for two at Purgatory — two nights' lodging in Durango and ski lift tickets for two days of skiing at Purgatory.

One caveat: because this is an isometric exercise, it can cause a temporary elevation of blood pressure. If you have high blood pressure, don't do wall slides.

If you plan to participate in the slide-off, please send your name and organization number to Larry Suzuki (3332). He'll send you further details.

And, for those seeking fame, the Guinness Book of World Records says that the record for the wall slide is more than three hours; if you're planning to go for it during the slide-off, tell your supervisor you'll be a bit late getting back from lunch.



SMALL STAFF, meet some campus recruiters. Briefing the group is Bob Reuter (1523), PhD recruiter at the University of Illinois. Clockwise from Bob are: Gene Reed (2000), Bob Peurifoy (7000), Charley Ross (4000), Al Narath (10), George Dacey (1), Tom Cook (20), Everet Beckner (6000), Orval Jones (5000), and Dick Claassen (8000). In the background, l to r, are: Marv Torneby, super-

visor of Staff Recruiting and Employment Division 3531, the group that coordinates Sandia's recruiting activities; Howard Seltzer (5322), engineering and science assistant recruiter at Stark Technical Institute; and Dan Arvizu (6224), master's degree recruiter at NM State University.

## Role of Recruiters Significant, Unsung

Campus recruiting was recently re-emphasized as vital in meeting Sandia's goal of continuing technical excellence.

The occasion was a Small Staff meeting on current and expected future issues in recruiting employment candidates at the doctoral, masters, and technical institute levels. As Al Narath (10), who is chairman of the Technical Recruiting Advisory Committee, later said, "The dedication and hard work of Sandia's university and tech institute recruiters continue to be major reasons for our success in attracting outstanding engineering and science talent to the Labs."

This effort by the recruiters is often overlooked — taken for granted — by the

majority of Sandians. After all, it takes place out there on the campuses, not in-house. But the unsung efforts pay off — fiscal 83 has been a very successful recruiting year for the Labs. In fact, 75 percent of the grads offered jobs at Sandia accepted the offers.

While many Sandians play an important role in the interviewing, hiring, and assimilating of new hires, campus recruiters have the key role of identifying candidates and attracting them to the Labs in the first place.

Preparations for fall recruiting are now underway. With the divestiture of the telephone operating companies, Sandia will

assume the campus coordination role for master's level recruiting at several universities in the Southwest for the remaining AT&T entities. Other AT&T entities will coordinate efforts at other campuses that Sandia recruits at throughout the country.

The role is a major one: "We live in a competitive world, and in the final analysis it is the ability and motivation of people that determine the performance of any organization in the accomplishment of its mission," says Al. "We take great pride in Sandia's past successes — but to build on that record will require steady additions of new talent in future years."

The campus recruiters share the responsibility for that challenging task.

Gene Jeys (7252) and Carl Smith (7658) were two of three Boy Scout leaders who took two troops of Scouts on a joint camping trip this summer. That's hardly news — except that one of the troops consisted of 12 boys with handicaps ranging from inability to read to mental or emotional retardation. But the leaders — and the Scouts — met the challenges and had a great week camping together in southwest Colorado.

\*\*\*

Julia Gabaldon (3163) and Val de la O host this year's Hispanic Heritage Day program at the State Fair on Sept. 13. Freddy Fender is the big name for the evening, but he's likely to be upstaged by seven New Mexico acts that won a statewide talent search. Tickets (\$7, \$4, and \$2) are on sale at the Fair ticket office on Worldwide, 883-4040.

\*\*\*

Two solar workshops sponsored by the NM Solar Energy Institute are in town this month. The first, Sept. 16-17, is an Advanced Passive Solar Design short course at the

Convention Center. Recommended for anyone planning to build a passive solar home, it's developed with owners, builders, designers, and contractors in mind. The second, Sept. 24, is Solar Retrofit: Solar for Existing Homes, and it's at the Montoya Campus of T-VI. Get details or registration info from Sue Mumma at NM State, 646-4112.

\*\*\*

The Air Force "Tops in Blue" entertainment showcase comes to the Parade

### Take Note

Ground at 8 p.m. on Sept. 10. This year's show, "Land of Make Believe," features a cast of 26, the best of Air Force talent worldwide. Your admission ticket is a blanket to sit on. More info from Que Pasa, 4-5420.

\*\*\*

Bereavement group meetings, sponsored by the counseling department of Presbyterian Hospital Center, are scheduled from 5 to 6:15 p.m. on the following

dates: Sept. 12 and 19, Oct. 3, 10, 24 and 31. Each session will include a short educational presentation followed by the opportunity to participate in small support groups. Persons may attend any or all of the sessions (\$20 for six sessions, \$5 for one session). The group will meet in classroom B at Anna Kaseman Hospital. Call 291-2172 for registration.

\*\*\*

At the other end of the spectrum, Parentcraft begins three new groups this month. One will help couples expecting babies this winter to learn about infant care, family nutrition, working parents, etc. It will meet every two weeks for 10 sessions. The second group is for mothers of infants and meets evenings every other week for 10 sessions. Topics include home safety and emergencies, infant nutrition, parents' needs, and the "decision to work." The third group is for parents of twins and will cover the special problems of twins and their families. More info on rates and times from June LeCrone at 256-1191 or 296-7225.

## Fun & Games

**Running** — The third annual Blood Donor 5-Mile Classic run is Sept. 10 at 9 a.m. Registration fee comes out of your hide — a pint of blood donated at any blood mobile (at Sandia Medical on Tuesdays) or at United Blood Services, 1515 University NE. Awards include Olympic-type medals for top finishers, T-shirts and "No Sweat" head bands for all runners; refreshments for everyone. More info from 843-6226.

\* \* \*

**Table Tennis** — The Carl Duimstra Memorial New Mexico Closed table tennis tournament is Sept. 10 at 9 a.m. at Monroe Junior High, Indian School and Louisiana. It's a "double round robin" tournament with new rules in effect. Trophies for winners. Enter by Sept. 6; \$5. More info from 898-3089.

\* \* \*

**Biking** — A Tandem Time Trial (for male-female teams only) is set for Sept. 18. The ride begins at 9 a.m. (registration at 8) from the Mountain View Inn (far east Central) and ends at Oak Flats on South 14. More info from David Strip (6415) on 255-7230.

\* \* \*

**Classes** — Welding, youth art, and beginning tole painting are among classes now beginning (on Sept. 6, 3, and 15, respectively) at KAFB's Arts & Crafts Center. More info from 4-0222.

\* \* \*

**Hotel Health Club** — Still some openings available in the special membership plan, says the Sandia Employees Recreation Program manager. Spouses and family members count toward the 10 members allowed. Deadline is Sept. 9. Sign up with Carla Chirigos at 4-9941.

\* \* \*

**More Running** — The Showdown Wilderness Run on Sept. 24 is not for the faint of heart — or foot. It's a rocky and rugged run over unimproved trails. As Al Waquie said last year, "This is my kind of race." Forewarned is forearmed — four-footed would be preferable. Details: run either the 3-mile (\$6.50) or the 5-mile (\$8) course; open and masters (over 35 for women, over 40 for men) categories; water provided on longer run; T-shirts for all; add \$1 for late entry — 7:30 on day of event. Advance entries due Sept. 21; entry blanks in LAB NEWS office.



CONQUERORS of La Luz Trail, these Sandia-affiliated runners participated in the nine-mile uphill run last month. In photo above, back row: Gilbert Benavides (2543), Roque Feliciano (7551), and Dan Arvizu (6224); middle row: Bob Fox (2543), Will Fox (Bob's son), Fran Nimick (6313), Hank Westrich (1543), and Jim Klarkowski (7543); front row: Connie Fox (Bob's daughter), Pete Richards (1151), Russ Haushalter (2552), Herb Floyd (2314), and Larry Nelson (2331). In photo at right, clockwise from front: Larry Johnson (5123), Ed Dale (2627), Bill Trebilcock (6424), and Ken Heuter (332). Pete won the 40-49 division, Larry took second in the 60 and over, and Ed placed fourth in the 40-49.



Gather at 4300 Landau (just east of Tramway off Montgomery) for a 9 a.m. start.

\* \* \*

**Golf** — Tijeras Arroyo Golf Course is the site for the first annual Scholarship Golf Tournament, a part of KAFB's activities during Hispanic Heritage Week, on Sept. 12. Entry fee is \$10 and includes the tournament, refreshments on the course, and awards. Contact Max Martinez on 4-2379 for registration forms to make donations. Deadline is Sept. 5.

\* \* \*

**Bowling** — The Coronado Club mixed bowling league seeks new members. The

group bowls Wednesdays at 6:30 p.m. at San Mateo Lanes. The league now has seven teams. George Garcia (7232), president, says if 12 teams compete, the league champs win a free trip to Las Vegas. Call George at 888-4735 for details.

\* \* \*

**Backpacking** — A class in backpacking will be taught Sept. 12 and 15 from 7:30 to 9 p.m. at the Coronado Club, part of the Sandia Employee Recreation Program. Klaus Weber of UNM is the instructor; he will also lead a weekend outing in the Pecos Wilderness Sept. 17-18. Enrollment fee is \$20. Call 4-8486 or sign up at the Club office.

Last issue it was Chinese and Japanese. Now it's French and German. The fall term of l'Ecole de l'Alliance Française begins Sept. 12 with small classes for all levels both day and evening. No prerequisites, no credit; these adult classes are taught by qualified teachers in the informal atmosphere of their homes. And, yes, La Cuisine is offered again. Margery Storrs has all the details at 821-5788. Conversational German, taught by Joan Winter, meets every Wednesday from 12 to 1 in the Bldg. 803 conference room beginning Sept. 14 and ending Dec. 21. Cost will be determined by response. Contact Barry Marder (334) on 4-9829 for more info.

\* \* \*

Authentic South American music, including a contemporary folk singer from

Peru and a group from Colombia that offers a review of the music of the Andean countries, is featured on Sept. 15 at 4:15 p.m. in Popejoy. Sponsored by UNM's Latin American Institute, the concert (\$6.50) is the highlight of "Andean Week" at UNM from Sept. 12-16.

## Take Note

If you're tired of whistling while you work and you'd like to be singing after work, you may be ready for a spot in the NM Symphony Orchestra Chorus. Roger Melone, choral director for the group, has announced auditions for the 1983-84 season. Most vacancies are for men; competition for the few women's vacancies "will be extremely fierce." Auditions will be held Sept.

9-11, 16-17. Plan to sing a familiar work; it may be simple and unmemorized. Call 843-7657 for an audition time.

\* \* \*

At a recent meeting in Washington, D.C., Ron Halbgewachs (2645) was re-elected president of NEXUS, a users group of Network Systems Corporation computer communications equipment and software. Ron has served on the board of directors of the organization since 1981. The group now has more than 100 member installations within the U.S. and 21 foreign installations. Meeting semiannually, NEXUS promotes a forum for technical presentations in the areas of computer networks, satellite communications, electronic mail, and inter-office data communications.

\* \* \*

## Some of Kirtland's Earliest Workers

Most of us working on Kirtland Air Force Base are aware of the perimeter fences and accept them along with the other restrictions associated with a national R & D laboratory and a military base. We don't give much thought to all the vacant land surrounded by those fences. However, the KAFB civil engineering people do think about that land — it's their responsibility to protect natural and historical resources and to oversee all land use on the base. So when a prehistoric Indian village is discovered on the base, they react.

Much of that reaction centers on Chris Moe. She's the base's historical preservation officer and community planner. After Chris earned her master's degree in urban studies at the University of New Orleans, she worked on historical preservation in that city.

"When the Kirtland offer came along in 1980, I was ready for a change," she says. "Victorian architecture is so prevalent in New Orleans that I began to feel like I was on a movie set."

It's a long leap back in time from the Victorian era to ancient Indian ruins in the Southwest, but Chris seems to have made that transition with admirable ease. She gives credit to extensive resources, both people and material. "The Albuquerque Museum has been very helpful, as have staff archeologists from the Corps of Engineers, the Forest Service, and the State. There are Federal Government standards on how to manage historic sites and, of course, this office is a resource because of the work done by those working here before me."

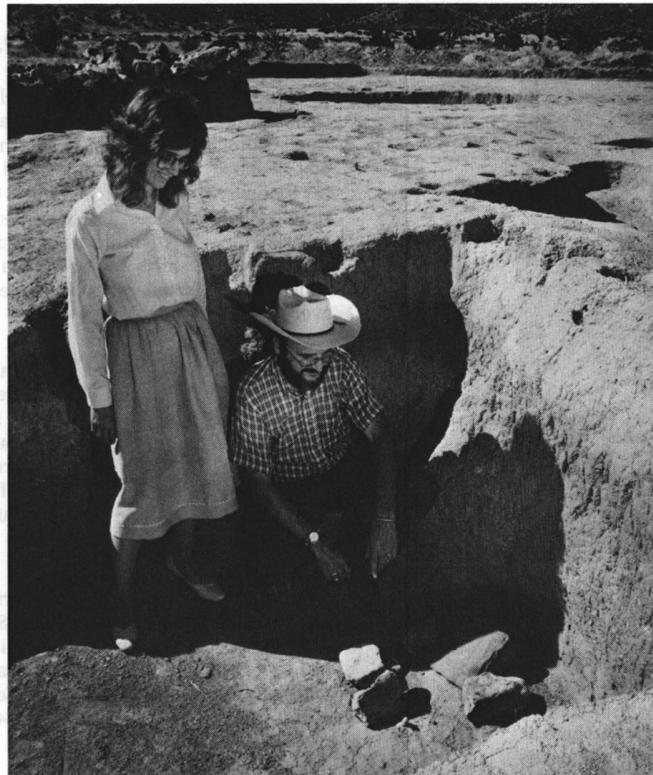
Chris began her job amidst the excitement and anticipation of an important archaeological find. Shortly before her arrival, a troop of Boy Scouts had discovered an ancient Indian skeleton that had been partially exposed by erosion of an arroyo bank. The area, in the foothills of the Manzanos, was the site of pending construction for the Air Force Weapons Laboratory. Federal law requires that an archeological survey

be made of any area scheduled for development. Albert Ward, director of the Center for Anthropological Studies (LAB NEWS, May 16, 1980), was overseeing such a preliminary survey in another area of the base. Called in to examine what the Scouts had found, Al concluded that the remains were that of a woman about 60 years old, who had been buried sometime between A.D. 1200 and 1300.

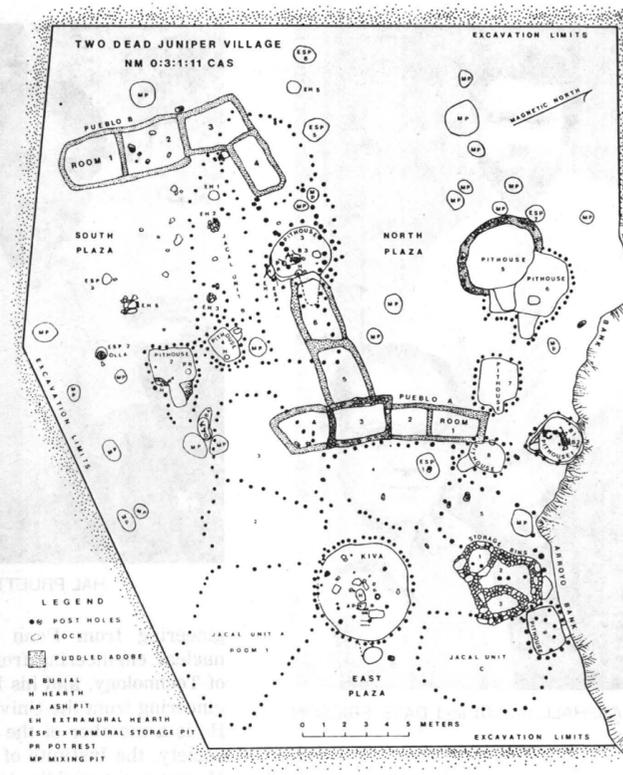
A long delay followed because of state and federal regulations requiring "mitigation" — a proposal why the site should be excavated, what questions might be answered by uncovering the site, and what the alternatives might be. It was obvious to everyone concerned that artifacts at the site should be protected instead of leaving them to erode away. In addition, the area — an optics range — would eventually be closed. The proposal was approved last fall after passing through the NM Historical Preservation Office, the Military Airlift Command, and the President's Advisory Council on Historic Preservation.

Excavation began last December and was completed this spring. The site appears to be a small, seasonal farming village, consisting of nine pithouses, three *jacals* (shelters of upright posts covered by saplings), two surface adobe buildings, a stone storage building, mortar mixing pits, and a kiva for religious ceremonies. Artifacts recovered include bone awls, *manos* and *metates* (stones used to grind corn), pottery shards, animal bones, projectile points, and a large storage pot. A total of four burials were uncovered.

The burial remains were sent to Northwestern University for analysis. The report supports Al's initial conclusions. One burial was that of a 50+ female, suffering from advanced arthritis. Another was of a 24-29 year-old male suffering from TB; the investigation also revealed that he must have endured a painful toothache because of a huge cavity found in one of his teeth. A third burial was that of a 40+ female; and the



CHRIS MOE, KAFB's historical preservation officer, and Al Ward, director of the Center for Anthropological Studies, are in pithouse number one where the digging began. Skeletal remains had been exposed by erosion of the arroyo bank.



AS WORKERS stripped away the surface soil, this 700-year-old farming village was revealed. Archeologist Al Ward prepared this drawing once the excavation was completed. He named the location Two Dead Juniper Village because of two withered trees at the site.

fourth was that of a seven-year-old boy. All died from natural causes, and their deaths occurred at different times.

Investigation — carbon and archeomagnetic dating — is still underway on artifacts and trash heaps, but Al has enough information to offer the following:

"A 30-year drought late in the 13th century coincided with the abandonment of Mesa Verde and Chaco Canyon. Those people, the *Anasazi* (a Navajo word meaning "the ancient ones"), migrated into the Rio Grande valley and, with water available, began to use a primitive form of irrigation. There were probably several large villages near the river, now lost because the city was built over them. As the migration increased, farmlands around the main villages probably were insufficient to provide enough food; thus seasonal villages came into use.

"The site we excavated, Two Juniper Village, was located on a flood plain with fertile soil and was sheltered on three sides by foothills. The environment would have been much as it is today, and the physical appearance of the people would be almost the same as that of Indians who live here today. The village was probably occupied on and off for 50 to 60 years. Each April, the men and boys traveled from the main village to the site to plant corn, beans, squash, and melons. They returned in late July or early August to weed their fields and to collect green corn to take back to the valley for the Green Corn Ceremony. A few weeks later, they returned to the village; entire families made this trip. The crops were harvested and spread out on the roofs to dry.

"Because of the large number of *manos* and *metates* we found, I'm sure the women

ground the corn at the village and returned to the valley with the meal. During the time of the harvest, the men and boys hunted in the nearby forest. We found bones of deer, elk, rabbits, rodents, antelope, and birds. The women gathered cactus, juniper berries, and piñon nuts.

"Buffalo bones found in the kiva were a significant find. Earlier archeological data indicated that buffalo were found in the Rio Grande valley, but the latest confirmed date was about the year 1000. We found long bones that had been split for marrow, and hoof and skull fragments. This indicates that the animals were killed locally. Further east, buffalo were plentiful, but it doesn't make sense that a hunting or trading party would burden themselves with heavy loads of meat and bones to carry home. Instead, they would have stripped the meat and dried it. This is pretty strong evidence that buffalo were in the valley as late as the 13th century.

"Probably no more than 15 or 20 people occupied this village at any one time," Al concludes, "but the site is significant because we were able to get a detailed look at a 700-year-old village that has remained virtually undisturbed since it was abandoned."

By early fall, Chris should have the Center's completed report on the site. The artifacts will be displayed sometime in the future at Kirtland, and the excavated area will be re-covered to protect the ruins.

About 100 historical sites are on record at KAFB. Some have not been disturbed and will be preserved in place unless they too are threatened by erosion or construction.

"Not all sites are obvious, but the area is historically sensitive," Chris says.

"Because of the fence, we don't suffer from random vandalism, but we urge everyone to remember that unauthorized digging is not permitted."

Funding for archeological surveys and excavation has been a problem in the past, but with new laws, future funding will become a part of a project's total cost. This funding will guarantee that as construction spreads, the history of this area will not be lost.

## fixed kiback

*Q. There used to be some umbrellas on the heavy outside tables. I assume that they were removed because they offered too much wind resistance. Are they still here? If so, could they be refurbished with one of the sunscreen materials now available? If not, could some be acquired that are made of strips of material or plastic? This would provide some protection from the sun and heat and allow the winds to blow through.*

A. The wind destroyed the metal umbrellas, and we haven't found any other material that appears to eliminate the wind problem. We are planting more trees and placing tables and benches in the shade of the trees. This has been the most satisfactory solution.

R.W. Hunnicutt - 3600

*Q. Why has the Personnel Directory been deleted from the Sandia phone books? It was by far the most useful part, because you usually know the name of the person that you are trying to find but not his division number.*

## NM State Fair Schedule

46th Annual NM State Fair — Sept. 13-25  
Pari-Mutuel Horse Racing and Shows — Sept. 9-25  
Hispanic Heritage Program  
Sept. 13, 7:30 p.m. Freddy Fender

Rodeo, 7:30 p.m. nightly:  
Sept. 14 Michael Murphy/Roger Miller  
Sept. 15 Janie Fricke  
Sept. 16 Johnny Cash & June Carter  
Sept. 17 Lee Greenwood  
Sept. 18 T. G. Sheppard  
Sept. 19 David Frizzell & Shelly West  
Sept. 20 Ricky Skaggs  
Sept. 21 B. J. Thomas  
Sept. 22 Sylvia  
Sept. 23 George Strait  
Sept. 24 Reba McEntire

Grandstand, 8:30 p.m.  
Sept. 17 Beach Boys  
Sept. 20 Dick Clark Rock'n Roll Review

## Sympathy

To W. J. Cocke (5125) on the death of his mother in Washington, D.C., Aug. 8.

To Jo Sena (2000), Frank Comiskey (3411), Art Sena (2312), and Richard Sena (3615) on the death of their father and grandfather in Albuquerque, Aug. 12.

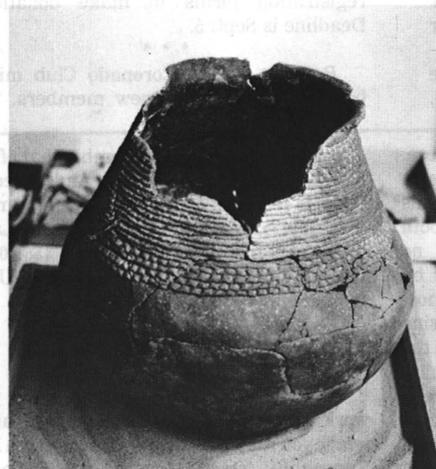
## EXPERTISE REVISITED



"The popular mind often pictures gigantic flying machines speeding across the Atlantic carrying innumerable passengers in a way analogous to our modern steam ships . . . it seems safe to say that such ideas are wholly visionary and even if the machine could get across with one or two passengers, the expense would be prohibitive to any but the capitalist who could use his own yacht." (William H. Pickering, astronomer, 1910)



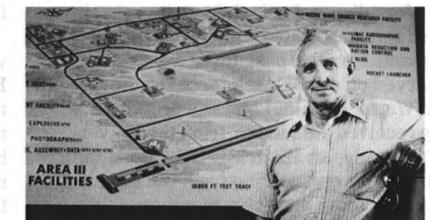
THIS STORAGE POT, photographed in place (left), was removed fragment by fragment. The pieces were numbered and later reassembled (right). This was the only pot found at the site; however, lots of pottery shards were found. Al Ward's theory is that this pot may have been cracked and was discarded, while the good pots were carried back to the main village in the valley, probably filled with ground corn meal and other harvested foods.



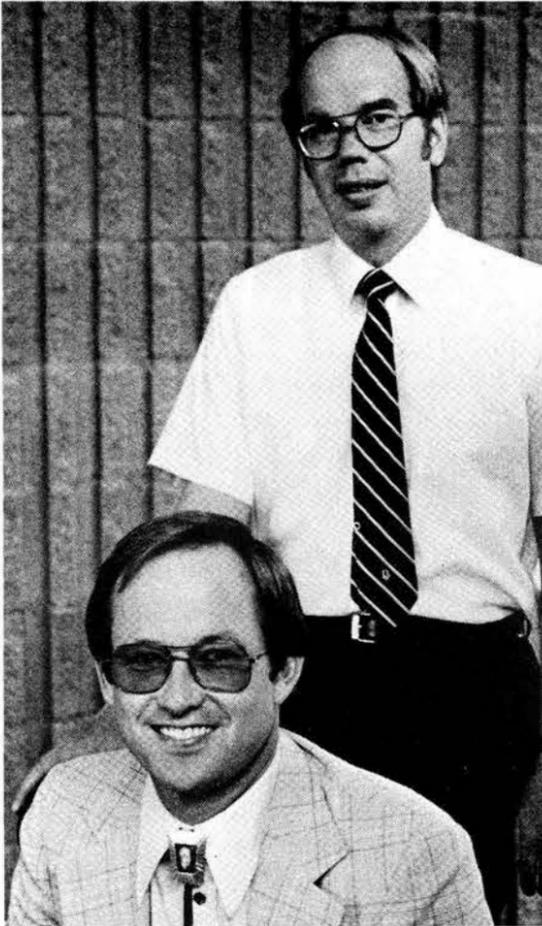
A. Many employees, like you, find the Personnel Directory the most often used portion of the phone book. For convenience and ease of handling, we took the Personnel Directory out of the phone book and published it in a separate cover in February 1983. Since this book is thinner, it can easily be carried and used on business trips. As we noted when we made the distribution last February, the new Directory is punched so that it can be inserted in the binder holding the Organizational Directory.

H.M. Willis - 3100

## Retiring



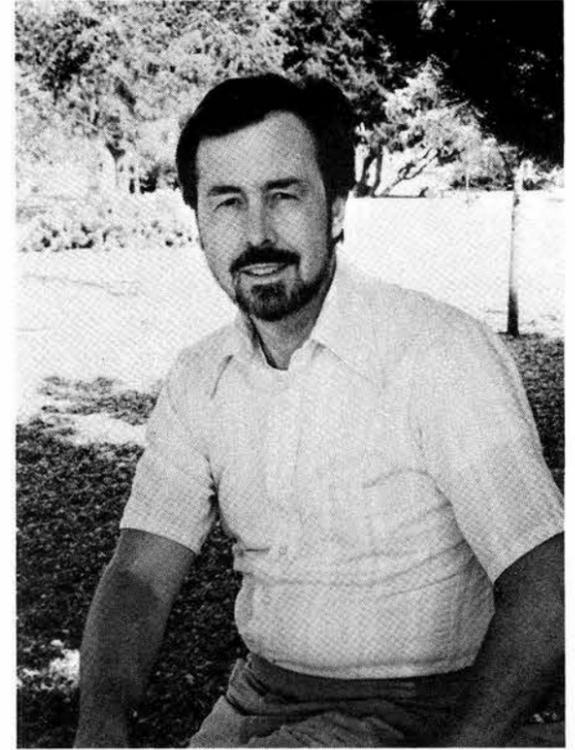
Fred Brown (7531)



TOM HUNTER (6310) and, standing, BILL WOWAK (6322).



BILLY MARSHALL (6250) and DAVE ERICSON (6414)



HAL PRUETT (2311)

## Supervisory Appointments

BILL WOWAK to supervisor of Transportation Systems Technology and Analysis Division 6322, effective Aug. 16.

Bill joined Sandia in 1975 as a staff member in the nuclear waste engineering division. For several years, he worked on conceptual design for WIPP, initial planning for the WIPP program, and studies for the transportation of waste to the WIPP site. For the past three years he has worked on pulsed power facility development.

In 1969, Bill received a BA in physics from Miami University and a BS in civil engineering from Columbia University. He received his MS in structural engineering from the University of Illinois in 1973 and an MBA from UNM in 1981. He enjoys running and travel. Bill, his wife Diana, and their two children live in the NE heights.

\* \* \*

TOM HUNTER to manager of Nevada Nuclear Waste Storage Investigations Project Department 6310, effective Aug. 16.

Tom joined the Labs in 1967 as a member of the Technical Development Program. He worked with the Nevada engineering division responsible for the development of advanced concepts for underground testing and containment hardware. He's worked on reactor safety research and nuclear waste management programs. Since 1978, Tom has headed the Experimental Programs Division 6332, responsible for the support of R&D for disposal of defense waste in bedded salt, associated with the waste isolation plant. For the past three years, Tom has served on a DOE task force for the National Waste Terminal Storage program.

He received a BS in ME from the University of Florida, an MS in ME from UNM, an MS in nuclear engineering from the University of Wisconsin and, as a member of Sandia's Doctoral Study Program, a PhD in nuclear engineering in materials for fusion

application from the University of Wisconsin. Tom enjoys camping, motorcycle riding, restoring old cars, and activities of his church. He and his wife Miriam have three daughters and live in the SE heights.

\* \* \*

BILL MARSHALL to manager of Geo Energy Technology Department I 6250, effective Sept. 1.

Since coming to the Labs in 1961, Bill has worked in component design, spent about eight years with the SNAP program, and then moved into the solar energy program where he worked on total energy systems and photovoltaic systems. He was promoted in 1977 to head the Central Receiver Test Facility. Since 1981 he's worked in the field of fossil energy as supervisor of Enhanced Oil Recovery Division 6255.

Bill received his BS in ME from Louisiana State University, his MS in ME from the University of Missouri at Rolla and, as a Sandia DSP candidate, his PhD, also in ME, from Oklahoma State University. He coaches a city league softball team and enjoys almost any outdoor athletic activity — tennis, golf, hiking, camping, backpacking.

Bill and his wife Barbara have four children, two still at home. The Marshalls live in the SE heights.

\* \* \*

DAVE ERICSON to supervisor of Nuclear Facility Analysis Division 6414, effective Sept. 1.

Since joining Sandia in 1976, Dave has worked in the Nuclear Fuel Cycle Safety Research Department 6410. His assignments have included studies of sabotage at nuclear power plants, studies of sabotage hazards in the transportation of radioactive materials and, most recently, the examination of electromagnetic pulse effects on commercial nuclear power plants.

Dave received his BS in chemical en-

gineering from Penn State, his MS in nuclear engineering from the AF Institute of Technology, and his PhD in nuclear engineering from the University of Michigan. He is a member of the American Nuclear Society, the Institute of Nuclear Materials Management, and the American Society for Engineering Education. He enjoys photography, cross-country skiing, and the activities of his church. He and his wife Ruth have three daughters; they live in NE Albuquerque.

\* \* \*

HAL PRUETT to supervisor of Security Electronics Division 2311, effective Aug. 16.

Hal transferred to Sandia from the Western Electric Engineering Research Center (ERC) in 1977. Before joining ERC in 1968, he was on the physics faculty at Colorado State University for three years. His early assignment at the Labs was to develop and implement a data and information system for the DOE photovoltaic programs administered by Sandia. In 1982 he became project leader for electronic design and associated software in his current division.

He received his BS and PhD from the University of California Santa Barbara, and his MS from UCLA, all in physics. Hal is an ex-Navy fighter pilot who has given up flying in favor of racing sailboats. He is a consistent high finisher in area races. In 1982, with a crew composed largely of fellow Sandians, he placed well in the famous race from Newport Beach, Calif., to Ensenada, Mexico, in his 33-foot sailboat. He is immediate-past Commodore of the Rio Grande Sailing Club (RGSC), based in Albuquerque, and is on the board of directors of the RGSC and the NM Sailing Club, based in Santa Fe. He also enjoys jogging, home electronic projects, and music. Hal is a single parent who lives in the NE heights.

### EXPERTISE REVISITED



"As far as sinking a ship with a bomb is concerned, it just can't be done." (Maj. Gen. John K. Herr, 1938).



NEW MEMBER of Sandia's Board of Directors Tom Thomsen, president of WE's Technology Systems Group, and Warren Corgan, vice-president of WE's Government and Commercial Sales, visited Sandia last month. It was Thomsen's first visit to Sandia Albuquerque; Corgan, a former Board member, served as controller at Sandia from 1969 to 72. Here, Chuck Gibbon (2140) leads a live video tour of the Bldg. 870 micro-electronics lab, a facility with such high standards for cleanliness that visitors are not permitted in the assembly and fabrication areas without special clothing. From left, Thomsen, Tom Cook (20), Corgan, President Dacey, and Gibbon. The pair also toured Area IV and heard briefings on major Labs programs.

### Colloquium

## Nuclear Blasts and the Ozone Layer

Characterizing nuclear explosions as "the most devastating single act created by man," Julius Chang (National Center for Atmospheric Studies, Boulder, Colo.) in a recent colloquium described the potential catastrophic global effects of all-out nuclear war.

Back in Manhattan Project days, some researchers feared that an atomic explosion might ignite the atmosphere. A number of studies indicated that such a catastrophe was unlikely and empiric evidence has proved the studies accurate. A 1971 study, however, indicated that nuclear explosions could affect the stratosphere's ozone layer.

"In 1975 my studies determined that a full-scale nuclear exchange of 30,000 megatons could destroy the ozone layer," said Chang. "The existing megatonnage in the present combined Soviet and U.S. stockpiles is between 10,000 and 13,000 megatons — enough to destroy 50 percent of the ozone layer."

Such an event would leave survivors of a nuclear war unprotected against the sun's ultraviolet radiation, an effect that could persist for many years with unforeseen consequences for the world's animal and plant life.

Before 1976, there was little understanding of the chemical nature of the upper atmosphere. But during the past few years, scientists have made monumental advances in understanding atmospheric chemistry and transport processes.

Chang discussed the assumptions used in the theoretical calculations and evaluated the impact of the uncertainties inherent in all such analyses that are based on computational modeling.

Chang described how a nitrogen/oxygen compound is produced in the nuclear cloud and is hurled upward into the stratosphere. There it interacts chemically with the ozone and converts it into molecular oxygen — effectively destroying the ozone.

Concern over such environmental impacts of nuclear war, including global dispersion of radionuclides and the effects on the world's climate of dust and aerosol from the bomb blasts, came to the forefront in 1982.

This concern, Chang pointed out, was highlighted by a series of articles in *New Yorker* magazine by Jonathan Schell, which were published in a book, *Fate of the Earth*. Schell characterized the environmental impact of nuclear war as the "most severe and understudied event that can affect civilization."

Chang said that since such a confrontation implies total international involvement, there would be no unaffected neutral bystanders. Continuing scientific investigation of the atmospheric effects of nuclear blasts can have far-reaching influences in national and international decision-making processes.

### Congratulations

Norman (6253) and Katie Warpinski, a son, Matthew Kyle, Aug. 14.

James Muntz (2623) and Cecilia Roth, married in Albuquerque, July 1.

Marcie (1622) and Phil (1833) Fuerschbach, a daughter, Leslie Erin, Aug. 15.

Judy (7265) and Tim Gifford, a son, Brian Daniel, Aug. 12.

Suzanne (2625) and John (6424) Kelly, a son, John Arthur, Aug. 20.

## Events Calendar

- Sept. 2-4, 9-11 — Corrales Adobe Theatre, "Morning's at Seven," Tony-award-winning comedy, 8:15 p.m. 898-3323.
- Sept. 4 — Isleta Pueblo Annual San Agustin Feast Day, harvest dance. Contact pueblo.
- Sept. 4 — Open House, Rancho de las Golondrinas, La Cienega.
- Sept. 9-11 — Fiesta de Santa Fe, 271st community celebration commemorating 1692-93 resettlement of NM by Gen. Don Diego de Vargas; burning of Zozobra (Old Man Gloom), masses, parades. Santa Fe, 1-983-7317.
- Sept. 9-25 — Albuquerque Little Theatre, "Bell, Book and Candle"; Tues.-Fri. at 8 p.m., Sat. at 6 & 9 p.m., Sun. at 2 p.m., 242-4315.
- Sept. 9-Oct. 2 — "The Gin Game," Fri. & Sat. at 8 p.m., Sun. at 2:30 p.m., The Vortex, 2004 1/2 Central SE, 247-8600.
- Sept. 10-11 — Rio Rancho Jamboree: food booths, arts, crafts, entertainment, parade, celebrity golf tournament; Old City Hall area, 892-1533.
- Sept. 13-25 — NM State Fair (Sept. 9-25; horse shows, horse racing), Fairgrounds.
- Through Sept. 25 — "The Butterfly's Evil Spell," La Compañía de Teatro de Albuquerque, Sats. at 10 a.m., KiMo, 256-7164.
- All Month — Star Gazing, Fridays, 8-10 p.m., UNM campus observatory, 277-4335.



### News

Here are some current volunteer opportunities for employees, retirees, and their families. If you are interested, call Karen Shane (4-3268).

ASSOCIATION FOR RETARDED CITIZENS OF ALBUQUERQUE needs volunteers to monitor and provide companionship to mildly retarded individuals who are living alone. ARCA also needs a volunteer reading tutor.

UNICEF needs staff for its non-profit store, as well as persons to promote UNICEF cards and its "trick or treat" drive.

YMCA needs a volunteer fund raiser/development director and coordinator of volunteers.

SHARE YOUR CARE, an adult day care center, needs persons to assist the staff with recreational activities, including field trips, for frail, elderly, and handicapped adults.

BERNALILLO COUNTY MEDICAL HEALTH CENTER needs volunteers to handle crisis calls.

# Some Like Us, Some Don't

Conducting a readership survey has been a practice of the LAB NEWS for a long time. Every two to three years, we poll a random 10 percent of the workforce, asking questions about the LAB NEWS. In one way, the results are fairly predictable: some like us, some don't.

We seldom make any radical changes because of what we see in the survey results, unless the response is overwhelmingly negative. (For example, the Speakers & Authors column was dropped several years ago because of a generally negative response in consecutive surveys.) However, we do try to determine what employees like and dislike about the paper and, when necessary, make changes.

This year's results indicate that the two most popular departments are management news and technical stories. And that tells us that we are doing our job. But respondents don't always agree on how we do the job:



*"some articles are too technical"; "more emphasis on technical — not just the super outstanding, but also the everyday stuff..." "must we always have pictures of visiting dignitaries, congressmen,*

*etc.?"*; "State-of-the Labs-Dacey — good"; "Particle beam fusion stories — too technical for most readers"; "article on Glenn Fowler was extremely good"; "cut details on technical interviews"; "make technical articles more detailed..."

The other departments in the LAB NEWS got their share of kudos and knocks. Following are a few comments and our response:

*"Fun and Games is biased toward runners..."* Recent issues contained items on baseball, golf, running, biking, volleyball, skiing, bowling, and soccer.



*"Certain areas of great importance to SNL employees are totally ignored by LAB NEWS. These are Bell Savings Plan, IRA Plan and Pension Plan ... How about articles on comparison of performance of equity portfolio ... with performance of other mutual funds..."* The LAB NEWS does not wish to, nor is it allowed to, give financial advice. We'll report any significant changes to the benefit plans, but we won't tell you how to invest your money.



*"I would like to see regular (extended) entries on political and controversial items (WIPP, disarmament, budgets, etc.) affecting the Labs..."* Sandia's charter is not to take a political stand on any issue but, on those issues where we are involved, to supply good, hard data to the policy makers who may or may not take a political stand. The job of the LAB NEWS is to report on the R&D done here in order to supply those facts.



*"I really enjoy the editorial comments"; "my favorite section of the paper"; "Antojitos seems to aim at lecturing us..."*; "For some reason, the editorial often annoys me, perhaps because it's non-technical, non-managerial, often an attempt at humor. Why? If you want to be humorous, write a column on the order of Andy Rooney's, but don't call it an editorial."

First of all, if the editor could write like Andy Rooney, he would — and he wouldn't be doing it for the LAB NEWS. The *Antojitos* column is, as the title suggests, a "little appetizer," designed to offer a bit of diversion from the heavier food for thought elsewhere in the paper. The column is seldom a lecture — fewer than six times in the last 36 issues. Usually it's less an "editorial" than a light, or tongue-in-cheek, look at this place called Sandia. We believe that Sandia — and Sandians — are healthier for not always taking them/ourselves seriously.

*"Cartoons are lousy, really inconsistent with the rest of the newspaper"; "... cartoon format is degrading to mature persons."* Our cartoons may not be professional — *New Yorker* we're not — but they do directly reflect a story in that issue or a topic of interest to Sandians. We doubt anyone else, even a professional, could tailor his/her work to a given story and do it in the time available —



a couple of hours before the copy for an issue goes to the printer. (The 5000 people on our mailing list can stop looking for cartoons — they appear in the space where the mailing label lives.)

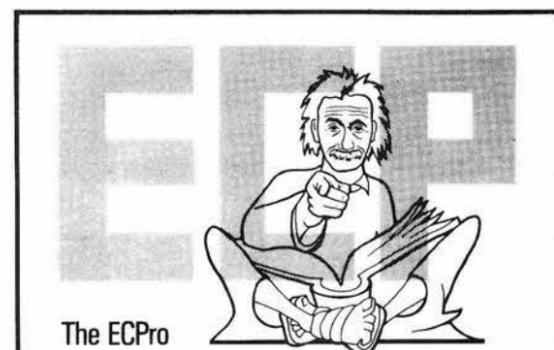


The Feedback feature prompted a lot of comment. The majority of the readers felt that it is a good and necessary communications tool, but many are also frustrated by incomplete and vague responses. Our advice is to let your director know that you appreciate direct, candid responses even if they're unpopular ones. It is, after all, the directors who answer Feedback questions.

And a couple of final comments:

*"The LAB NEWS itself is a very good paper — good format, good editing, etc. It's the subject matter that I find boring — so I don't find the time to read it."* That hurts. Our cardinal rule is "above all, don't bore."

*"Although everything in every issue is not necessarily of interest to me, I thoroughly enjoy the LAB NEWS. Thanks for providing us with a very good sampling of everything that goes on in the Labs." Thank you!*



The ECP

## ECP News

ECP can mean many things — Employee Contribution Plan, Every Cent Provides, Employee Concert Party (on Monday, Oct. 3). And now, ECP also means Employee Contest Picture! The Sept. 8 Weekly Bulletin will have all the details.

THE YMCA will conduct "Body Fat Determination" analyses at (where else?) the cafeteria on Sept. 7 from 11:15 to 1. This presentation is another in the series of the ECP Agency Awareness Program.

# MILEPOSTS

## LAB NEWS

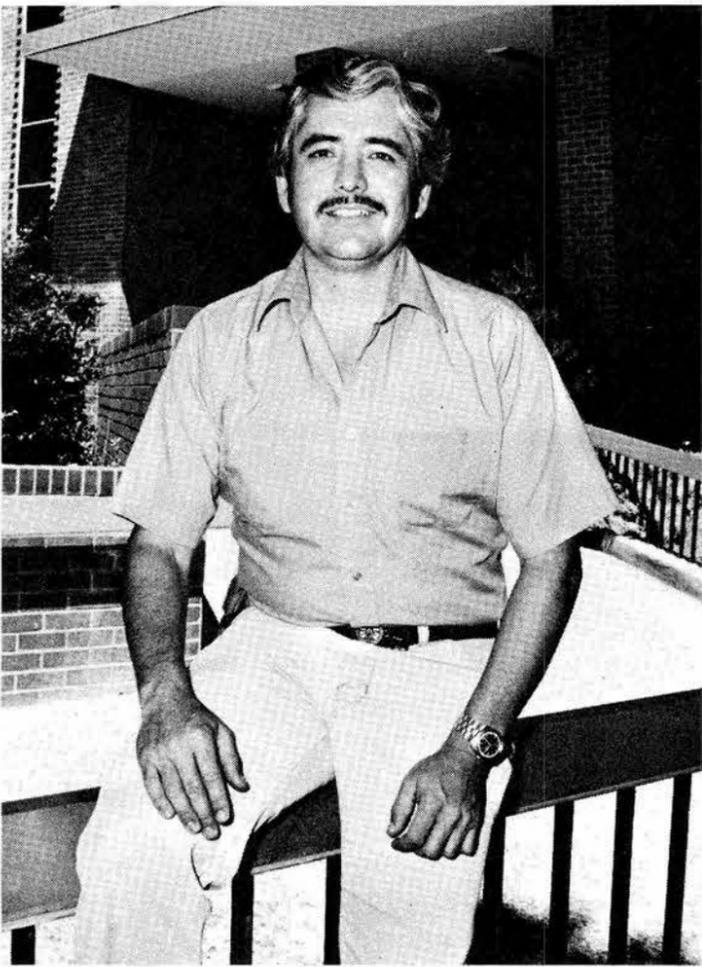
SEPTEMBER 1983



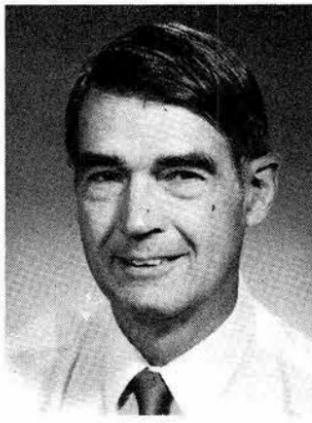
Alice Vancil (152) 25



Jim Winter (3613) 35



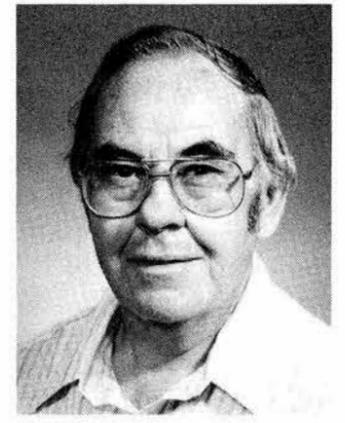
Fidel Perez (7481) 15



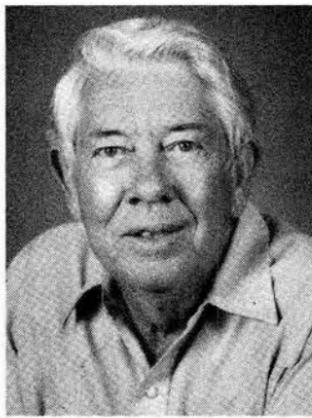
Tom Green (1126) 20



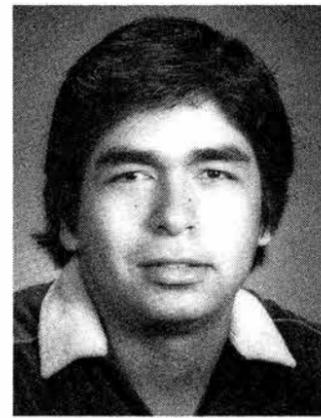
Bob Esterly (400) 25



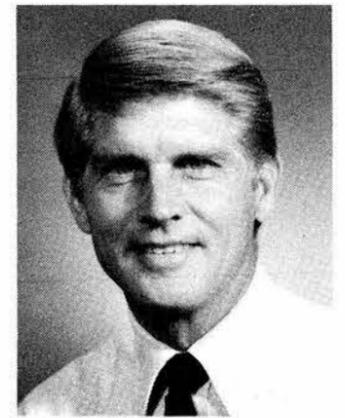
Teddy Chavez (7473) 35



Ken Foster (8262) 35



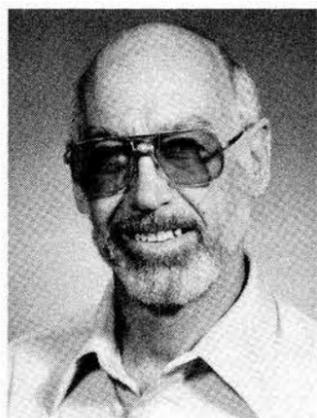
Adam Sandoval (8414) 10



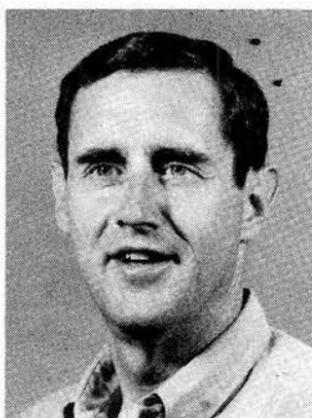
Bob Reuter (1523) 15



Al Harrison (8257) 25



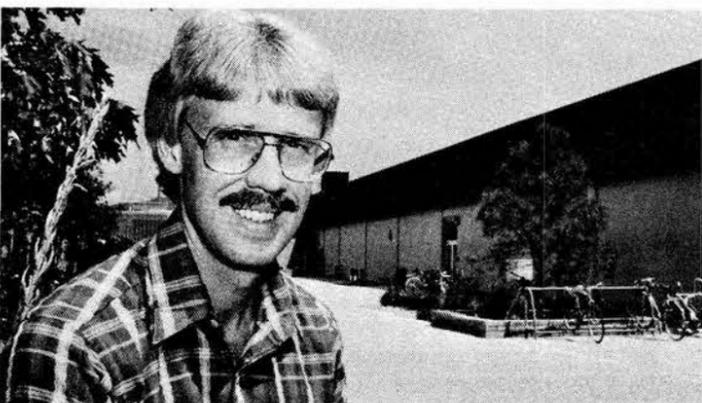
Gerald Villane (5123) 25



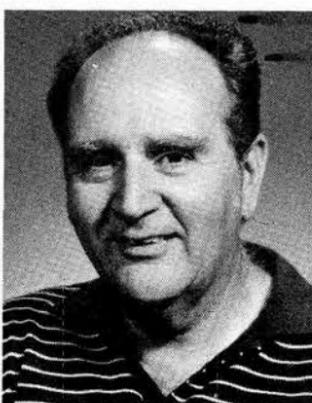
Lloyd Bonzon (6446) 15



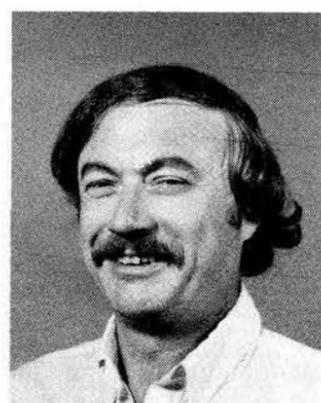
Jim Myers (7482) 20



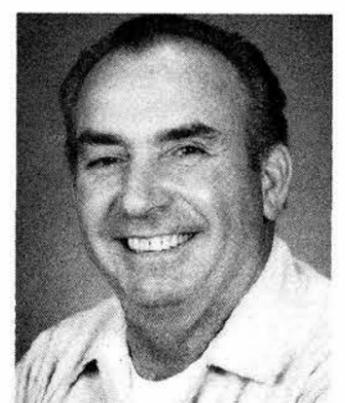
Terry Bisbee (2615) 15



Wendell Grimsley (3661) 20



Art Ducharme (6443) 15



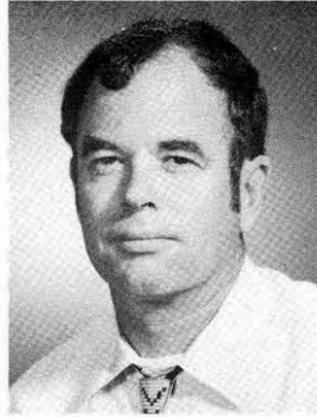
Tony Souza (8257) 15



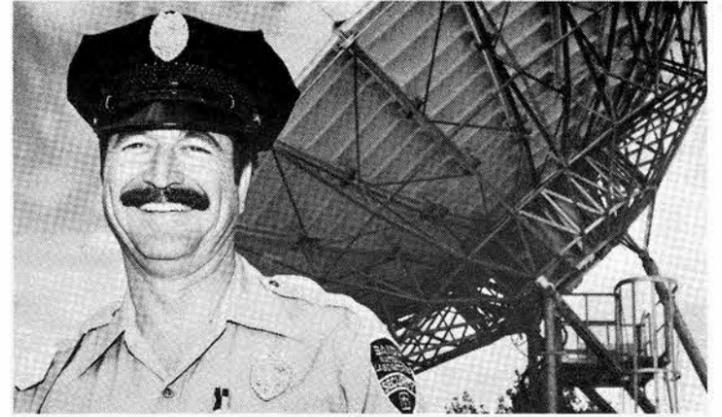
Dan Murphy (5332) 25



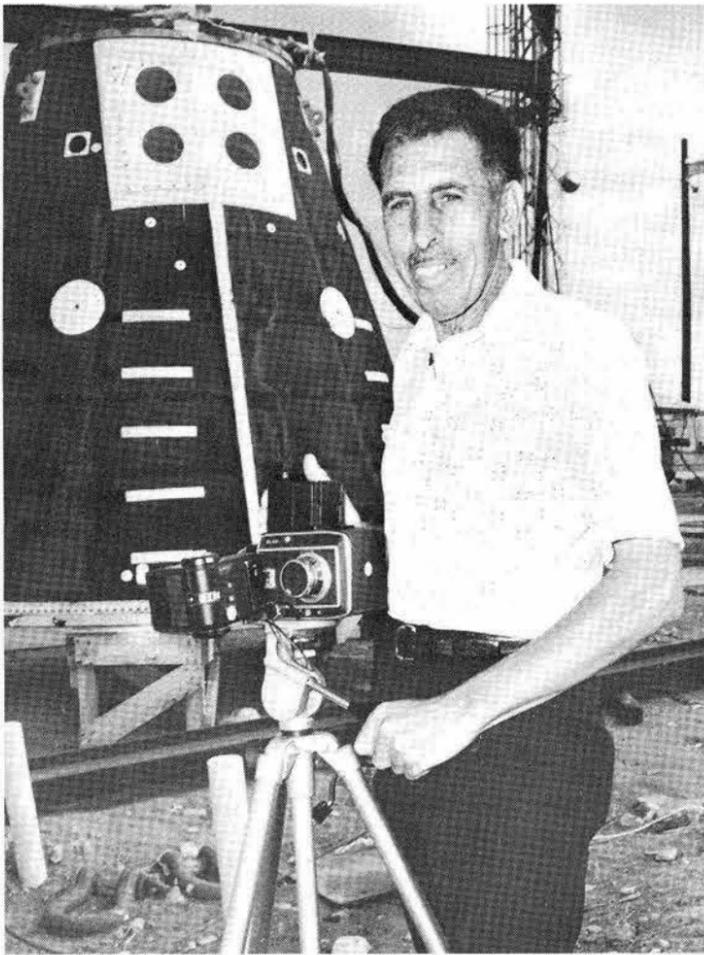
Shary Holmes (7473) 35



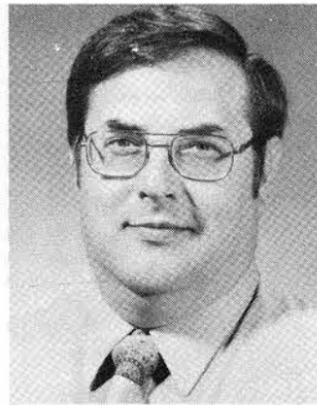
Mike Heck (2334) 20



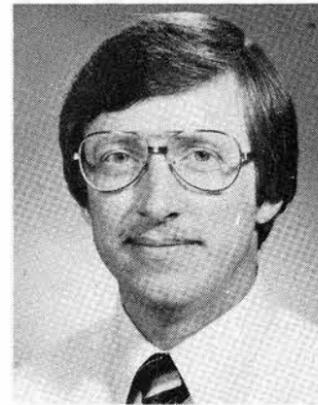
Jim Armijo (3435) 15



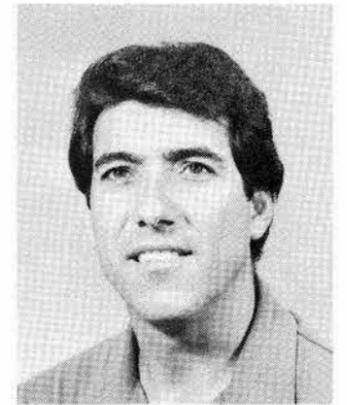
Dave Tafoya (3155) 35



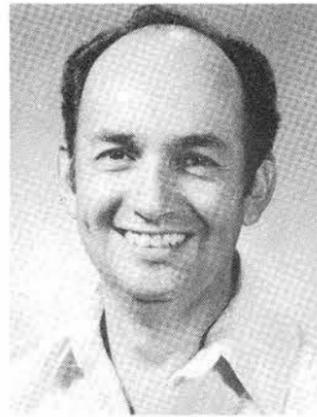
John Portlock (5134) 20



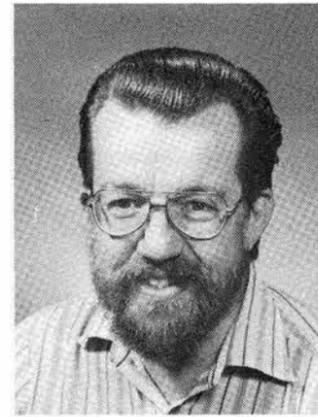
Bob Parks (7624) 15



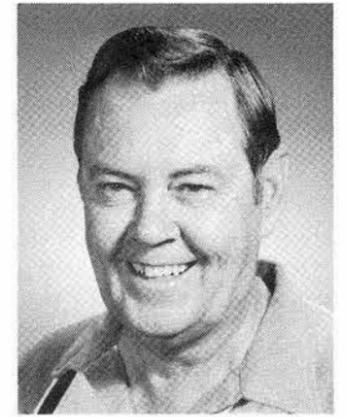
James Landavazo (5215) 15



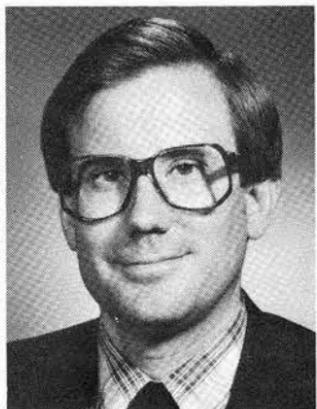
Leonard Casaus (2334) 15



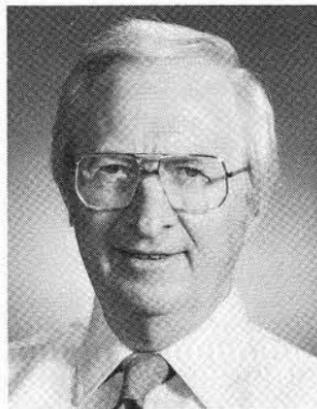
Randy Cole (6441) 15



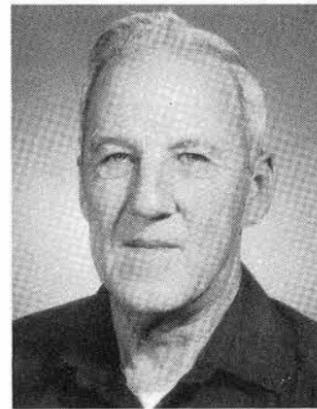
Joe Cowham (7474) 15



Charles Mika (3552) 15



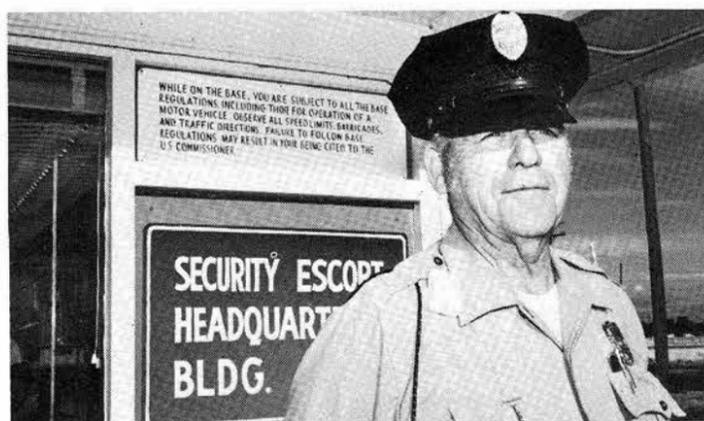
Al Schwarz (2515) 30



George Burnside (7116) 35



Yvonne Riley (3155) 20



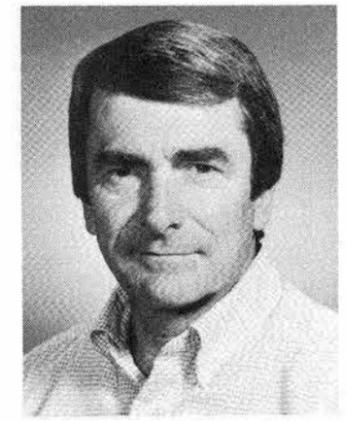
Earl Noel (3435) 25



Emma Quintana (7471) 15



Clyde Laffoon (3417) 35



Gene Shipley (7622) 25

# Coronado Club Activities

THE FOURTH ANNUAL Coronado Club "Fun" golf tournament (and do we mean fun — have you ever tried to sink a 30-ft. putt with a pool cue?) will be staged Wednesday, Sept. 28, at Tijeras Arroyo Golf Course (on KAFB). Cost is \$5 and signup is through the Club office, 265-6791. Participants (Club members only) can look forward to a full afternoon of craziness followed by a banquet at the Club. All teams will be awarded prizes. Green fees are in addition to the entry fee. You don't have to be a golfer to compete. As a matter of fact, *that's* a handicap.

TRAVEL — Club trips coming up include *China*, Sept. 18-Oct. 7, \$2810; *Durango-Silverton*, Sept 24-25, \$95; *New Orleans* at World's Fair Time, May 25-29, 1984, \$555.

Deadline for signing up for the Caribbean cruise is Sept. 9. It happens Oct. 29-Nov. 6, costs \$1095.

Final date to sign up for either Mazatlán trip is Sept. 30. Go Oct. 30-Nov. 7 with Trans-Globe Travel (Chet Fornero) for \$299 or Nov. 7-14 with Academy Travel for \$297 (does not include Mexican tax).

See travel director Shirley McKenzie (7632) in the lobby tonight for more details. She has discount tickets for the Maxim Hotel in Las Vegas.



An old Leningrader received news from abroad that he was heir to a huge fortune. The KGB was on his doorstep immediately, demanding that he transfer his inheritance to the U.S.S.R.

"I'll transfer my fortune to the U.S.S.R. on condition that for one day all the shops in Leningrad will give everything away free," he said. Since the inheritance was vast, the authorities agreed to his proposal.

The next day all the shops in Leningrad gave their goods away free. There was pandemonium — people climbing over one another, children crushed. The hospitals and soon the morgues were overflowing.

"Why did you want this to happen?" the authorities asked. "I'm an old man," replied the Leningrader, "and before I die I wanted to see what real Communism would be like."

Collected by Zhanna Dolgoplova in *Russia Dies Laughing*

## UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

### CLASSIFIED ADVERTISING

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

### RULES

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

### MISCELLANEOUS

SOFA, gold leather, \$50. Jackson, 293-0988.  
FRIGIDAIRE washer & dryer, harvest gold, 3 1/2 yrs. old, \$375 for set, will sell separately. Howard, 296-2985.  
SHELIVING: 14", 16", 18" x 57" x 3/4", \$1 ea. Houghton, 299-3386.  
ELECTRIC Black & Decker 18" lawn mower w/catcher, \$100. Rogers, 298-7907.  
FREEZER, 15.9 cu. ft. Kenmore, upright, \$280; 10" Newtonian telescope w/rotation rings & clock drive, \$800. Chafin, 294-4387.  
LARGE Weber Kettle grill, \$25. Wowak, 298-9398.  
SURFACE RANGE, 4 units, electric, \$75; upright 16 cu. ft. freezer, \$150; elec. floor polisher, \$19.95; sofa, makes queen size bed, \$95. Browning, 299-6384.  
MAYTAG washer & GE dryer, \$175. Boney, 294-8970.  
METAL office desk, \$95. Gurule, 294-6541.  
4 MICHELIN tires, used, 155x13, radials, \$10 ea. Gorney, 821-9623.  
MEN'S X-large Polarguard parka, \$25; Motobecane Mirage 10-spd. bike, \$125. Miller, 292-5286.  
COMPUTER TERMINAL, ADM-2, \$250; typewriter, \$20; amateur transceiver, Atlas-180, \$250. Foster, 281-3975.  
IRONRITE ironer/mangle, \$35; Sears Craftsman 3 hp gas power lawnmower, \$35; white tuxedo jacket, black lapels, size 42R, w/shirt, tie, cummerbund, \$40. Owens, 299-3003.  
MOVING BOXES, all sizes, make offer. Sharp, 243-1498.  
VDO speedometer for dirt or street bike, universal adapter, \$50; Sears deluxe exercycle, \$75. Lassiter, 299-1492.  
PDP-8/i computer: extensive DEC software, ASR-33 Teletype, INFOTON 12" terminal & keyboard, two tape readers & punch w/complete docu-

mentation, \$400. Simmons, 281-3590.  
INFANT ITEMS: GM LUV seat, rocker-carrier, chair, bathtub. Peters, 293-6356.  
WEDDING DRESS, white, Queen Anne neckline, size 5, \$200. Gutierrez, 298-6029, 292-7224.  
BUFFET/HUTCH, Ethan Allen, Early American, maple finish, 49" wide, 66" high, 18" deep. Fisher, 298-0526.  
EXERCYCLE, less than 1000 miles, Huffy brand, adjustable seat & handlebars, \$75. Johnston, 294-4574.  
SKIS, 160 cm Equipe for teen or light adult, Look-25 bindings, Barrcrafter poles, 1 yr. old, \$65. Holmes, 292-0898.  
HAMSTER CAGE: wheel, water bottle, ladder, tubes, feed, bedding, exercise ball, \$25; antique mahogany dresser w/mirror, \$350. Adams, 881-6836.  
CONN trumpet w/case. Arana, 299-1214.  
DRAPERY & hardware for 4 lg. windows & 1 glass door, cream color, one set lined, \$35/lot. Hendrick, 296-2163.  
GAS water heater, 50 gal., energy efficient, fast recovery, 5 yr. tank, 9 mos. old, \$100. Gubbels, 884-3711.  
SHEARED beaver jacket, \$75; blue suede coat, \$75, both size 10-12. Welch, 299-8764.  
MICROWAVE OVEN, full size, digital, probe, \$200; folding ping pong table w/deluxe paddles, \$60. Braithwaite, 822-1998.  
PIMENTEL classical guitar w/case, \$150; bridal gown, complete, size 7, \$100; mahogany desk, 5-dwr., \$45; 1950s elec. roaster, \$30. Mooney, 299-1774.  
STUDENT DESK, French Provincial, ivory, laminated plastic top, \$150. Minter, 256-9225.  
CELLO, Kaye full size, student, \$300. Mote, 256-3200.  
SOFA, 7', & 2 lg. matching chairs, \$150. Shirley, 294-4249, 296-3972.  
REFRIGERATOR, Montgomery Ward, 19.6 cu. ft., new compressor, \$100. Buisman, 296-3057.  
LEATHER recliner, \$100; chair, gold cloth, \$75. Benedict, 296-8542.  
AKC Pomeranians: 1 male, 1 female, 7 weeks, have puppy shots, \$275. Sanchez, 897-0743, 299-7933 after 5.  
FLUTE, Armstrong, w/case & stand, \$200. Clough, 897-1539.  
WWII German rifle, \$100; 30-30 rifle, \$110; cedar jewelry boxes, \$100 ea. Craft, 831-5234.  
TRAILER for hauling older Jeep or other small car, \$400. Falacy, 293-2517.  
FURNITURE: 13" B&W TV; kitchen table w/chairs; mattress, single bed; old Maytag washer; dresser; blankets; dishes. Maestas, 831-4072 after 6.  
WOOD BURNING STOVE, \$150; elec. meat slicer, 1/4 HP, \$425; swim pool, A/G, cover, liner, heater, \$200. Pryor, 344-2931.  
TABLE, simulated walnut, w/2 leaves, 4 white naugahyde chairs, \$75. Sullivan, 299-1348.

BABY CRIB w/mattress, \$50; walker, \$15; play pen, \$30; infant carrier, \$5, OBO. Williams, 296-8568 after 4:30.  
FANS, bathroom exhaust, very quiet, never used. Moss, 298-2643.  
GEMEINHARDT flute, student model, silver plated, w/case, \$200. Renschler, 294-2600.  
MANUAL typewriter, \$20; 5' bar, \$45; console stereo, \$40. Padilla, 296-5048 after 5.  
BUNDY flute w/case & music stand, \$125. Lewin, 898-2303.  
WHEELS, 5-hole, 14", fit Ford, \$5 for two. Crowther, 821-0172.  
SCREEN DOORS; entry doors; small piece carpet; mimeograph machine; lg. plastic bread trays (approx. 18x26). Mozley, 884-3453, 884-5225.  
ELEC. lawn mower w/catcher, 18" Black & Decker, 2-blade, \$100. Rogers, 298-7907.  
LANGE SKI BOOTS, XL-900, woman's 6, list \$175, asking \$75; K2 244 skis, 170 cm, w/Geze bindings, \$130, w/o bindings, \$50. Mondy, 292-5286.  
KING coronet, semi-professional model, leather case, appraised at \$400, sell for \$300. Hickerson, 892-6699.  
BLUE Samsomite suitcase, \$25; fire-place tools, \$9; new turquoise chair cover, \$5. Benderman, 298-7354.  
AMANO sling-back open-toe pumps, \$8 pr., sizes 8 1/2 & 9. Joseph, 299-6989 before 8 p.m.  
SOFA bed, dbl. size, \$125; 2 shop manuals '78 Olds, all models, \$5 ea. Sasser, 298-1439.  
SMALL dog house, \$30. Salas, 884-3055.  
AKC Reg. Doberman puppies, 5 males, 1 female, four black, 2 blue, \$175-200. Markey, 299-9655.  
MOVING SALE, Labor Day weekend: electric range, women's, children's shoes & clothing, furniture, misc. 12700-B Copper NE (at Chelwood). Chavez, 293-2942.  
ALBQ Youth Symphony tickets, season or single, adult or student; concerts: 9/25, 2/12, 4/14. Miyoshi, 821-9118.  
COMMODORE SuperPet computer system, dual processor & display, dual disk drive, printer, manuals, etc., \$2500. Amdahl, 293-6076.  
VIOLA, German, circa 1900, size 15 1/2, \$1800; Craftsman lawn sweeper, \$20; 16-ft. dismantled wooden gate, \$30. Gregory, 268-2022.  
GIRL SCOUT uniform: blouse, jumper, pants, size 14, \$15. Knapp, 294-6359.  
HARMON-KARDON 820 receiver, \$50; baby swing, \$15; AM car radio & speakers, \$15; folding baby bed, \$10; baby bath, \$5. Mehlhorn, 294-5685.  
CLARINET, \$175. Buck, 296-5963.

### TRANSPORTATION

BIKE, English type w/upright handlebars, good tech area trans., luggage rack, fenders, \$25. South 14 Village Project, LAB NEWS, Bldg. 814.  
'78 YAMAHA Chappy trail bike, street legal, \$300. Tippy, 298-3758.  
SCHWINN bicycle, yellow, 1-spd., 20", front tire needs patch, \$30

OBO. Barker, 294-0254.  
'78 HONDA Gold Wing GL-1000, windjammer fairing, lowers, Vetter side-mounts & chain bar, 21K miles, \$2700. Perryman, 281-3020.  
'78 650 KAWASAKI, low mileage, \$1100 OBO. Smith, 299-5060.  
'79 DODGE Colt, \$2800. Pryor, 344-2931.  
'72 FORD E200 van, 302-V8, AT, PS, PB, captain's chairs, carpet, \$1200 OBO. Miller, 292-5286.  
'82 HONDA GL1100 Interstate, black, AM/FM/cassette, shop manual, dip stick, new rear tire, 6200 miles. Parriott, 821-1445.  
'72 TRIUMPH 650 Bonneville motorcycle, extras. Gonzales, 344-4933.  
'80 SUBARU GLC 1600 S.W., AC, 5-spd., AM/FM, top rack, 31K miles, \$4500. Lackey, 898-6638.  
31' HOUSEBOAT, Yukon Delta, 200 Volvo penta motor, 280 Volvo drive, required safety equip., tandem trailer, \$18K. Evans, 266-0043.  
'80 DATSUN 200SX hatchback, AC, AM/FM cassette, 5-spd., 51K miles, \$5200. Seidel, 298-1791.  
'72 O.T.A.S. sportscar S/N58 of 70 total, \$3150. Craft, 831-5234.  
'79 924 PORSCHE, 29,000, AM/FM cassette, AC, 5-spd., tinted windows, moon roof, \$10,500 OBO. Chiaramonte, 898-2602, 265-8373.  
'82 DODGE Aries, 4-spd., AM/FM, AC, \$5550. Gay, 881-0408.  
'78 HONDA Hawk 400 w/Comstar wheels, \$750. Coalson, 298-0061.  
'68 CHEVROLET Impala, 4-dr., HT, AT, AC, one owner. Carter, 296-8709.  
'82 VW diesel Vanagon camper, B.A.E. turbo, 16K miles, \$13K (\$11,500 without turbo). Class, 281-3836.  
'80 PLYMOUTH Champ, AC, sunroof, AM/FM stereo, 4-spd., 28 mpg, \$3750. Hamlet, 255-8146 after Labor Day.  
'72 YAMAHA 250, street bike, \$395 OBO. Feliciano, 892-9068.  
'81 GRAND PRIX, V6, AT, AC, PS, PB, cruise, two-tone, 11,891 miles. Harrison, 884-1113.  
SCHWINN bicycle, ladies 3-spd., \$70 OBO. Coslow, 281-5508.  
MONTESSA dirt bike, \$300. Mooney, 299-1774.  
'72 DATSUN 1200 coupe, 81K miles, \$950. Ortiz, 296-3972 or 294-4249.  
'71 MGB-GT, OD, wire wheels, \$1500. Shirley, 294-4249 or 296-3972.  
'69 FORD 1/2 ton pickup, 360 V-8, AT, PS, \$1850. Falacy, 293-2517.  
'78 HONDA CM185T Twinstar, \$595. Rozelle, 298-0396.  
'78 PLYMOUTH Fury Salon 4-dr., AT, AC, PS, PB, more extras, low mileage. Pilat, 292-4727.  
'77 SUBARU wagon, 5-spd., AC, 61K miles, \$2600. Wagoner, 869-6791.  
'77 STARFIRE hatchback, AT, AC, AM-FM cassette, 63K miles, \$2000. Lisotto, 884-7331.  
'81 SUZUKI GS450, \$1275. Hickerson, 892-6699.  
'81 YAMAHA 400XS, 4000 miles, w/frame mounted aero-fairing, \$1200. Bowen, 294-4757 after 5.  
'70 VW Bug, auto stick shift, needs front axle, \$800. Shurter, 265-7007.

'80 CUTLASS Cruiser Brougham Diesel, AC, PS, power windows, 27K miles, \$6150 OBO. Walker, 265-8388, 8-5.

### REAL ESTATE

LOW DOWN, 8% assumable, townhouse NE near Labs, 3-bdr., 2 bath. Gonzales, 296-9055.  
3-BDR., 1 1/2 baths, fp, s. pool, Academy area, assume VA 8.5%, \$92K. Baldonado, 822-0227 after 5.  
4-BDR., 1 1/2 bath, den, hw floors, sprinkler system; recently stuccoed, roofed; SE near schools, shopping, base, Parkland Hills. Chiaramonte, 898-2602.  
SANDIA HEIGHTS, 3-bdr., formal LR/DR, views, \$110K, 10% down. Korh, 294-3086.  
MOUNTAIN HOME SITE, 3 to 5 acres, south facing hillside, Tijeras/Cedar Crest area, views. Souder, 281-3121.  
3-BDR., 1 1/2 bath, 1560 sq. ft., large yard with dog run, 3 yrs. old, 11.5% FHA assumable with approx. 20K down, \$81,500 (Spain/Moon area). Gilbertson, 821-7679.  
2-BDR., Juan Tabo/Candelaria area, 1 1/2 bath, dining, new carpet, single garage. Buck, 296-5963.

### WANTED

LAND in Durango area, will consider any attractive offer up to 40 acres. Brooks, 265-8612.  
BABY furniture — crib, bassinet, etc. Gurule, 294-6541.  
MATURE male cocker. Sharp, 243-1498.  
ROOMMATE: \$200/mo. + 1/2 utilities, own room & bath, near work. Levin, 299-0891.  
WISH to buy any or all of the back issues of "The 99'er Home Computer Magazine." Wright, 256-9210.  
USED fly tying equipment & supplies. VanDenAvyle, 898-6474.  
WATER SKIS, cheap, any condition. Brown, 897-1948.  
SMALL piano or electric piano or "key-board," no organ. Onell, 892-6754.  
DACHSHUND, male or female, housebroken, good w/children. Hunter, 865-5745.  
LEASE w/purchase option agreement nice 3-bdr. w/garage in NE area, by Oct. 10. Kirby, 298-2971.  
FILING CABINET, 4 or 5 drawer, legal size. Moss, 298-2643.  
NEW HOME for young kittens, have 3 to choose from. Souder, 281-3121.  
PICKUP, Toyota or Datsun, must be in good condition, will trade Karmann Ghia. Bush, 281-3773.  
SCHWINN Varsity 10-speed bike in good condition, 20" or 22" men's frame. Dale, 821-7117.  
BABYSITTER for 1-yr. old boy in your home, weekdays, 8 a.m.-1 p.m., Tramway/Eubank-Montgomery/Candelaria area. Mehlhorn, 294-5685.

### SHARE-A-RIDE

TAYLOR RANCH car pool looking for 2 riders. Schneider, 897-0565.

# Al Hurricane Tonight, Peter Pan Tomorrow

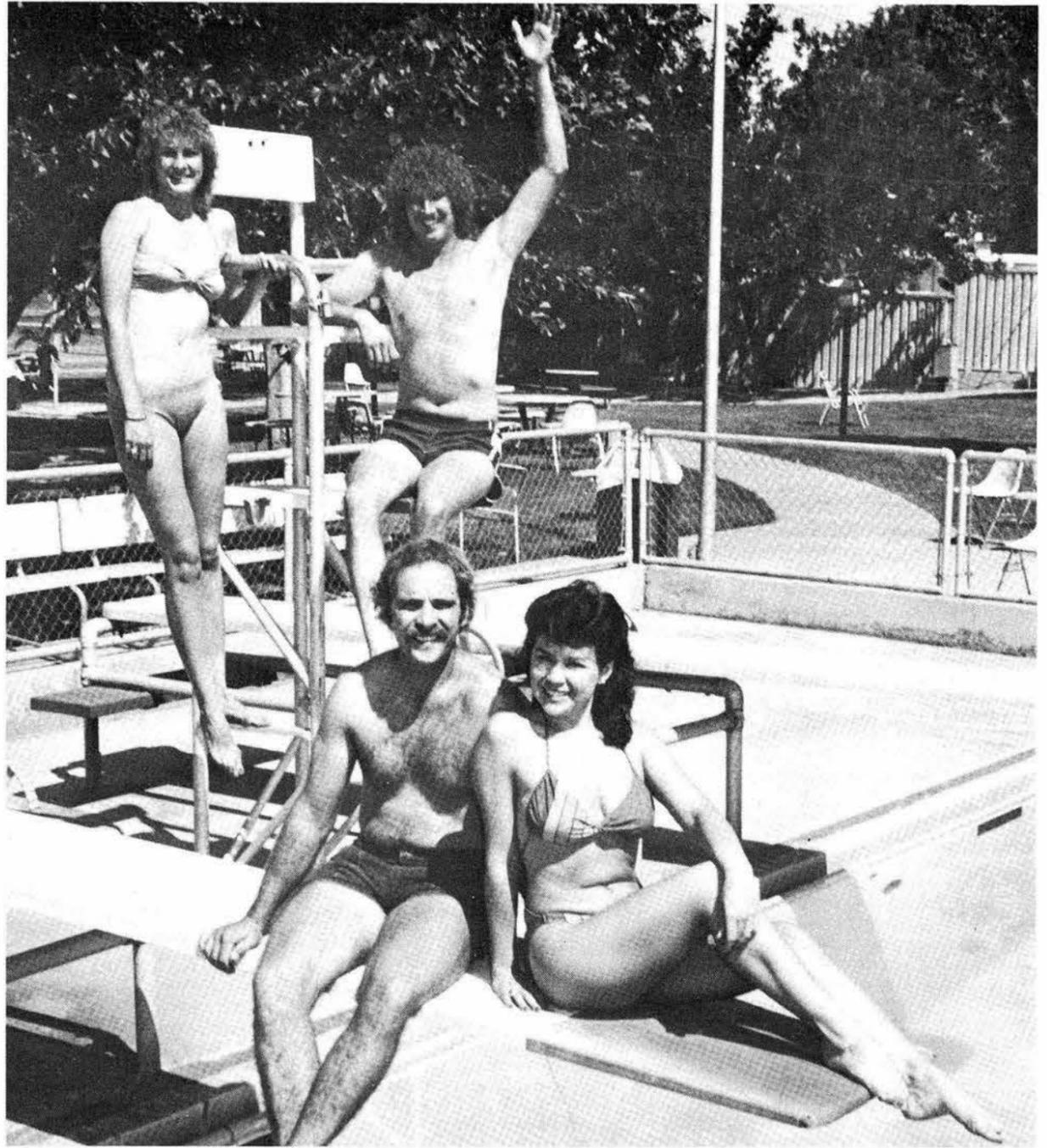
AL HURRICANE leading one of the most popular groups in the city blows up a storm at the Coronado Club tonight. Reservations are in order — call 265-6791 *right now*. Dinner is lobster tail for \$9.95. Dancers only who arrive after 9 p.m. pay a \$2 cover charge; guests, \$3.

VARIETY NIGHT arrives tomorrow with the showing of "Peter Pan," Walt Disney's classic animated film, at 7 p.m. Super sandwiches, hot dogs, hamburgers, soft drinks, and popcorn are available at 5:30. This one is for the entire family — admission is 50 cents per person.

LABOR DAY sees the end of swim season and the Club's giant celebration in the pool and patio area. Starting at 11 a.m., there'll be fun and games for both kids and adults all afternoon. There'll be a dunking machine where for a mere 50 cents you can toss a baseball, hit the target, and automatically drop your favorite board member into the drink. A western band called W.D.C. plays on the patio from 2 until 6. There'll be 50-cent beer and a super fried chicken lunch for \$3 in addition to the usual goodies from the snack bar. Members show cards for admittance. Guests pay \$1.

NEXT FRIDAY, Sept. 9, is a State Fair party at the Club. The W.D.C. western band plays for dancing while a T-bone steak dinner at \$9.95 is the dining room special. The Club's regular menu is also available. Karen Edwards instructs free western dance lessons from 7:30 until 8:30. Three lucky winners each receive two tickets to the State Fair Rodeo as door prizes.

ANNUAL MEETING of the Coronado Club membership is scheduled Monday, Sept. 12 at 5:30. In addition to the annual business session, seven new members of the



C'MON OUT for the last time this year and make a big splash at the Club's annual pool closing party on Labor Day, Sept. 5, from 11 a.m. to 6 p.m. Fun and games for kids and adults, a fried chicken lunch for \$3, 50-cent beer, a western band, and more are scheduled. Join Jerry Ford (3154), Maria Connolly (in foreground), Pat Barton (3154), and Robert Barton (3421) at the giant celebration.

board of directors will be elected. The following candidates have been nominated by the board: Ernie Montoya (7471), Keith Mote (7483), Charlie Salazar (7482), Shirley McKenzie (7632), Pat Conlon (7473), Eddie Gallegos (122), Susan Smith (3435), Frank Biggs (7112), and Charlie Kaspar (ret.). Nominations may also be made from the floor. Free draft beer, well drinks, mun-

chies, and goodies will be served for one hour following the close of the meeting.

CORONADO SKI CLUB is holding its annual Ski Fair on Tuesday, Sept. 20, starting at 5:30 on the patio. The Fair features displays of equipment and attire as well as information on most of the regional ski areas. There'll be displays and contests. At 7, the action moves into the ballroom for a short business meeting, a talk on physical conditioning, a ski movie, and the "fabulous" Ski Club door prize drawings. A bargain bar will be operating. The meeting is open to non-members, but only members qualify for the drawings.

TWO-FOR-TUESDAY on Sept. 13 features scallops Mornay, a special New England recipe imported by manager Mitch Griffin. This delightful dinner goes for \$12.95 for two. The Sandia Jazz Foundation (formerly Arlen Asher Trio) entertains. Reservations: 265-6791.

THE CORONADO CLUB Junior Bowlers are seeking new members ages 7 through high school. The group meets on Saturday mornings at 9 a.m. at San Mateo Lanes, have a lot of fun, and win a lot of trophies in various city and state tournaments. Weekly cost is \$2.40. Call Cis Kelly (3552), 255-8011, or Charlie Kaspar (ret.), for details.



"Would you believe I did this LAB NEWS cartoon in less than two minutes?"

"Yes, I would!"