

VOL. 39 NO. 25 DECEMBER 18, 1987

LAB NEWS

Christmas 1987

Stained-Glass Windows Inspired Artist

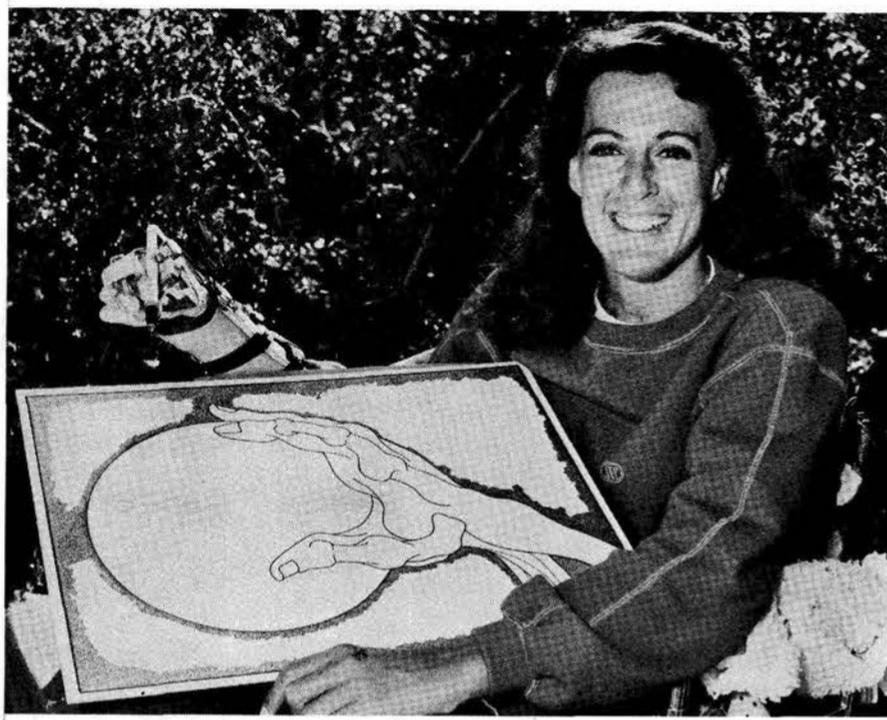
The LAB NEWS Christmas cover reproduces a watercolor painted by Mitzie Morrato (3155). Titled "The Magi," the painting is a cubist representation of the adoration of the magi — a popular theme in Christian art.

"I chose the cubist approach," says Mitzie, "partly because no modern artist would dare compete with the old masters and their realistic representations of this theme — but mostly I chose it because I've always loved stained-glass windows."

"As a kid in Catholic elementary school, I used to hang around the stained-glass windows a lot because I was fascinated with the way the pictures changed as the light coming through the windows changed," continues Mitzie. "And light is always changing — with the time of day, the seasons, the weather. You see, it's not the colored glass itself that accounts for the effect of a stained-glass window — it's the light passing through the glass. That's the effect I tried to capture in my picture."

"I also remember how the light from a stained-glass window seemed to flood the dark interior of a church with an almost jewel-like brilliance — that's another effect I was after," says Mitzie. "In my painting I wanted to flood the dark manger with that kind of light. After all, a birth is a light — not a dark — occasion."

The idea of a birth is another close connection Mitzie has with her painting. "I painted the picture back in 1983 when I had just gotten out of school," she says. "No more deadlines, no more grades — I was just beginning to think of myself as an artist, a new person — my own rebirth in a way, so birth seemed a natural subject for a painting."



COVER ARTIST MITZIE MORRATO (3155) holds a partially completed drawing representing the newest direction her art has taken. When the portrait is completed, the crystal ball will reflect an image of Magnum T. A., a US heavyweight champion wrestler who suffered a broken neck and temporary total paralysis in an auto accident last year. "The portrait will express, symbolically, my hope for his complete recovery," says Mitzi.

Mitzie hasn't always thought of herself as an artist. "I was really into gymnastics and other sports for a while," she says "but drawing and painting have been part of my life since childhood. Mom swears that when I went to birthday parties, instead of playing with the other kids, I would find crayons and paper and scoot off to a quiet corner to draw. I was always drawing Walt Disney characters."

Recently, Mitzie's childhood talent for drawing Disney-like characters and her continuing enthusiasm for sports — now as a spectator — have merged to give her art a unique direction. A wrestling fan for years, she's now doing portraits of professional wrestlers.

But they are portraits with a difference. Not exactly caricatures, they are, says Mitzie, "fantasy portraits of real wrestlers." As a starting point, Mitzie uses the colorful names assumed by wrestlers — "Jake the Snake," "Ricky the Dragon," "The (four) Horsemen" — and then completes the portrait, incor-

porating details suggested by the name. "The overall effect is one of nobility" says Mitzie. "I'm not making fun of wrestlers in my portraits. I like and admire them too much for that."

The idea for the portraits emerged a year ago when Mitzie read about the auto accident that left one of her favorite wrestlers, US heavyweight champion Magnum T. A., partially paralyzed. "The injury to his neck was identical to the injury to mine from a sports-related accident 12 years ago," says Mitzie, "so I knew exactly how he was feeling."

"I'd never written a fan letter in my life," continues Mitzie, "but I began writing to Magnum T. A., telling him about having retrained myself to draw after my accident, sending him drawings, trying to encourage him. The idea of the portraits began to take shape as I corresponded with him."

Her portraits, as well as stories about Mitzie, will be featured in two sports magazines, *Superstar Wrestling* and *Ringside Wrestler*, early next year.

Next LAB NEWS Issue

The next issue of LAB NEWS will be published on Jan. 15. Deadline for classified ads and other short items is noon on Jan. 8. Longer articles are due in Div. 3162 early in the week of Jan. 4. If possible, please use COMET electronic mail (address LAB NEWS) so items and articles don't have to be retyped.

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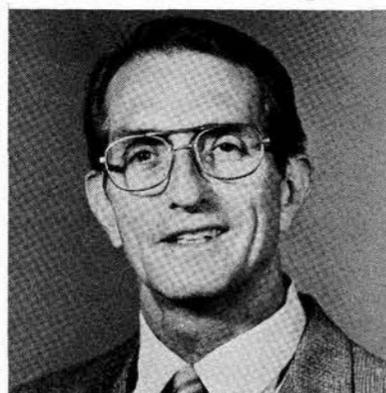
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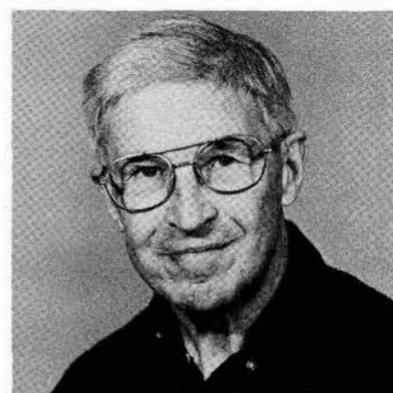
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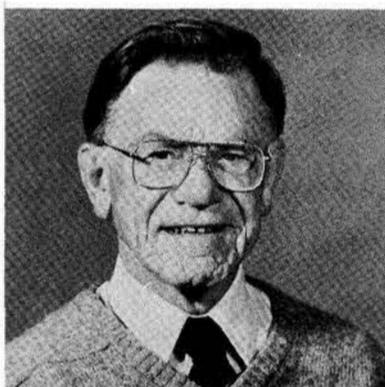
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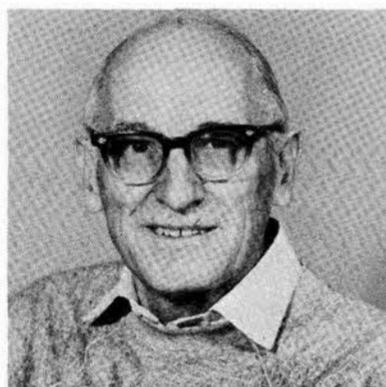
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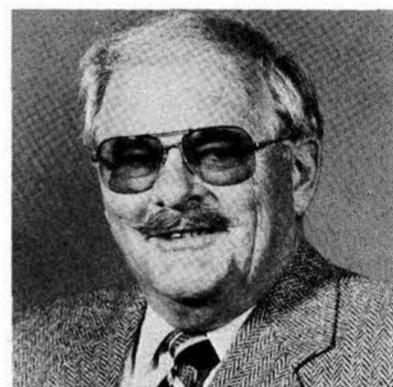
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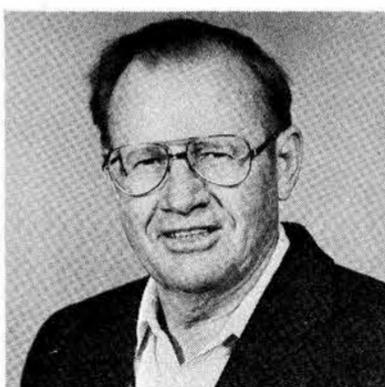
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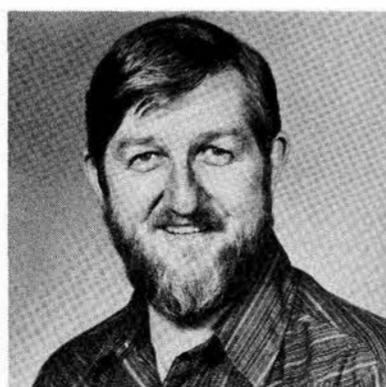
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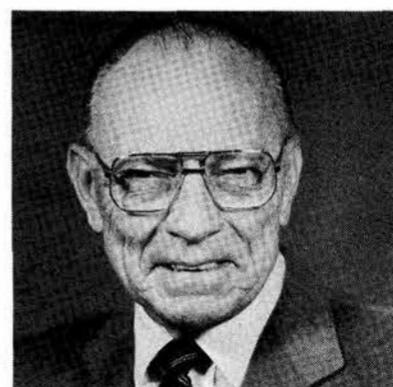
Burton Hill (5114) 29



Paul Goen (7172) 36



Larry Tichenor (7472) 30



Carl Scheiber (5114) 32

'Ship-Shock' Tests Check Out Tomahawk Weapon System

When a combat ship takes a direct hit from an incoming missile, the ship, its equipment, and/or its crew will sustain some kind of damage. But if, for some reason, that missile veers off course and misses the ship, there's nothing to worry about, right?

Wrong.

As the missile hits the sea, the underwater explosion sends a shock wave in all directions. The shock wave, containing about half the energy of the explosion, moves fast — at about 3400 mph. So if it's anywhere close to the ship, the wave hits the underwater hull with a great deal of force.

The shock propagates upward through the ship's frame, decks, and bulkheads, finally reaching the top of the mast.

'Things Tend to Break Loose'

The potential for damage is great; as Earle Chapman (5111) puts it, "In a shock environment, things tend to break loose and come apart." The Navy conducted a series of shock trials last spring on the *USS Mobile Bay*, a Ticonderoga-class guided missile cruiser with Tomahawk SLCM (Sea-Launched Cruise Missile) capability. Because Sandia designed and developed the electrical system for the SLCM's W80-0 warhead, the Labs was invited to send observers. Earle and Jim Fjelseth (since deceased), were selected to participate.

The tests — four underwater detonations of gradually increasing severity — took place in the Atlantic some 86 miles off the coast of Port Canaveral (Fla.) between May 17 and June 12. During each shot, several thousand pounds of HE were detonated at varying distances from the ship.

One of the primary objectives was to demonstrate that a near-miss shock to a ship of this type — "the nerve center of the Navy's combat fleet," in Earle's words — would not prevent the launch of a Tomahawk SLCM soon afterward if necessary.

"The Navy designs its ships to withstand a certain amount of hull blast," explains Earle. "The first test shot — the weakest — was used to calibrate and set up instrumentation; the final three were at 15, 30, and 60 percent of hull design — in that order. They alternated from one side of the ship to the other — port, starboard, port, starboard."

"I participated in the first two tests, and Jim participated in the last two," Earle continues. "Whichever one of us was aboard for a test was stationed in the ship's Combat Information Center, which is the center of things during actual combat; it's where all the radar consoles, fire-control systems, sonar, and other monitoring equipment are located."

"Our main responsibility," says Earle, "was to keep an eye on the Tomahawk launch-control console, which, among other tasks, controls and monitors the prearming and safing of the missile's W80-0 warhead."

"We'd get feedback from the console on the operational status of the W80, and on how the launch-control system was interacting with the warhead,"



A SHOCKING EXPERIENCE is what the *USS Mobile Bay* encountered during tests last spring. Tomahawk SLCM launch cells are located fore and aft below deck.

Earle continues. "Our main concern was to ensure that the interaction continued in a safe, reliable, and predictable manner after exposure to a shock environment."

"We were also responsible for analysis of environmental data — how components in the W80's electrical system responded to blasts of different magnitudes."

Inert instrumented warheads — warheads minus nuclear material and explosives — were used during the tests. Accelerometers mounted on components in the warhead's electrical system monitored their reactions to the shock.

Though the Tomahawk missile can be launched in several ways (out of the torpedo tube of a submarine, from armored box launchers of ships, and vertically off a cruiser), all Tomahawks on board the *Mobile Bay* during the tests were the vertical-launch variety. These were the first operational ship-shock tests for the vertical launching system, according to Earle.

Several versions of the missile, including both nuclear and conventional land-attack, as well as conventional ship-attack, were subjected to the tests. The Tomahawks were placed in different stages of combat-readiness for each shot. To create as realistic a situation as possible, the ship's 100+ missile compartments were fully loaded, though some contained only shapes that weighed the same as the real thing.

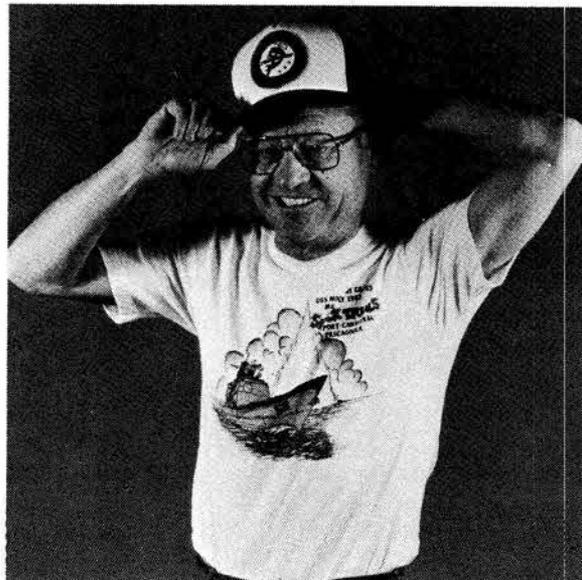
So how did the Tomahawk and its vertical launching system fare after being subjected to the

big blasts? "The missile system performed extremely well throughout the trials," Earle reports. "We didn't observe any failures during onboard operations or during post-shock testing and inspection." (Check-out tests involved operability, environmental measurements, and visual inspections before, during, and after each shock.)

"All loads on the warhead's electrical system were within component capability," Earle continues. "Test results indicate that the W80-0 — in an actual combat situation — would have survived the shocks and would have been launch-capable afterward."

Test days were long ones, according to Earle. "We'd leave port on a shot day at 3 a.m.," he says, "conduct a test in the afternoon, and return to port around 9 p.m. It was all worth it, though; we gained a lot of information at relatively low cost. Tests on an operational ship are much better than, say, laboratory simulations, because you get a look at the entire system. This way, you run through the operation from A to Z."

Sandia's work on the W-80 began in the mid-1970s; some two or three dozen people have been associated with the project since that time. Paul Longmire (2360) was the program's project officer when it began. Later, a group led by Paul worked on development, while another headed by John Duncan (5152) was responsible for testing. Currently, Don McCoy (5111) is project officer for both the W80-0 and W80-1. ●PW



EARLE CHAPMAN (5111) sports the official uniform of the Tomahawk Shock Trials Team. He was an observer at last spring's ship-shock tests off the coast of Florida.

About the Tomahawk . . .

One of the objectives of the ship-shock tests last spring was to verify the operational capability of the Tomahawk weapon and its vertical launching system after being subjected to a shock environment.

The Tomahawk is a cruise missile — a pilotless, solid rocket motor-boosted, turbofan-powered aircraft — that can reach targets over the horizon. Two families of Tomahawk surface-launched cruise missiles are available: the land-attack missile and the anti-ship missile.

The Tomahawk missile is 21 inches in diameter and 246 inches long. The airframe has wings and fins that swing out from recesses in the mid-body and after-body, respectively, extending during the booster burn after launch. (The fins provide aerodynamic control.) Major components of the missile are airframe, guidance system, warhead, fuel system, engine, and

booster.

Though the Tomahawk can be launched in a variety of ways (see main story), the missile's vertical launching system (VLS) was the one tested last spring. Missiles are stored upright in canisters in two launch cells, located fore and aft below deck of guided missile cruisers such as the *Mobile Bay*; electrically operated cell hatches provide protection for the stored missiles. Upon a firing signal from the launch control unit, the hatches slide back, the missiles' solid-state boosters fire, and the missiles are launched (perpendicular to the ship's horizontal reference).

The VLS provides a rapid-fire launch capability against air, surface, subsurface, and land targets. It can launch a standard missile, anti-ship missile, land-attack missile, or an anti-submarine rocket.

Antojitos

Sandia's Gentleman in Geneva World attention was focused on the summit meeting in Washington last week as President Reagan and Secretary-General Gorbachev signed the treaty eliminating INF (intermediate-range nuclear force) weapons. But, in a sense, all they did was sign their names. The real work, performed over the last six months by teams of US and USSR negotiators in Geneva, was to hammer out a mutually acceptable treaty and attendant protocols.

One of those hammerers was Stan Fraley (9111; see photo, right), who headed a sub-group that defined the inspection protocol (which for the first time permits reciprocal US-USSR inspection visits to sites involved in nuclear weapon testing and production). Says Stan, "It was a fascinating, intellectually challenging experience, a little like chess, but more like poker -- played for very high stakes."

On the Albuquerque end, three other Sandians -- Don Bauder, John Taylor, and Pauline Bennett (all 9111) -- provided information, via Washington, on Sandia-developed verification technologies and studies that made the negotiations tough but the treaty meaningful. "They were our backstoppers," says John Holovka (9111 supervisor).

* * *

Speaking of Congratulations -- It took the low-key negotiating skills of former Sandia President Morgan Sparks to bring about a successful resolution of the months-old stalemate between the Albuquerque Police Department and the City. He served as arbitrator in the dispute. Sandians aren't surprised at his success -- "fair, firm, and final" is what we called him.

* * *

And Some More Congrats -- A couple of issues ago, we ran a story in which Lee Bray (30) told us we'd done a tremendous job in raising more than a million ECP dollars for the local United Way drive, which Lee headed this year. At the time, the \$6 million UW goal was in sight but not yet achieved.

It's now been surpassed, so it's now time for us to tell Lee that he did a tremendous job. Faced with a tighter economy, Lee and his team of hundreds of volunteers tried to convince the community that, though the goal represented a 10.6 percent increase over last year, community needs were increasing even faster.

They worked -- and the plan worked. "We couldn't have done it without his leadership," says Adair Johnson, UW's Director of Marketing. "He's one of the finest campaign directors we've ever had."

So, congrats, Lee. And congrats too to your "internal support team" -- Bobbi Voelker (3151), Harriet Morgan (3000A), and Mark Calvin (3532). Lots of needy Albuquerqueans will have a merrier Christmas, thanks to UW's success.

* * *

Sandia & the Spirit of the Season -- If you're out at Bldg. 6600 in Area III, note the evergreen George Greer (5249) has decorated with worn-out aluminum globes that once served as object simulators for intrusion detection system testing.

And if you're carrying goodies through a gate, beware of the security inspector Sally Douglas (1845) encountered a couple of years ago. Toting a cake in a Tupperware carrier, she was stopped by a guard who informed her sternly, "Gonna have to confiscate that -- sure looks like contraband to me!" (P.S. Of course he was kidding.)

* * *

From Me to Ewe -- Fleece Navidad.

●BH



SANDIA'S "MAN IN GENEVA," Stan Fraley (9111) holds a couple of pens involved in the treaty and protocols defining the US-USSR agreement to eliminate INF (intermediate-range nuclear force) weapons. Pen on left is one of many used by the heads of both negotiation teams to initial every page of the treaty before it was signed by President Reagan and Secretary-General Gorbachev last week; the other pen, Stan's personal property, was used during similar initialing ceremonies involving the "inspection protocol," the document created by the working group for which Stan was US head. Stan, who was assigned to the Office of the US Secretary of Defense, spent the last six months in Geneva.

October Earnings Factors

	Earnings Factors
Savings Plan for Salaried Employees (SPSE)	
AT&T Shares	.8868
Government Obligations	1.0227
Equity Portfolio	.7886
Guaranteed Interest Fund	1.0075
Diversified Telephone Portfolio	
Unrealized Appreciation	.9110
Realized Appreciation	.0042*
Savings and Security Plan -- Non-Salaried Employees (SSP)	
AT&T Shares	.8852
Guaranteed Interest Fund	1.0079
Diversified Telephone Portfolio	
Unrealized Appreciation	.9113
Realized Appreciation	.0044*

*The 1 has been removed from the earnings factor. Current month's DTP earnings may be calculated directly: Earnings Factor x DTP Current Worth = Current Month's Earnings.

Death



Gladys Stumpf of Weapon and Test Systems Qualification Section 7251-1 died after a lengthy illness Dec. 7.

She was 62 years old. She had been at Sandia since October 1951. She is survived by a niece.

Sympathy

To Estelle (5210) and Don (1554) MacKenzie and Sheryl Martinez (1846) on the death of her mother, his mother-in-law, and her grandmother in Las Cruces, Nov. 27.

To Gene Rios (3724) on the death of his wife in Albuquerque, Dec. 10.

To Dick Shepardson (3550) on the death of his mother in Jamestown, N.Y., Dec. 11.

CORPORATE SKI CUPPERS WANTED: Sandia/DOE will again field a team of downhill and cross-country skiers that will compete in the 1988 Corporate Ski Cup events. If you're interested (and you're a Sandia or DOE employee, spouse, or dependent), talk to Stan Ford (left), Director of the Sandia Employee Recreation Program and Corporate Ski Cup team captain; Craig Searls (9114), cross-country coordinator last year and this (and individual winner last year); or Frank Biggs (7112), who's represented by the empty boots and who will be downhill coordinator this year. Last year's team took third overall in the state.



St. Nick-Knacks? Santa Clausets?

Santas Saturate Ives Home

Christmas, it has been noted, comes but once a year. Santa Claus, however, never leaves the San Ramon home of Dot and Gene (8100) Ives.

Dot collects Santa figurines and related Christmas memorabilia, so their home looks a little like Christmas year around. But, come December, the decorating intensifies — a Christmas tree of some shape, size, or design dots every room; stockings are hung by the chimney with care; and Santa figures are everywhere.

Dot still has her first Santa — a celluloid toy she received as a gift when she was four years old. Her eyes, how they twinkle as she discusses her hobby: "I've been acquiring Santas for many years, but it wasn't until five or six years ago that I sat down and counted how many pieces I had — more than a hundred. I decided then to get serious about collecting."

She estimates that the current Santa census is between 150 and 200. But she didn't do it alone: For the past four years, Gene's come home from business trips looking like a peddler just opening his pack. Although he hasn't visited all the countries represented, he's found foot-high painted "gift-giver" figurines — St. Nicholas with Mitre (the patron saint of children, who was born in Turkey in 280 A.D.), Father Christmas from England, Black Peter from Russia, a Revolutionary War Santa garbed in a flaglike costume, a Victorian Santa, Kriss Kringle from northern Europe, Sinter Claes from Holland, Jule Nissen from Norway, and others.

Limited-Edition Santa

Dot's finest Santa collectible is a 14-in., doll-like figure with a velveteen suit and a bagful of toys on his back. A recent birthday gift from Gene, it's a limited-edition work of art crafted by a Southern California artist. "She has now stopped making these very special pieces," says Dot, "so I really treasure it."

Dot, herself a talented tole painter, has embellished some of her Santa figures. (Tole painting is, generally, an art form in which folk designs are used to decorate objects.) For example, she bought a Santa in Germany, added her own special touches (such as toys for his empty sack), arranged gifts around him, and encased the finished work in a glass dome.

Before leaving Albuquerque when Gene accepted his assignment at Sandia Livermore in 1985, Dot

The Santa We Know

The roly-poly Santa Claus being pulled in his sleigh by reindeer is a 19th-century American creation. Washington Irving, author of "The Legend of Sleepy Hollow," touched on the Dutch-American traditions surrounding St. Nicholas in his works early in the century.

But the Santa we know was first described in the famous poem, "A Visit from St. Nicholas," written by Dr. Clement Moore in 1823. The poem is often known as "Twas the night before Christmas" from its opening line. Shortly thereafter, political cartoonist Thomas Nast depicted Moore's version of St. Nick in a drawing for *Harper's Weekly*.

spent seven years as a partner in a tole-painting shop called Casa del Tole. Before she left, her former art students and other tole painters gave her 10 hand-painted or decorated Santa figures. "They mean a lot to me because each was crafted by a person I think a lot of," she says.

Gene has learned to think of surprise Santas in September. While celebrating their thirty-third wedding anniversary at a local restaurant, Gene called the waiter — who delivered Gene's gift to Dot: a framed lithograph, "A Gift for Mrs. Claus" that



HOLDING HER FIRST Santa, a celluloid toy given her at age 4, Dot Ives stands by one of the several Christmas trees in her home; this tree is decorated with Santa figures.

shows Santa painting a toy doll. Dot had admired the painting in a shop but had felt she couldn't afford it at the time.

"Gene considers me a Christmas nut, because I even start setting the table with holiday-theme plates and cups this time of year," says Dot. "But Christmas has always been a very special time for me, and I try to share its joy with everyone throughout the year."



FIGURINES DEPICTING ST. NICK, as he is known in several legendary forms around the world and back to the 19th Century pack this "Santa Clauset."

Gene's only comment: "At this time of year I don't dare wear green, because if I ever stood still around home, she'd decorate me."

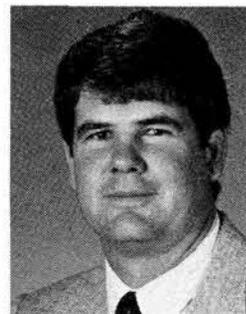


SANDIA
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Supervisory Appointment



COREY KNAPP to supervisor of Technical Security Division 8536, effective Nov. 16. Corey joined Sandia Livermore in February 1981, first working on the telemetry system for the W87 in the Joint Test Instrumentation Systems Division. Later he served as a lead engineer in the Special

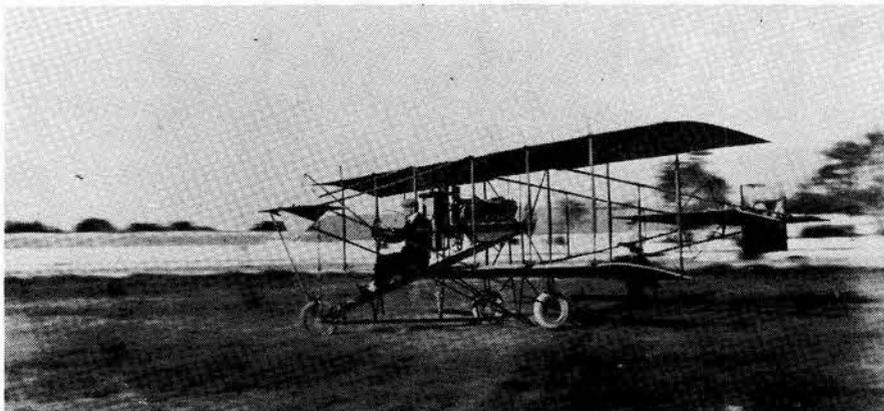
Projects Division, where he worked on various nuclear weapon programs until his promotion. Before coming to Sandia, he spent two-and-a-half years in LLNL's Field Test Division.

Corey has a BS in electrical engineering from UC Davis and an MS in the same field from Stanford. A native of Livermore (and a 1974 Granada High School graduate), he and his wife Carol (8236) and daughter Kelly now live in San Ramon.

Corey enjoys golfing and recreational league basketball; he is also a Sunday School teacher in his church.

Curtiss Pusher is Centerpiece of New Museum Exhibit

BARNSTORMER AND STUNT PILOT LINCOLN BEACHY flew a Curtiss Model D Pusher biplane at the 1912 New Mexico State Fair. He was the first pilot to fly upside down in a pusher without crashing. The plane is called a pusher because the propeller is behind the engine. (Albuquerque Museum Photoarchives)



A small, fragile structure took wing from the baseball diamond at the 1911 New Mexico Territorial Fairgrounds near Central and Rio Grande Boulevard. An unfamiliar buzz jolted Albuquerque several times that day as daring young pilot Charles Walsh demonstrated the precision and accuracy of flying in a heavier-than-air machine.

The flying machine was a Curtiss Pusher biplane, similar to the centerpiece of the new exhibit, "Balloons to Bombers, Aviation in Albuquerque, 1882-1945," opening Dec. 20 at the Albuquerque Museum. Curtiss pushers (designed by inventor Glenn Curtiss, a competitor of the Wright Brothers) were the first planes to fly in New Mexico.

Their airframes were built of various woods and bamboo held together with wire and tinned fasteners. Wing and control surfaces were covered with silk, canvas, or Irish linen made airtight by a varnish called dope. The pusher engines were four, six, or eight cylinders that developed 26 to 100 horsepower. The plane weighed between 550 and 850 pounds, depending upon the number of seats, size

of the engine, and configuration of the airframe.

Pushers were expensive and required constant maintenance. The exact model designations of Curtiss pushers built between 1911 and 1913 are difficult to identify because custom factory modifications were frequently made to suit the whims of individual customers. Parts were freely interchanged between models.

City to City by Train

The biplanes were transported in crates on trains from city to city where company pilots put on demonstrations of the plane's precision and accuracy. It was standard procedure to carry spare parts in the boxes because numerous wrecks and rebuilds kept the pilots and crew busy between flights. Curtiss pushers were the most widely used American exhibition planes between 1909 and WWI. Few pushers from this period have survived — the pilots were daring and experimental, there was no communication between pilot and ground crews, and the planes were fragile to begin with.

Penalties for failure were severe indeed. Lincoln Beachy, the preeminent early aviation stunt flyer, flew in publicity exhibitions (including one in New Mexico in 1912) for Glenn Curtiss. He died in 1915 when he failed to pull out of a dive over Oakland Bay.

The Curtiss Model D Pusher biplane in the Museum exhibit is believed to be the only one in existence in original, preserved condition. In 1915, it was packed in crates after its last flight; it wasn't reassembled until 1986 when John Bowden, a rancher from Lampasas, Tex., bought it from the Ingram family, original owners of the Texas Aeroplane Co. Charles Foster built this Curtiss pusher using Curtiss factory parts (and no blueprints!). It was the last of five that Foster built for the Texas Aeroplane Co. and first flew in 1911.

Museum Beats the Smithsonian

The Museum, along with the Albuquerque Aviation Dept., purchased the biplane from Bowden. "We searched for a plane for the exhibit that would have flown in New Mexico at the turn of the century," says Byron Johnson, Albuquerque Museum curator of history. "We contacted the Antique Airplane Assn. and other associations and heard about John Bowden." (The Smithsonian submitted a late bid on the plane, but the Museum won the prize.)

The Curtiss Model D (including the original bolt of Irish linen found in the crates) will be on display at the Museum until the exhibit closes on Feb. 28. It will go on permanent display in the lobby of the Albuquerque International Airport when renovations there are complete. ●JW

First Multi-Lab Alliance

Making History In the Education of Minorities

Sandia, Los Alamos, and Oak Ridge national labs signed an agreement last month to form a Science and Technology Alliance with three educational institutions, including NM Highlands University. Although there are eight or nine similar agreements between individual labs and minority institutions, this is the first to involve several labs.

The three institutions are the Ana G. Mendez Educational Foundation, San Juan, P.R.; North Carolina A&T (Agricultural & Technical) State University, Greensboro; and Highlands. All three have a minority enrollment of more than 50 percent, according to Isiah Sewell, Program Manager of DOE's Minority Educational Institutional Assistance group.

The White House Office of Science and Technology and the White House Initiative Office on Historically Black Colleges and Universities encouraged the formation of the multi-lab Science and Technology Alliance. Primary goal of the alliance is to benefit Hispanic, Native American, and Black institutions "by strengthening existing research programs through peer interactions and exchange of science and engineering personnel, through participation in 'cutting edge' science and engineering R&D programs, and by providing access to specialized facilities and technical support services," says DOE Program Coordinator Cynthia Booze.

Major components of the program include joint faculty and staff appointments and exchanges, collaboration to improve undergraduate and graduate curriculums and research programs, summer jobs and cooperative education programs for outstanding grad and undergrad students. The labs may also provide technical expertise and equipment to support university research programs.

Signing the agreement for Sandia was Dan



SIGNATORIES of the memorandum of understanding that created the first DOE multi-lab Science and Technology Alliance pose with Raymond Massie (third from left), the Director of DOE's Office of Minority Economic Impact, the group under whose auspices the alliance was formed. From left, Jose Mendez, President, Ana G. Mendez Educational Foundation; James Jackson, Deputy Director for Operations, LANL; Massie; Gilbert Sanchez, President, NM Highlands University; Edward Fort, Chancellor, North Carolina A&T University; Dan Hartley, Vice-President, Energy Programs 6000; and Chester Richmond, Associate Director, Biomedical and Environmental Sciences, Oak Ridge National Lab.

Hartley (6000). "I was signing, of course, for President Welber, who has a personal commitment to EEO goals," says Dan.

"And it was an important step," Dan continues. "The alliance demonstrates that the national labs are indeed committed to assist minorities working toward a high-quality education in science or engineering. The alliance will provide the institutions with access to people and job opportunities they might not otherwise be aware of."

Also attending the Washington, D.C., ceremony was Nestor Ortiz (6410). "It was a memorable

event for me and for all those who attended," says Nestor. "We recognized that we were making history in the education of minorities in this country."

"But the payoff for both the labs and the institutions lies ahead," Nestor continues. "Sandia plans to continue its cooperation with Highlands, of course. We also plan to expand our interactions with North Carolina A&T, a predominantly black school, in the area of microelectronics. In general, establishing relationships with the three minority universities will provide Sandia with a larger pool of well-qualified employment candidates in the future."

Laskar Breathes Life into Link Trainer

It was Bill Laskar's (ret.) labor of love — and loathing. He's spent more than 900 hours since August restoring a "Blue Box," more properly, a C-series instrument flight trainer built by Edwin Link for the Army Air Force in 1943.

It's now at the Albuquerque Museum, where it will compete for the visitor's attention with an original Curtiss Pusher biplane (sister of the first airplane to visit Albuquerque back in 1911) in a "Balloons to Bombers" exhibit that opens Dec. 20 (see "Curtiss Pusher" story).

In addition to a notorious addiction to cameras (he was the LAB NEWS photographer from 1957 until his retirement in 1980), Bill's had a lifelong love affair with airplanes, "especially those of my vintage, the 30s and 40s," he notes. During his stint as an aviation mechanic at Kirtland Field in WWII, Bill worked on virtually all the planes in the military inventory.

So when the Lobo Squadron of the Confederate Air Force learned that a Link trainer was available from CAF's Hobbs wing for restoration, the squadron commander asked Bill to volunteer for the task. And Bill the nice guy, a charter member of the group, accepted. "Just patch up the plywood so it looks nice again, nothing to it," he was told.

That was in June. Finally, in August, the trainer — more precisely, a carcass representing a fuselage that had been in storage for 20 years — was delivered to Bill's home workshop in Albuquerque.

But not *into*. Too wide for the workshop door, the trainer — and Bill — ended up on his backyard patio. Rebuilding the hood (the cover over the cockpit) and fuselage was challenging enough; it had been considerably abused over the years. But the real challenge was to design, construct, and attach the wings and tail needed to make it a museum-quality showpiece — and, in a sense, a more accurate representation of Link trainer history (see "A Little Link Lore" story) than the original 1943 version had been.

No Plans, No Drawings

Neither Bill the perfectionist nor the trainer's previous custodians had any plans or drawings that would specify the size and shape of the wings and tail. "I called the Smithsonian, I called the Link factory (which is still in business), I called people all over the country for help," Bill says. "I did get a photo from the Link people but it was of the wrong model."

"I got the most responses from a plea for help in the *Journal's* Action Line," he continues, "but I also got some good leads from Gerry Hastings [2833] at Sandia, and Rick Ray [Museum Specialist at the National Atomic Museum] was able to talk the Smithsonian into sending us a dozen tiny Thermo-faxes of a Link. No one had the drawings I'd hoped to find, but several people sent photos of C-series trainers. I used dividers to transfer the dimensions of the pieces I had to build from the photos to the drawing board."

By now it was October, and the climate on the patio was no longer balmy. "Luckily, I could do the wings and the tail inside," says Bill. "The wings were especially difficult — ribs, false ribs, thin nylon stretched over the ribs; lots of intricate work, lots of frustration to get those wings just right. The third time I started over on that left wing, I really came to loathe it."

Most of the hardware was missing, of course, and most of the missing hardware was no longer available anywhere, of course. So Bill the machinist designed and fabricated the pieces the trainer needed for authenticity.

Then it was November, and the museum's deadline was just around the pylon. "I had everything put together," Bill recalls. "All I had to do was to paint it." Finding the right yellow for the wings was easy — Bill the archivist had saved a paint can label, complete with yellow daub, since WWII. But he wasn't sure about the blue for the fuselage. KAFB Historian Don Alberts called the Air Force Museum at Wright-Patterson AFB and got the proper Fed-



A LINK AND A LASKAR — Bill Laskar (ret.) finished restoring this Link instrument flight trainer last week and helped to install it in the Albuquerque Museum for its "Balloons to Bombers" exhibit, which opens Dec. 20.

eral Standard Number. Bill had the catalog that gave him the color sample. He confirmed it when he finally found his old WWII blue paint can with the proper shade of blue drips down its sides.

After a week's extension of the deadline and five coats of acrylic lacquer, applied between as many wind storms, Bill the proud was almost finished — just use a stencil to give the trainer its identity and

Bill some credit. "Should have taken 20 minutes," says Bill. "But I couldn't make it look neat enough. Took me four tries and two days!"

The Blue Box was set up at the museum last week. Bill plans to spend some time with it once the show opens: "I'll answer questions about it — and there are a couple of little things that aren't quite right; maybe I can fix them between visitors." ●BH

A Little Link Lore

The military pilots in the 30s and 40s, especially those with a tendency to claustrophobia, saw the Blue Box — the Link instrument flight trainer — as a form of periodically recurring torture.

Blue Box training was dark, hot, confining, pressure-filled — and mandatory. But it worked; pilots could indeed learn to fly solely on instruments (that is, without visual referents) in a Blue Box. It was much cheaper, and safer, than a real night flight. And, if you made a serious mistake — a crash, say — you'd regret it; your instructor would see to that — but you'd walk away in one piece.

But the Blue Box story doesn't begin with the military. It begins in the 20s with a family named Link. The Links manufactured coin-operated organs and nickelodeons, the forerunners of today's jukeboxes. Ed Link was 23 years old when Charles Lindbergh crossed the Atlantic in 1927. Inspired by both man and flight, Ed earned his pilot's license shortly thereafter.

But, he must have reasoned, there ought to be a safer, more efficient way to learn to fly than by flying. So he used his Link family skills in constructing intricate mechanisms — gears, bellows, and so forth — and the family facilities to build a flight trainer.

By 1929, he'd perfected a little simulator that had realistic controls to make it climb, dive, pitch, roll, even stall — all the real movements of an airplane except actual forward motion — and the instruments to reflect those movements. He later added a hood to make the flying sensation even more realistic.

Ed operated a flight school, based on his trainer, from 1929 on. But he failed to make the school a financial success, and he failed to interest the military in his invention's capabilities. "Sitting in a box is no way for a soldier to learn to fly," you can almost hear some Army Air Corps type muttering as he rejected Ed's proposal.

Why the Wings and Tail?

Ed, always an entrepreneurial Link, decided to take his box on the road and make some money by hitting carnivals and air shows all over the country. But first he added stubby little wings, with ailerons that moved, and a tail, with a real rudder and elevators. "Before I can ask a whole quarter for a ride in the box, I've got to simulate a real airplane, not just 'real' flying," he must have reasoned.

The venture was apparently successful. But Ed got involved with the Army again in 1934.

The Air Corps (it was Army Air Corps until late 1941, Army Air Force until 1947, Air Force since then) had taken over the nation's Air Mail routes. "It was a total disaster," says Bill Laskar (ret.), who remembers. "They lost 10 or 12 pilots, I think it was, in the first two weeks. You see, their pilots weren't familiar with the routes or the weather, and they weren't trained to rely totally on instruments, but the mail had to move at night and in bad weather."

Someone in the Army remembered Ed's earlier proposal and gave him a contract to train Air Mail pilots. It didn't work out — it would take too long to bring the pilots up to speed on instruments. Better to use nature's way — those who survive night flying become good night fliers.

But the contract was in place. Rather than waste the money, the Army decided to use Ed's box to train Air Corps pilots. So after basic (visual) flight training, each pilot had to earn his instrument time in the Blue Box, and then he had to be requalified in it every few months throughout his military flying career — Link time, the pilots called it. Link training was mandatory throughout WWII.

"It was not easy," says Bill. "The Blue Boxes were actually harder to fly than real planes. A dozen or so were usually located in a training barracks so in the winter it was often cold. Worse yet — this is before the days of air conditioning — it was hot, very hot, in the summer. Sweat Box was usually a more apt term than Blue Box."

But it worked. An umbilical cord and an intricate system of mechanical controls — this is long before the days of electronic switches, servo-mechanisms, and artificial intelligence — traced (on a map on the instructor's desk a few feet away) the course the trainee pilot was flying inside the Blue Box. The actual tracing device, called a crab or a bug, crawled along the map of the terrain to be covered. The instructor, linked to the trainee by radio, passed along the simulated conditions of actual flight — cross winds, storms, altitude, and so forth. The crab allowed the instructor to note how well the trainee responded — and served as the basis for some memorable lectures after the session was finished.

No, the Link trainer Bill recently restored (see "Laskar Breathes Life into Link Trainer" story) does not function. It just sits there, at the Albuquerque Museum. But for the WWII pilots who remember Blue Boxes all too well, that's probably a relief.

The Christmas Spirit Visits Sandians**Sandians Busy As Elves With Christmas Projects**

Retirees John Shunny and Julian Sanchez will again distribute small cash gifts on Dec. 20 to people living along Highway 14 south of Tijeras. The primary income that many of the South 14 villagers rely on comes from firewood sales and subsistence farming.

"Many people still don't have chain saws — or indoor plumbing," says John. "There are 80 families along South 14. This year we raised \$1300. That means we can help only 16 families. We select them on the basis of when a particular family last received gifts. This year big families (three or more people) will receive \$100; small families will get \$50."

Caps and T-shirts (\$7/ea.) bearing the Sandia name and thunderbird logo and aerial photos of Tech Area I (\$20) are sold all year at the LAB NEWS office in Bldg. 814 to raise money for the project, now in its 21st year.

Holiday Drive

The second Holiday Drive was conducted in Org. 7800. Stations were set up throughout the organization to collect food, toys, and clothing for the needy in Albuquerque. Members of the committee that put the drive together are chairperson Dawn Johnston (7866), Albert Ayotte and Mario Ramirez (both 7813), Precilla Marquez and Reggie Tibbetts (both 7815), Bill Kolb (7831), Scott Rowland and Wayne Willess (both 7832), June Harrington and Georgianne Huff (both 7842), Lex Pegues (7843), Chris Erwin and Sharon Walsh (both 7861), Jim Muntz (7863), and Patricia Mansker (7865). Distribution of items collected will be on Dec. 18 to the Albuquerque Rescue Mission. The 7800 Holiday Drive was started last year under the direction of Barbara Bartberger (7831).

Toy Festival

Work Experience Trainee Kim Haulenbeek (7535) was chairperson of Charity Contacts for the Chaparral Girl Scout Council Toy Festival held Dec. 5 at La Cueva High School. Kim spent most of her spare time this fall inviting human services agencies connected with children to come to the fair and select toys for their needy children. She also coordinated the toy collection itself.

The toy festival is carried out by Senior Girl Scouts (ages 14-17) who earn seed money for the project. Toys are donated by Girl Scouts who make them or earn money to buy them. Kim is working on achieving the Gold Award, a Girl Scout award equal to the Boy Scouts' Eagle Award. She is a senior at La Cueva and works afternoons in the Track and Cables Division.

The people in 7200 have donated more than



CHRISTMAS ELF KIM HAULENBEEK (7535) with dolls made by Girl Scouts of the Chaparral Girl Scout Council for the Toy Festival held Dec. 5. Kim, a senior at La Cueva High School, is a Sandia Work Experience Trainee and an active Girl Scout.



CLOTHING, TOYS, AND FOOD (mostly clothes) were collected during the second Org. 7800 Holiday Drive for the needy. Barbara Bartberger (7831, left) originated the drive last year. This year's committee chairperson is Dawn Johnston (7866).

\$2000 toward their Shoes for Kids project, which works with Kinney Shoes to provide footwear for needy APS students. Now in its 31st year, the project is headed by Don Rohr (7212).

FACES FROM CHRISTMAS PAST. In 1986 this group gathered at the Senior Citizens Center in Tereon to receive gifts of cash from the South Highway 14 Village Project. It was the first year cash was given instead of turkeys and clothing.

**For Your Benefit****Special Increase Set for RIP**

Sandia's Board of Directors recently approved a special pension increase, effective Jan. 1, 1988, for all eligible retirees and surviving annuitants covered under the Retirement Income Plan (RIP). To be eligible, a retiree or annuitant must have elected to participate in the pension plan as revised in July 1975 and have been receiving a pension on Dec. 1, 1987.

(A similar increase for retirees and annuitants covered under the Pension Security Plan was announced previously; it is also effective Jan. 1.)

The RIP change is consistent with a recent increase granted to retirees under AT&T's Management Pension Plan and is subject to DOE and IRS approval. All eligible retirees and annuitants are being notified of this increase by letter.

Sandia plans to pay the increase (retroactive to Jan. 1, 1988) upon obtaining DOE approval, without awaiting IRS approval. A second notification letter will be mailed to affected retirees at that time. If the IRS does not approve the increase, the increase will be discontinued from future pension payments.

Maximum Increase Is 4.5 Percent

For eligible employees who retired before Jan. 1, 1985, the pension increase is equal to 4.5 percent. For those retired since Jan. 1, 1985, the increase is equal to 1/36th of 4.5 percent (0.125 percent) for each full month of retirement from their retirement date through December 1987. The minimum increase will be 0.125 percent (one month), and the maximum will be 4.5 percent (36 months).

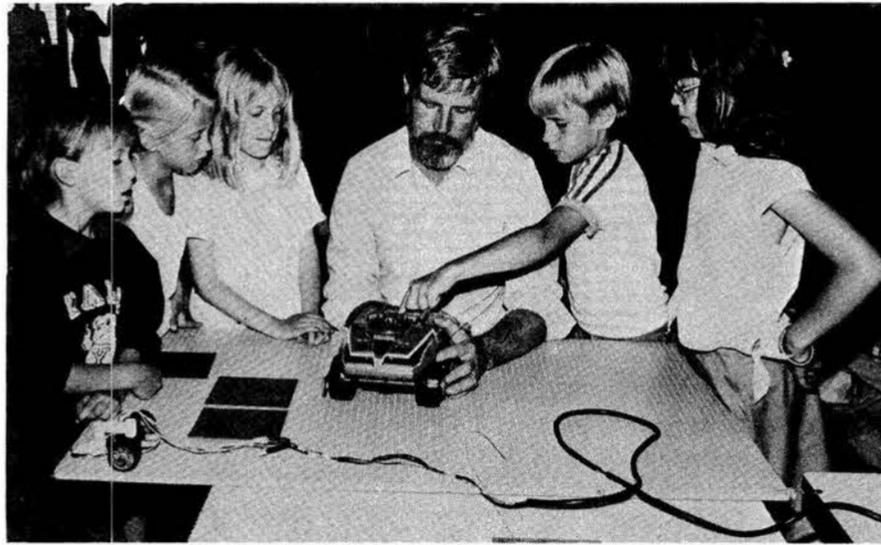
This increase also applies to pensions of employees who continued to work beyond age 65 (and of their surviving annuitants) if the employees retired before October 1987. The increase is calculated as if they had retired at age 65. Effective Oct. 1, 1987, on-roll employees received past service credit for post-65 service and so are not eligible for this increase for the period from age 65 to date of retirement.



JAN WALLNER (3154) KNOWS HER COLLECTION of stuffed animals has gone to a good cause. Jan and others in the mailroom collected stuffed toys for the All Faiths Receiving Home's new program set up to give each child his or her very own stuffed animal as soon as the child arrives at the home. Call the All Faiths Receiving Home (345-8938) if you have stuffed toys to donate.

VIA Seeking Special Volunteers

RAY HARRIGAN (1414) shows students at Montezuma Elementary School how to construct a robot by linking an ordinary electric toy to a home computer. "Kids are always surprised and delighted to learn that robots are neither magical nor even highly intricate machines," says Ray, "and they're even more surprised to learn they can build one themselves, often from items they already own."



Ray Harrigan (1414) is one of many Sandians who, upon request, pack up a sack of gadgets — as he calls them — or a stack of posters, or other visual aids and set off for one of the public schools to demonstrate a scientific principle or two.

"I've used a bicycle wheel rigged up with handles on the axle to demonstrate the principle of conservation of angular momentum," says Ray. "Kids easily understand the principle when they hold the spinning wheel by the handles, try to tip it to one side or the other, and discover they can't."

Glen Kepler (1810), Chairman of the Volunteers in Action (VIA) committee, believes Ray and

other volunteers are doing a great job of making science come alive for elementary school students — and would like to get more Sandians involved.

"Enhancing students' interest in science and math is a valuable volunteer service," says Glen. "The science and engineering community is worried about the declining interest in science and math among pre-college students — where is the next generation of engineers and scientists going to come from?"

"The trouble with responding *ad hoc* to requests by science and math teachers," continues Glen, "is that the burden for responding falls heavily on just a

few volunteers — like Ray, who has so many requests for his 'demonstrations' that he can't possibly handle them all.

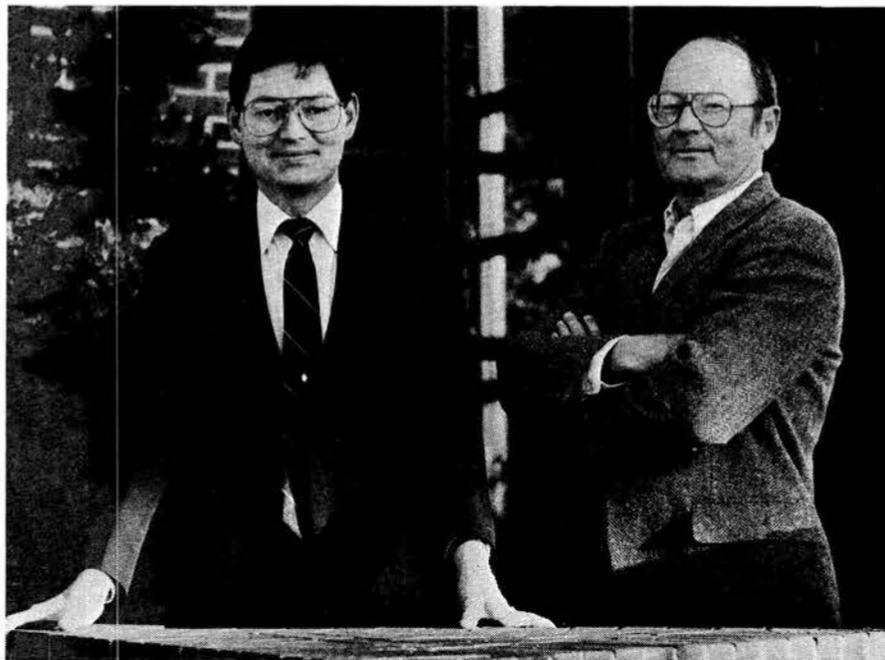
"We also get requests for other kinds of help — judging science fairs, doing special kinds of tutoring, and giving guidance and talks on career choices," says Glen. "With an organized, long-range approach, I'm sure we could identify many more ways Sandia engineers and scientists could work with students — and create more positive attitudes toward science and math course work and careers in the bargain.

"So what we're looking for right now," says Glen, "are volunteers with the interest and the stamina to spearhead such a program. I say 'stamina' because these volunteers must be willing to do two things — identify appropriate service areas within the public schools *and* seek out Sandians with talents to match those areas.

"By necessity," Glen continues, "this would involve a long-term commitment and real dedication to the idea that volunteers can enhance students' interest in science and math by working directly with them."

Like other VIA programs, this one would link community needs with Sandians seeking volunteer opportunities that suit their personal interests, talents, and availability of time off the job. If you think you'd like to work with this program, talk to Karen Shane, VIA Coordinator (4-3268).

Supervisory Appointments



RON MOYA (5219, left) and
OLDEN BURCHETT (7133)

RONALD MOYA to supervisor of Verification Technology Division 5219, effective May 16.

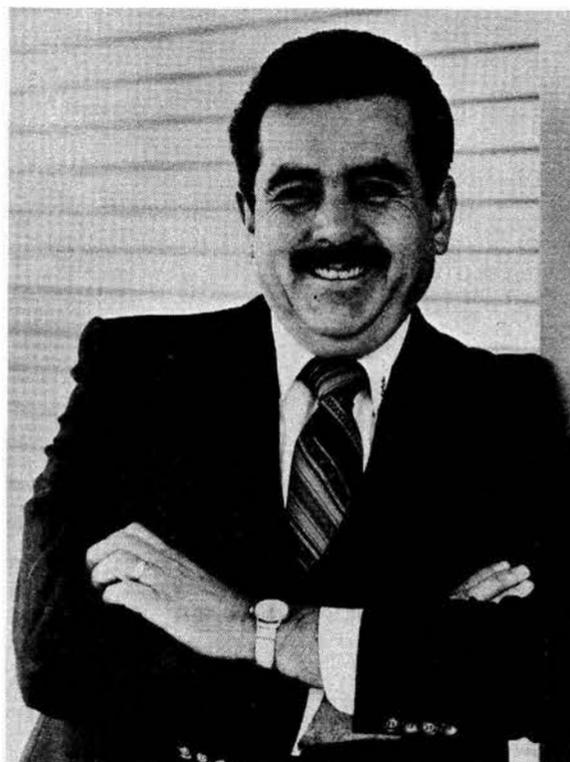
Ron joined the Labs in May 1979 as a member of the Facility Systems Engineering Division. In September 1979, he went to Stanford University under Sandia's OYOC (One-Year-on-Campus) program. When he returned to Sandia in June 1980, he worked on physical protection systems engineering and vulnerability analyses of physical protection systems. Ron was project leader for developing, managing, and implementing concepts and systems.

He transferred to the International Safeguards Division in October 1985, where he helped develop systems for technical on-site verification of arms control treaties. He was project leader for organizing and directing the 5200 support for the TOSI (technical on-site inspection) demonstration project.

Ron has a BS in mechanical engineering from NMSU and an MS in the same field from Stanford. He is a member of ASME. His spare-time activities include running, swimming, cooking, and church activities.

He and his wife Mary (1411) live in the NE Heights.

* * *



PRO PADILLA (3743-1)

OLDEN BURCHETT (DMTS) to supervisor of Engineering Projects and Explosives Applications Div. 7133, effective Dec. 1.

Olden joined the Labs in May 1963 as a member of the materials organization. In 1965 he was appointed division supervisor of the Materials Sciences Research Division. In 1968, he went to the University of Oklahoma to complete his doctorate in mechanical engineering under Sandia's doctoral study program. He returned to the Labs in 1969 and rejoined the physics research directorate, where his work was in effects testing on electron beam accelerators. In 1973, he went to the Stress Analysis and Dynamics Division as a member of the technical staff. In 1978, Olden joined the Explosives Components Department. He was a member of the Initiating and Pyrotechnic Components Division at the time of his promotion.

Before joining Sandia, Olden was a faculty member in the Department of Mechanical Engineering at Oklahoma State University. He worked as a summer-hire at Sandia in 1958 and 1961.

He has a BS and an MS in mechanical engineering from Oklahoma State University. He's taught mechanical design as an adjunct professor in the Mechanical Engineering Department at UNM for the past ten years.

Olden and his wife Jean live in Bosque Farms. They have two grown children.

* * *

PROFESO PADILLA to supervisor of Traffic Management Section 3743-1, effective Nov. 16.

Pro joined Sandia in Dec. 1966 as a clerk in the Mail Services Section. In 1967 he went to the Purchasing organization where he worked in the Document Production and Administrative Services Division. Pro joined the Traffic Management Division in 1968.

He has a diploma in Traffic and Transportation Management from LaSalle University.

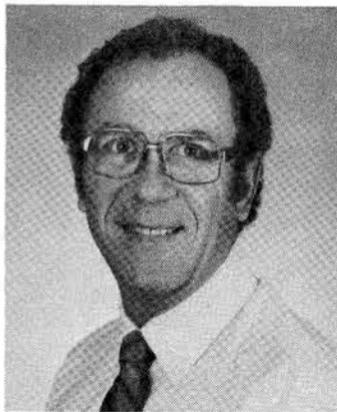
Pro's spare-time hobbies include golf, hunting, and gardening.

He and his wife Virginia (7251) live in the NW Valley.

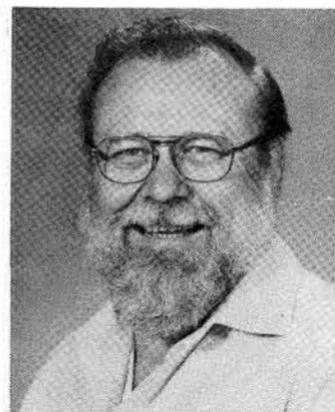
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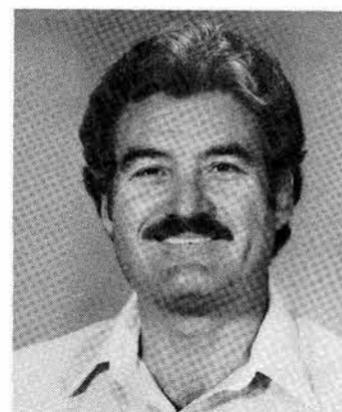
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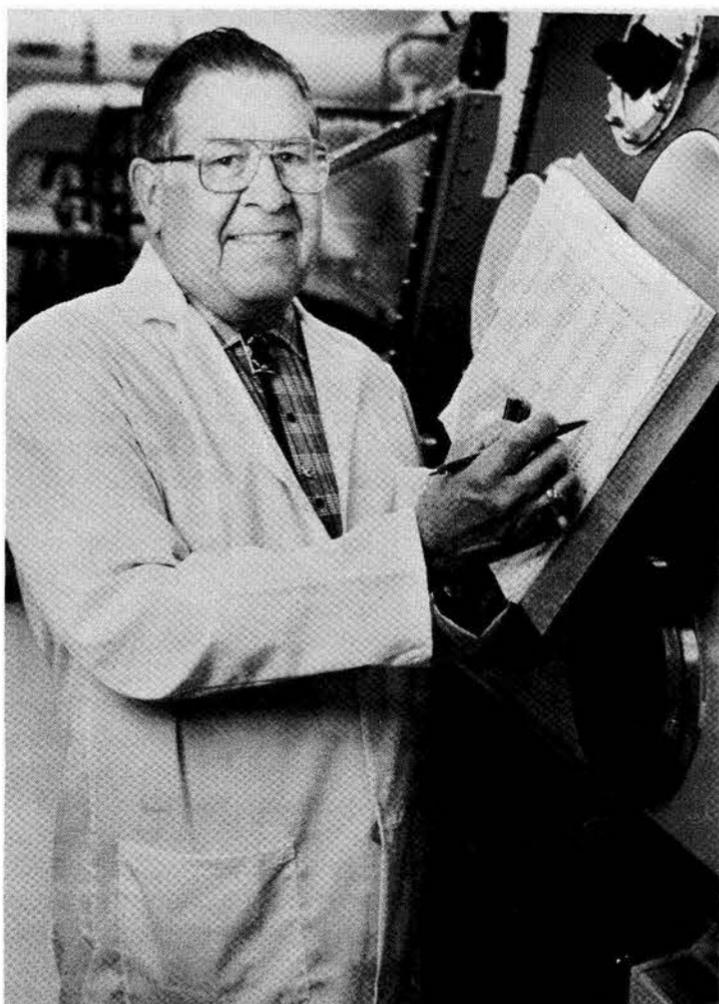
Jerry Williams (8161) 30



Jack Cannon (6221) 30

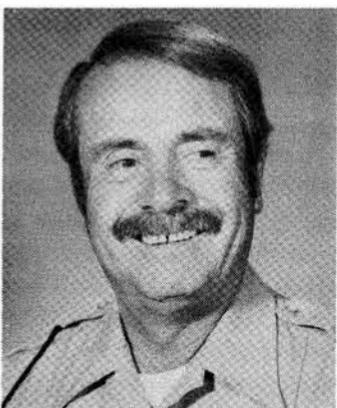


Ted Garcia (2632) 25



Gilbert Ramirez (3425)

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Jacob Aragon (3434) 35



Virginia Williams (2833) 15



Walter Drake (7533) 40



Gayle Cain (8282) 35



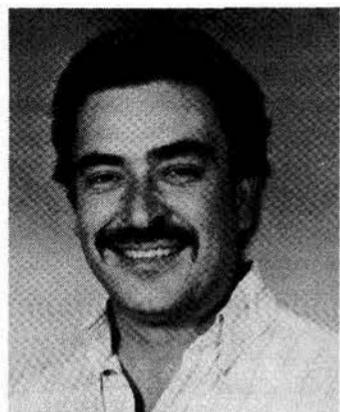
James Kobs (2336) 25



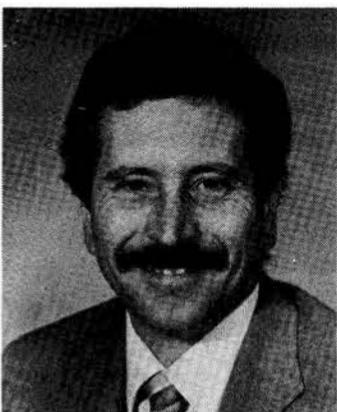
Don Hardesty (8361) 15



Bud Brock (8536) 20



Jim Salas (2512) 15

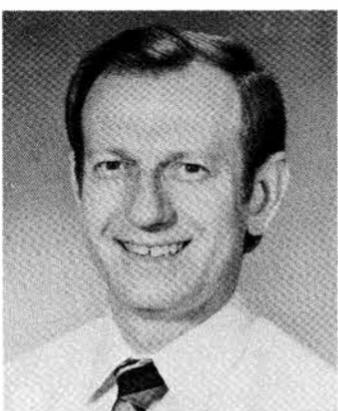


James Wilder (2565) 10

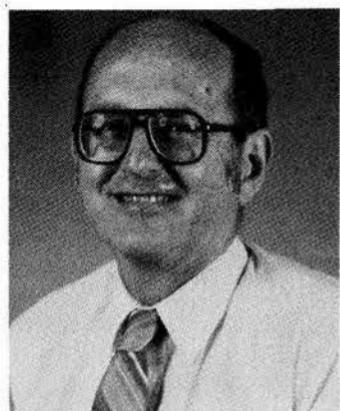


Ed Sweeney (3423)

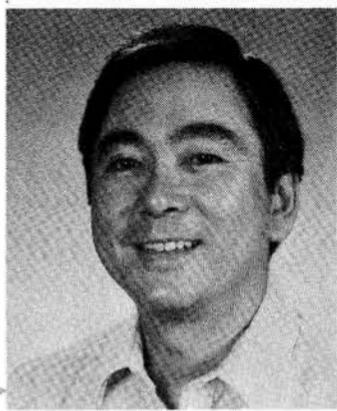
15



James Simons (2342) 20



Carlton Furnberg (DMTS, 8162) 30



Howard Hirano (8446) 10

UNM will again offer a course in "Entrepreneurial Engineering" (ME 456) in the spring semester. Sandia staff members with engineering and science backgrounds have taken the course; some have developed business plans, with class assistance, for companies they have contemplated starting. The class works in teams, starting one to three new businesses each semester. Staff members with technical or business backgrounds who have in mind possible business developments are especially invited to enroll. The Labs Technology Transfer and Patent organizations both cooperate with the class. The class meets on Thursdays, beginning Jan. 21, from 6:30 to 9:30 p.m. in Room 218, Mechanical Engineering Building. Enrollment must be completed in the Student Services Building Registration Center (telephone 277-5548) by Jan. 22. For more information, call Professor Bill Gross on 277-6297.

* * *

Take Note

Sandia sign up for the second HealthNet "Eat Right New Mexico" campaign is Jan. 11-15 from 7:30 to 9:45 a.m. in Bldg. T-13 (south of Medical). Sandians and their spouses can register for the 10-week program that aims to improve nutrition and promote weight loss. Each participant will sign up, weigh in, pay a \$5 registration fee (checks please), and pick up a step-by-step behavioral change kit. The fee also includes entry into the HealthNet Lottery, a T-shirt (if the program is completed), and a lapel pin (if the desired weight loss is achieved). No class attendance is necessary. For more information, contact Lucy Lopez (3330) on 4-8238.

* * *

A new social and support group for singles is growing out of Arlene Price's (3330) series of divorce

adjustment classes. Unnamed as yet, the group plans to hold regular meetings in 1988. In the meantime, if you're single (widowed, divorced, never married) and would like some social activities during the holidays, call Kathleen Hovorka (7523) on 299-0224. If you're interested in a Christmas Eve walking tour of the Country Club luminaria area, call Mae Lambert (1845) on 294-4188.

* * *

The New Year brings a price increase for KAFB Morale, Welfare, and Recreation (MWR) cards for Sandians. The 1988 cost is \$36; cards purchased before Jan. 1 are still \$24 and are good for 1988. The card is good for use of KAFB's recreational facilities including the gym, racquetball and tennis courts, golf course, bowling center, swimming pools, and others. Pick up a card at the Que Pasa Rec Center (Bldg. 20155). For more information, call the Center on 4-5420.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

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

Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per category per issue.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignment.
10. No commercial ads.
11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

PANASONIC VIDEO CAMERA, 8:1 zoom lens, stereo microphone, character generator, case, other features, \$375. Molecke, 296-5850.

PING-PONG TABLE, 5' x 9', folds and rolls, brackets, net, paddles, balls, \$70. Everhart, 266-3852.

PUNCH BOWL, Riekes Criesa, 15-qt., 14-piece set, \$25. Fuller, 268-5384.

TRANSCIVER, Kenwood TS-711A all-mode, new, silent key, \$700. Schwoebel, 298-4295.

CARDCO G INTERFACE, for Commodore computer-to-Epson, or similar printer, \$25. McConahy, 884-5071.

BAVARIAN LEDERHOSEN, new, size 34; classical guitar; Realistic belt-drive automated turntable. Southwick, 281-3782.

POLISHING TUMBLER, 7", \$25; 96-amp GM alternator. Silverman, 298-1308.

EXERCISE BICYCLE, variable tension, \$35. Picraux, 268-7126.

DINING TABLE, 6 chairs, Formica, \$75; push-type lawn mower, \$25. Shipley, 298-2433.

WESTINGHOUSE STOVE, white; Whirlpool freezer, chest-type; Whirlpool refrigerator, white; make offers. Showalter, 298-7342.

TIRE CHAINS, Sears 7679, buckle-on, bar-reinforced, fit most 13 to 15-inch slotted wheels, 3 pairs, \$6/pr. Schkade, 292-5126.

PUREBRED SHELTY PUPPIES, first shots, no papers, available Dec. 24, \$75. Anderson, 865-4494.

FRIGIDAIRE REFRIGERATOR, side-by-side, gold; Roper trash compactor, gold; formal chandelier; electric typewriter; more. Benjamin, 293-5578.

OSTER ELECTRONIC AIR CLEANER, model 404, \$25; Craftsman 5-hp gasoline engine, cast iron block, \$75. Meikle, 299-4640.

SCHWINN XR-100 EXERCISE BICYCLE, flywheel drive, digital timer, speedometer, distance meter, original seat and padded seat, \$90. Gonzalez, 296-3814.

PRECOR ROWING MACHINE, model 615e, \$225; Nakamichi tape deck, model 500, \$140. Goldenberg, 821-6209.

NEC PRINTER, PC8023A-C, \$150. Freeman, 296-2977.

SONY COLOR TV, 21", \$100. Tyler, 268-9731.

TELESCOPE, Odyssey 1 reflector, 13.1" mirror, Telrad spotter, 3 eyepieces, \$690 OBO. Grasser, 291-0947 or 292-3799.

COSCO CAR SEAT/INFANT SEAT CARRIER, washable cotton pad, used 6 months, \$20. Barnette, 292-5186.

CLAY PLANT POTS & SAUCERS: two 5", \$4/ea.; 9", \$7; 16", \$10. Barr, 821-5870.

YAMAHA PROFESSIONAL SERIES AMPLIFIER, 100-W, parametric equalizer, \$275; Technics 3-way home speakers, new, 12" x 22", \$125/pr. Ginn, 883-0004.

TRS-80 COMPUTER, terminal, printer, disks, software, \$125. Marchi, 291-9681.

LOG SPLITTER, "Chopper 1" maul, 2 swing-out levers on head, \$15; ITT wall phone, white, \$10. Lagasse, 293-0335.

WEISER DOOR HARDWARE: 4 double dead bolts, 6 keyed thumb doorknob locks, 4 privacy knobs, 2 passage knobs, \$25. Bland, 265-6286.

TWO POTTERY TABLE LAMPS, contemporary, tan/beige/rust tones, \$30/ea. Hosking, 823-9512.

CHROME ROLL BAR, for wide-bed truck, made with large tubing, \$175 OBO. Chavez, 243-9530.

MOUNTAIN BIKE PARTS, Ross frame w/fork and brakes, Biopace chain rings, Beartrap pedals, built-up specialized wheels. Kovacic, 256-9867.

AUTOMATIC DRYER, White-Westinghouse model DES70ADD1, cross-vane tumbling, \$100. Karkiewicz, 296-3101 after 5.

SWIVEL ROCKERS, orange velvet, \$30/ea. or \$50/2; bookcase units, \$75/2. Hoke, 291-8587.

TONNEAU COVER for MG Midget, new, \$65; Kawasaki portable generator, 550-W, new, \$250; Honda CB750K and CB450 parts. Barnard, 831-4114.

YAMAHA CONSOLE PIANO, walnut, \$1800; gold couch, 8'6" long, from American Furniture, \$350 OBO. Chavez, 881-2711.

AQUARIUM, 60-gal., 4' x 1-1/2', fluorescent strip, heater, Whisper 800 pump, U.G. filter, glass top, gravel, \$145. Snodgrass, 299-1052.

CAMPING TRAILER, '83 Palamino Pony, porta-potty, battery converter, spare tire, heater, 10-gal. water tank, \$2000 firm. Salgado, 898-0872.

SIDE-BY-SIDE REFRIGERATOR, Gibson, 16-cu.-ft., brown, \$200. Baker, 298-5850.

POOL TABLE, Sears, 4' x 8', 1-yr.-old felt, individual plastic pockets, \$250 OBO; Remington 1100 shotgun, 12-ga., 28" mod., never fired, \$330. Bercaw, 275-1691.

COMMODORE C64, amber monitor, 1541 disk drive, Cardco interface, EasyScript, \$300 firm. Swanson, 281-2735.

WEIGHT SET, DP Gympac 1500, \$125; EML 101 electronic music synthesizer, \$475. Hubbard, 842-9431.

POLAPRINT SLIDE COPIER, makes Polaroid prints from slides, \$50. Casper, 268-4464.

WOMAN'S DIAMOND RING, 19 diamonds, appraised at \$4500, sell for \$2250. Gipson, 298-7073.

DINETTE TABLE, yellow, two 10" self-

storing extensions, 4 chairs w/ Naugahyde seats, \$150; DP Body Builder rowing machine, \$30. Krahlung, 268-8126.

PIANO, Story & Clark, maple finish, w/bench, \$1000 OBO. Walker, 294-2293.

BUNK BEDS, dark wood, w/mattresses, \$85. Kramer, 294-0488.

BUFFET/CHINA CABINET, \$150; 3 bar stools, wood, 30", \$20/all; chandelier, 5 glass globes, \$20; drop-in stove, \$20. Schuster, 299-1072.

QUEEN-SIZE SOFA BED, light tan patterned upholstery, \$150. Parker, 255-1821.

HUBCAPS AND WHEEL RIMS for '67 VW Ghia/Bug, \$25; muffler assembly, \$40. Crompton, 299-5569.

WHEELCHAIR, Russell, 298-4949.

EARLY AMERICAN TABLE, solid maple, 4' x 6', drop-leaf ends and 2 center leaves, w/6 chairs, \$150. Crafts, 831-5234.

SMALL HOUSE FOR CAT, interior 18" x 14" x 12", insulated, electrically heated, removable top, windows, \$20. Van Domelen, 299-3674.

BROYHILL FRENCH PROVINCIAL END TABLES, \$200; Mediterranean coffee and end tables, \$150; 2 couches, \$400 & \$200. Iverson, 869-3123.

TIRE CHAINS, SAE class S, for radial or bias-ply 155R12 through P165/75R13, never used, \$20. Kaye, 292-4242 after 6.

BLOWER/VAC, Weedeater, gas-powered, used once, \$80. Hall, 298-8617.

TOOLS: Sears shaper, Sears belt sander w/stand, 1-1/2-hp air compressor, shop vacuum, wood lathe, anvil. Stewart, 265-8927.

FISHER SPEAKERS, model MS-108, pair, new, \$60; whirlpool bath, Polenex Health Club model WB-2075, \$90. Widdows, 298-7153.

PORTABLE KEROSENE HEATER, Kero-Sun Radiant 36, 9000-BTU, \$80. Miller, 268-5992.

TEAC REEL-TO-REEL TAPE DECK, model A-4010S; TEAC cassette deck, model V300; Weber kettle grill. Schmitt, 884-7882.

FOUR MAPLE CAPTAIN'S CHAIRS, w/detachable cushions, \$40. Kelly, 293-2475.

CONN TRUMPET, B-flat, new, w/case, \$350. Sons, 294-3953.

CAST IRON POTS & PANS, full set w/lids, \$50. Douglas, 281-9843.

KING-SIZE WATER BED, padded rails, mirrored bookcase headboard, 12-drawer pedestal, ski stow, waveless mattress, heater. Shortencarier, 292-3575.

CB RADIO, Cobra, 1 yr. old, \$55. Anderson, 891-8722.

TWO 1987-88 SEASON TICKETS, Albuquerque Little Theatre, Gold series, \$55. Harris, 299-4559.

GARAGE DOOR OPENER, heavy-duty, w/2 remotes, \$100 OBO; Chinon movie camera, \$70; car seats, \$20/child, \$15/infant. Kwak, 294-2524.

KENMORE COMPACT DRYER, \$50; Whirlpool dishwasher, \$40; 2 children's youth beds, w/guard rails, \$50/ea. Garcia, 266-4487.

SLUMP ROCK, 4" x 4" x 16", sandstone color, 750 bricks, never used, 45¢ ea., \$300/all. Sanchez, 255-5515.

TWO MANX CATS (sisters), 1-1/2 yrs. old, accessories included, free to good home. Greer, 831-0019.

CAIRN TERRIER PUPPY, male, AKC,

whelped 4/19/87, "Toto-type", all shots, \$250. Broyles, 344-3872.

ELECTROVOICE SPEAKERS, 12", unmounted; 3-piece Obermyer ski suite; touch lamp; HD snow chains for 16" tires. Blake, 881-1663.

WOMAN'S WATCH, white gold and diamond, recently cleaned, appraised at \$1350, asking \$1150 OBO. Nowak, 867-5317.

CASEMENT WINDOWS, 6 ea., make offer; 30-in. gas range, \$35. Arning, 256-9229.

THULE RACK SYSTEM for gutterless car roofs, locking, w/cycle rail, new. Pelzman, 828-1868.

SKI BOOTS: Lange 340s, new, \$70; Salomon 5x-71 350s, used one season, \$50; black ski pants, medium, \$70. Stone, 298-4641.

MAHOGANY DINING TABLE, Drexel, w/6 chairs, \$225; upright piano w/bench, \$600. Ricker, 296-2191.

KOFLACH SKI BOOTS, size 8M, never used, \$100. Reilly, 298-6517.

DOUBLE FRENCH DOORS, frame included, painted white, hung for 1 week, \$275. Weiss, 821-8256.

VOLVO RIMS w/radial snow tires, fit 240 series, \$75; Ethan Allen 2-tier coffee table, \$60; maple coffee table, \$30. Montoya, 296-4268.

TRANSPORTATION

'79 MERCURY MARQUIS, 4-dr., PS, PB, AT, \$1500. Alvis, 298-3906.

'77 MONTE CARLO, AT, AC, PS, PB, AM/FM stereo cassette, tinted glass, vinyl top, \$1500 OBO. Daut, 255-2529.

'74 CHEV. PICKUP, 4x4, 4' x 8' bed, new brakes, \$2500. Anderson, 281-1786.

'66 FORD MUSTANG, overhauled 289 V-8 engine, overhauled AT with OD, new front end and exhaust system. Martin, 294-6792.

'79 YAMAHA IT175 DIRT BIKE, extra parts, \$300. Hubbard, 842-9431.

RACING/TOURING BICYCLE, Schwinn Traveler, 10-spd., Fuji cranks, custom pedals w/clips, Sountour derailleur, silver gray color, \$125. Asprey, 296-6673 evenings.

HONDA Z50R, 2-wheeler, red, \$200. Baker, 298-5850.

RALEIGH GRAND PRIX 10-spd. bicycle, 24" frame, rear carrier, mirror, toe clips, cost \$350, sell for \$200. Shurtleff, 296-7870.

UNIVEGA MOUNTAIN BIKE, for small adult or youth, one owner, will hold for Christmas, \$180. Ginn, 883-0004.

'80 CUTLASS SALON, 2-dr., 6-cyl., PS, PB, 26K miles, \$2400. Gelt, 298-0548.

'85 YAMAHA TRI-Z, 3-wheeler, 250cc, \$1000 OBO. Brock, 865-4055.

'84 HONDA VF750F INTERCEPTOR, new tires, Supertrapp exhaust, sport rack, factory manual, 11K miles, \$2300. Barnard, 831-4114.

'77 CADILLAC COUPE DeVILLE, 2-dr., white, white leather interior, loaded, \$2900. Tecumseh, 881-5021 after 5.

'83 FORD LTD, V-6, AT w/OD, PS, PB, PW, power locks, AM/FM cassette, 63K miles, new Michelins, original owner, \$4750. Bland, 345-5271.

BMX BIKE, Diamondback Formula One, CroMo frame, \$145; complete bike wheel set, Rigida 700C, \$45; '83 Honda CR-480, \$850 OBO. Healer, 298-6967.

'77 MERCEDES BENZ 240D, 4-spd., AC, sunroof, stereo, 4-dr., dark blue, all records, \$6200. Beradino, 823-2105.

'78 PONTIAC GRAND PRIX LJ, AT, V-8, AC, AM/FM cassette, cruise, plush interior, \$1825. Dobranich, 298-4547.

'85 NISSAN MAXIMA, gray, cloth interior, 5-spd., 36K miles, loaded, \$9850 firm. Romero, 1-864-8730 (Belen).

RACING BICYCLE, 22.5 lbs., some Campagnolo NR, 23" frame, \$150 firm. Riley, 299-5868 after 5.

GIRL'S SCHWINN BICYCLE, 3-spd., blue, 26" frame and wheels, \$40. Van Domelen, 299-3674.

'78 DATSUN 510 HATCHBACK, 5-spd., AC, AM/FM cassette, \$850. Torneby, 881-7170.

'85 DODGE B-250 CONVERSION VAN, V-8, custom interior, AM/FM cassette, cruise, loaded, red/silver, \$9200. Martinez, 256-1965.

'77 OLDS. OMEGA, 2-dr. coupe, V-8, AT, AM/FM cassette, charcoal on silver, red interior, \$1500 OBO. Casper, 266-2625.

3-SPD. BICYCLE, lightweight, 26", red, used once, \$55. Anderson, 891-8722.

'75 PINTO HATCHBACK, 4-cyl., needs work, \$275. Sanchez, 255-5515.

'73 OLDS. CUTLASS SUPREME, AC, tilt, cruise, \$500 OBO. Harris, 268-4432.

'65 FORD FALCON SW, runs, sell complete or parts, restore 289 V-8, \$250. Stone, 298-4641.

REAL ESTATE

10' x 50' MOBILE HOME, Fleetwood, set up in adult park, completely furnished, extras, \$7000. Mata, 298-6980 or 266-5477.

5-1/2 ACRES, South 14, southern slope, underground power, water available. Shaffer, 298-8302.

3-BDR. HOME, West Mesa, \$57,500. Graham, 884-6489.

FIVE ACRES, near El Morro, pipes available for well access, \$50/month payments. Baker, 298-5850.

2-BDR. MOBILE HOME, 14' x 70', appliances, extras, in family area of Four Hills Mobile Home Park, \$13,500. Dolce, 299-8801 after Dec. 20.

3-BDR. BRICK HOME, recently remodeled, office/study, new oak cabinets and carpet, more, assumable financing, \$106,500. Key, 298-7988.

3-BDR. HOME, Princess Jeanne area, 1 bath, 1150 sq. ft., \$65,000, \$2000 down. Thomas, 293-0681.

WANTED

PLAYHOUSE, outdoor, for 6- and 8-year-olds. Burns, 281-3922.

TO RENT: room w/street access or small apartment, no roommate situations. Tyler, 268-9731.

RANCH OAK DRESSER OR DESK, like those sold by American Furniture in the 1950s and 60s. Hobbs, 255-3425.

DOGHOUSE, medium to large, reasonably priced, will pick up. Kerschen, 821-2848.

MAN'S SKI BOOTS, 360s, prefer Salomons, reasonable. Stone, 298-4641.

Rooty-Toot-Toot, Rummy-Tum-Tum — Ho-Ho's the Word, Not Ho-Hum

SLEIGH BELLS RING, are you listening? Because if you aren't, you might just miss out on all the holiday fun. Tonight it's the Club's Christmas party, featuring — who else? — those good ol' Poor Boys from Isleta for sagebrush shuffling between 8 p.m. and midnight. Start the evening right with the two-for-one special; prime rib or snow crab are your menu selections. Santa's helpers are waiting for your dinner-reservation calls at the office (265-6791).

CALLING ALL SHUTTER-DOWNERS: Plan to attend the annual shut-down party in the lounge next Thursday, Dec. 24, from 1 to 6 p.m. Free munchies all afternoon to go along with your favorite libations served up by Joe, the friendly bartender. (The Club stays closed from Christmas day until the big New Year's Eve party to give its hard-working crew a break along with — or from — the rest of us.)

NEWS FLASH — Not only has the ticket-pickup deadline for New Year's Eve been extended (to Dec. 24), but the price for all that celebrating has been reduced. Cost is \$23/person in the ballroom (Freddie Chavez Foundation) and \$18/person in the Eldorado room (Crossover Country Western). Add \$2 more for guests. Purchase tickets at the office (no phone reservations).

KICK UP YOUR HEELS on Friday, Jan. 8, at Western Night. Don't miss the chow-line specials that

evening — prime rib or fried shrimp. (Remember, the two-for-one is always discounted for Club members.) You'll have a chance to sharpen your stomp skills at free c/w dance lessons from 7:30 to 8:30 p.m. Then, dance into the wee hours (8:30-12:30) with those ever-popular Poor Boys.

THE BRUNCH BUNCH starts the new year right with bubbles and beef, among other things, on Jan. 10 from 10 a.m. to 2 p.m. The family-pleasing menu includes pancakes, scrambled eggs, bacon, salsa, green chile stew, baron of beef, turkey, fried chicken, green beans almondine, salads, desserts, coffee or tea, and more. Add a complimentary glass of shimmering champagne or wonderful wine and you have a super deal (especially with the \$1/member discount). Don't forget to call in that reservation.

FAMILY NIGHT on Jan. 9 features a low-cost (cheap, actually) buffet starting at 5 p.m. (pizza, hot dogs, burgers, and good stuff like that). Fanciful felines frolic across the big screen at 6 in the Disney movie, "The Aristocats" (based on a true story of Parisian cats that became heirs to a fortune in the early 1900s). Free balloons and popcorn for the kids, along with the free movie. Here's your chance to beat those after-the-holidays blues.

THUNDERBIRDS ARE CHARGING (flying?) into 1988 with a get-together on Monday, Jan. 11. Meet your friends for lunch at the south end of the

ballroom — noonish, suggests honcho Charlie Kaspar. The program, beginning at 1 p.m., features a talk on travel in England, Scotland, and Wales by Betty Ashland of Thunderbird Travel (very appropriate, we'd say). Stick around afterwards for the T-Bird board meeting.

DON'T FENCE ME IN is the theme song of all dyed-in-the-wool travel bugs. Bugs now have more opportunities to blast off on a couple of great Club tours:

A *Whale of a Trip* to San Diego (Feb. 5-8) includes whale-watching, that famous zoo, Sea World, and San Diego Wild Animal Park — along with visits to Sea Port Village and SD Old Town. Price is \$411/person (double); cost includes continental breakfast every morning, three nights' lodging, and admissions. Reserve your space by calling Sun Tours at 881-5346.

Northern Arizona Indian Country (March 18-21) offers some great scenery: Canyon De Chelly, Lake Powell (with Rainbow Bridge thrown in), and Monument Valley. This one by chartered bus, jeep, and boat has something for everybody. Included in the trip fee are three nights' lodging, lunch the first day out, and a dinner cruise. Tab is \$256/person (double); \$50 deposit required, balance due on Feb. 26. Call Mary Severns at Travel Scene for reservations (292-4343).

Note: Price breaks on both trips for triple and quad occupancy.

Holiday Events Calendar

- Dec. 18 — Albuquerque Parks & Recreation annual luminaria tour: more than 20,000 luminarias, Christmas scenes, Santa Claus; dusk to 10 p.m., NM State Fairgrounds, free, 768-3550 or 768-3490.
- Dec. 18-20 — "Christmas on Mars," play by Harry Kondoleon; 8 p.m. Fri.-Sat., 6 p.m. Sun.; Vortex Theatre, 247-8600.
- Dec. 18-20 — "Cabaret Nuevo Mexicano," New Mexican Hispanic music and dance; 8 p.m. Fri.-Sat., 2 p.m. Sun.; Menaul School Theatre (301 Menaul SE), 242-7929.
- Dec. 18-20 — "Rapunzel," musical comedy version of the familiar children's tale; 7:30 p.m. Fri.-Sat., 2 p.m. Sun.; Albuquerque Little Theatre, 242-4750.
- Dec. 18 & 20 — "A Cabaret Holiday Special," a holiday treat for the whole family; 9:30 p.m. Dec. 18, 7 p.m. Dec. 20; Gold Nugget Theatre, 275-3022.
- Dec. 18-27 — "A Christmas Carol," adaptation of the Dickens classic, presented by the New Mexico Repertory Theatre; 8 p.m. Tues.-Sat., 2 p.m. Sun. (no performance Christmas Day); KiMo Theatre, 843-4500.
- Dec. 18-28 — "Guadalupana," exhibit of traditional Santeros wood carvings, retablos, art; 6-9 p.m., South Broadway Cultural Center, free, 848-1320.
- Dec. 19 — "Los Posadas," annual presentation of folk play about Mary & Joseph's search for shelter in Bethlehem; 6 p.m., Barelans Community Center, 848-1343.
- Dec. 19 — Christmas party, talent show, caroling by students from Garfield and Taylor Middle Schools, Santa Claus; 2-4 p.m., free, South Broadway Cultural Center, 848-1320.
- Dec. 20 — "Winter Holiday at the Zoo," living nativity scene, activities, entertainment; 2-4 p.m., Rio Grande Zoo, 766-7802.
- Dec. 24 — Annual Christmas Eve tour of Country Club area, Old Town, and Los Altos subdivision; 6 p.m., Park & Ride site at University & Stadium SE, Sun Tran, 843-9200.

- Dec. 31 — "Times Square on Civic Plaza," New Year celebration, food, drink, entertainment; 8 p.m.-1 a.m., Civic Plaza, free, 768-3550.
- Jan. 8 — Crownpoint Rug Auction; 3-6:45 p.m. rug viewing, 7 p.m. auction; Crownpoint Elementary School, 768-5302.
- Jan. 9 — Children's Concert, New Mexico Symphony Orchestra, conducted by Neal Stulberg; 2 p.m., KiMo Theatre, 843-7657.
- Jan. 10 — "I Get A Kick Out Of Cole (Porter)," musical revue; 2 p.m., KiMo Theatre, 266-7708.
- Jan. 10 — Trail Riders Horse Club Show, all-breed training show with timed and judged events; 9 a.m., Trail Riders Arena (Maplewood & Niese SW), free, 266-0180 or 877-5254.
- Jan. 13-24 — "Once Removed," New Mexico Repertory Theatre presentation of Eduardo Machado comedy; 8 p.m. Tues.-Sat., 2 p.m. Sat.-Sun.; KiMo Theatre, 243-4500.

Congratulations

- To Cheryl Laird-Wilde (3425) and Steve Wilde (9214), a daughter, Allie Ann, Nov. 16.
- To Denise and Don Waye (1552), a daughter, Courtney Dawn, Nov. 19.
- To Victoria Italiano (2812) and Jerry Kurtz, a son, Nicholas Italiano Kurtz, Nov. 19.
- To Barbara (2566) and Joe Macias, a son, Joe Martin, Nov. 28.
- To Teresa and Paul (3426) Marquez, a son, Alexander Thomas, Dec. 4.

Fun & Games

Bike Touring — If you're a bicyclist who's interested in exploring the practical and legal aspects of riding your bike on the shoulders of rural interstate highways, please call Ben Blackwell (1553) on 292-5362.



IN APPRECIATION for support of NM Special Olympics, the Coronado Club and its manager, Sal Salas (right), received this plaque from Jeanne Culbertson, former NMSO Program Director. "For the last few years, Sal has been very generous in helping Special Olympics with chairs, tables, and other items we've needed," says Jeanne. "He helped make our Summer Games, especially, a tremendous success." Special Olympics hosts a variety of athletic events for mentally handicapped children and adults.