



"JIM AND JIM AND ME." Jim King, (2300), holds a variant of one of the most famous historical photos taken by Tonopah photographer E.W. Smith, a photo called, "Me and Jim Discovered Tonopah." Legend has it that Jim Butler (wearing derby) picked up a piece of quartz to urge burro along. Its heft

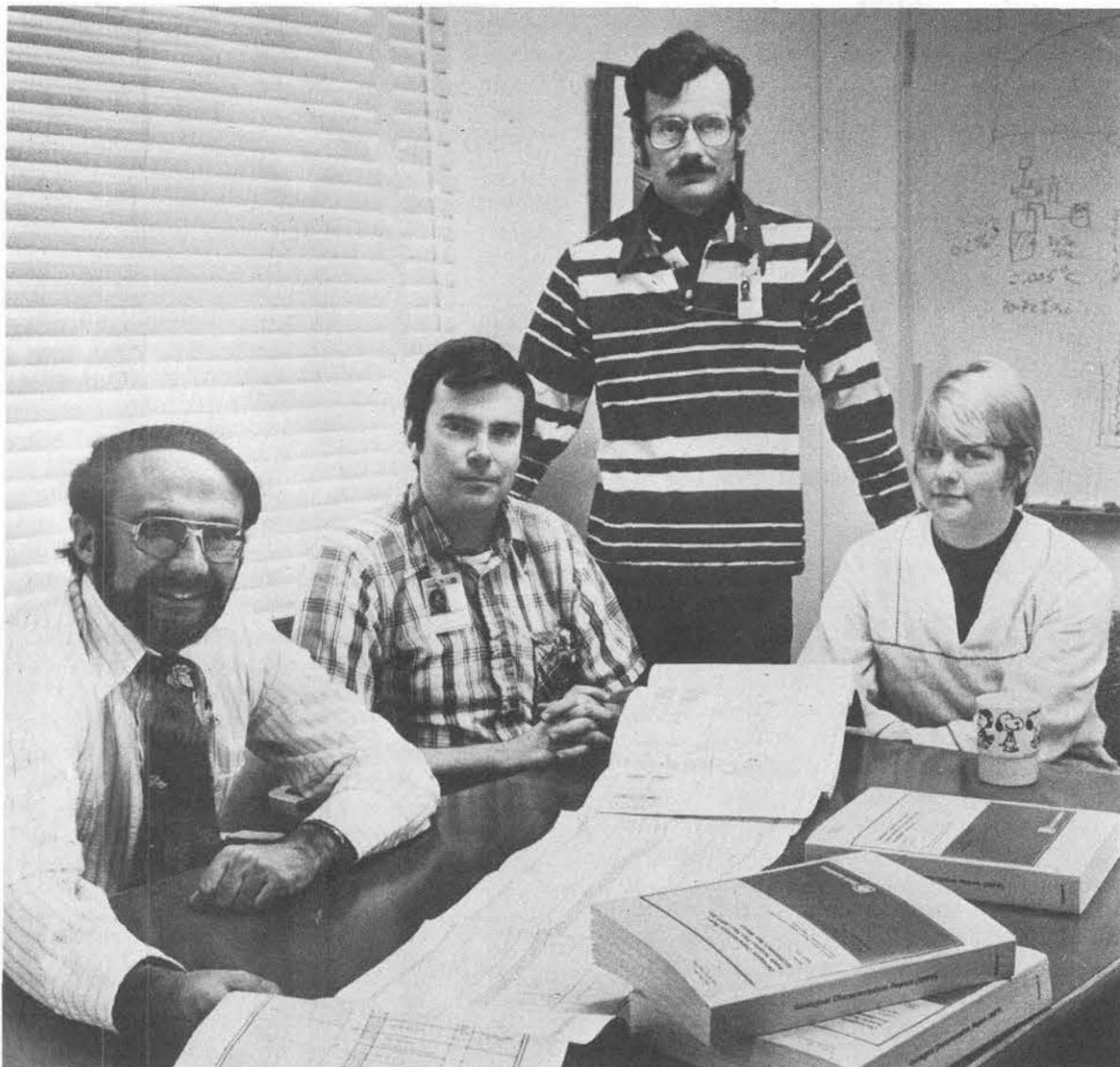
caused him to have it assayed instead — in the process making him one of the richest men in Nevada. Photo is part of Jim King's exhibit in foyer of Bldg. 802 that features prints from 23 glass plates acquired from Tonopah antique dealer.

LAB NEWS

VOL. 31, NO. 3

FEBRUARY 9, 1979

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



NEW REPORT — Editors Les Hill, Steve Lambert, Dennis Powers and Sue-Ellen Shaffer (all 4511) with super fold-out contained in recently published "Geological Characterization Report (WIPP)." The report, with more than 1000 pages in two volumes, took more than three years to compile.

'Massive Document'

WIPP Geologic Report Published

Publication recently of a massive document, "Geological Characterization Report, Waste Isolation Pilot Plant (WIPP), Site, Southeastern New Mexico," marks a milestone in Sandia's efforts in the WIPP program. The report, with more than three years in background work and a year of preparation, is the work of Les Hill's Nuclear Waste Technology Division 4511. It is a "total geological picture" of the site "as it is now," according to Les. It contains more than 1000 pages in two volumes.

The WIPP project is a proposal to isolate radioactive waste in a deep underground mine in a bedded salt formation over 2000 ft. beneath the surface at a site about 25 miles southeast of Carlsbad.

The material to be isolated is an accumulation of retrievably stored transuranic (TRU) waste from defense programs of the past several years. After a period of pilot operation demonstrating safety and disposal technology, WIPP would be converted to a full-scale repository for permanent disposal of TRU defense waste. DOE has proposed that WIPP also be used as an "intermediate scale facility" to demonstrate the disposal of up to 1000 spent fuel assemblies from commercial power reactors. In addition, WIPP would function as a research facility to examine, in-situ, the interactions between bedded salt and waste with high-level radioactive and thermal properties of the type formed in spent nuclear reactor fuel.

"Our report," Les says, "describes the geology of the site in great detail and briefly discusses the long-range — more than a thousand years — geologic processes affecting a repository. We've examined many factors — hydrology (flow of surface and subsurface water), geochemistry, seismology and mineral resources of the site. And we've included data from certain experiments that show how rock salt reacts to thermal, radioactive and pressure loads."

The site characterization report is not an
(Continued on Page Two)

Afterthoughts

Why the Russians are losers--We have a tendency in this country to view the Soviets with almost paranoid apprehension or, as someone has put it, as though they are nine feet tall. They aren't of course. Indeed, their's is a badly flawed society. Consider these excerpts from a recent account of an American's visit to Moscow:

"Bill explains that (in Moscow) a shopper must stand in line three times to make a purchase. First, he lines up to examine the merchandise. Then he stands in another line to pay for the goods and get a receipt. Finally, he queues up again in the first line to exchange the receipt for his purchase."

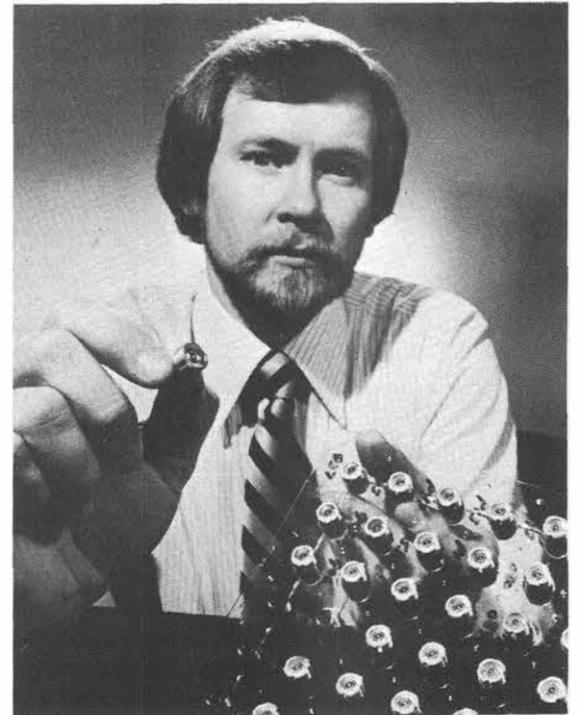
Ridiculous, yes? If a society has such a genius for complicating what should be a simple transaction, what will they do with something that is genuinely complicated, like running a war? Bear in mind too that no military organization (including our own) has ever been noted for its talent for simplification.

"While the Soviet technicians were friendly, they were also formal by American standards, particularly in their relationships with their superiors. 'It was difficult for them to understand the way we all joked with each other and treated each other as equals,' says Karl."

In the land of comrades, it's clear that a rigid and autocratic hierarchy prevails. Do you get the best work out of people who are cowed by authority? No. What you get are people who serve up what they think the boss wants to hear.

"They could not comprehend how I could cross three state lines and enter another country without a passport. In Russia, if you want to visit another city, you have to get an internal passport."

We Americans complain about the size of our bureaucracy, but imagine if you will the endless quantity of officialdom needed to administer this program of internal security. When you wish to visit Grandma in Pinsk over the weekend, you must go to some government office for an ok. And it's hardly likely that the procedure in that office is going to be simpler than the one described above for making a purchase. In the larger view, such an elaborate security system betrays the basic characteristic of the Soviet government: suspicion. The Russian people aren't nine feet tall, but neither are they stupid and undiscerning. If their own government treats them like inmates in a minimum security prison, then how faithful to the regime will they be in a crunch? *js



CLIFF BALLARD (5845) displays a batch of pre-production MC2949A weapon valve actuators which incorporate his newly-patented glass ceramic material as a header/seal. Use of the new material cuts production costs in half.

Patent Awarded For New Glass Ceramic Material

DOE was awarded a patent recently for a glass ceramic composition which forms a hermetic seal with a metal. Inventor is Cliff Ballard of Ceramics Development Division 5845.

The material was developed specifically to form the header seal for the MC2949A pyrotechnic valve actuator designed by Rex Steele (2515) (LAB NEWS, Jan. 26, 1979), a small component of the W79. The actuator went from development to manufacturing at GEND last week.

A hermetic seal, the material in the actuator must withstand extremely high pressures, temperatures and shock loads. Another outstanding feature of the MC2949A is its insensitivity to electrostatic sparks generated by the human body while maintaining high ignition reliability.

Use of the glass ceramic not only provided a superior hermetic seal but also cut production costs in half. The glass ceramic design is less complex to manufacture than the brazed alumina ceramic-to-metal seal formerly used.

"Glass ceramics can be formulated with thermal expansion coefficients which match almost any alloy," Cliff says. "The glass ceramic material can be molded into complex insulator configurations while in the high-temperature glass state. After a bond is formed with the metal surfaces, the glass ceramic is strengthened by controlled thermal processing. We can custom formulate glass ceramics to suit component specifications, but it takes a while. This material and manufacturing development program took about two years."



Gregg Trusty, Editor of WE's *Shreveporter*, quoted a number of comments taken directly from the police blotter. He failed to indicate police reaction, but we can guess. One driver reported: "The guy was all over the road. I had to swerve a number of times before I hit him." A woman driver said, "A pedestrian hit me and went under my car." For pure ingenuity we prefer this one (even though we're glad the burden of proof doesn't rest on us): "An invisible car came out of nowhere, struck my vehicle and vanished."

Continued from Page One

WIPP Geologic Report Published



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environmental impact statement, nor is it a site selection document. It is being distributed to agencies and individuals interested in or involved in nuclear waste disposal — from the White House Office of Science and Technology to foreign specialists.

In a cover letter to report recipients, Everet Beckner, Director of Nuclear Waste and Environmental Programs 4500, says, "Three years of extensive geologic and hydrologic study of the Los Medanos area of southeast New Mexico, together with previously existing information on the Delaware Basin, now provide an adequate base of information to allow an assessment that the physical requirements for the Waste Isolation Pilot Plant (WIPP) are satisfied for this site. Sandia recommends that the Department of Energy select the Los Medanos area for the next stage of WIPP development."

Editors of the report are Dennis Powers, Steve Lambert, Sue-Ellen Shaffer, Les Hill (all 4511) and Wendell Weart (4510).



Ben Benedetti (8121)

Supervisory Appointment

GERALD "BEN" BENEDETTI to supervisor of Analytical Mechanics Division 8121, effective Jan. 16.

Ben joined Sandia/Livermore in July 1962 after receiving his BS and MS degrees from the University of Santa Clara and Oregon State University, respectively. He did structural analysis in applied mechanics division until 1968, when he took an educational leave of absence to obtain a PhD in civil engineering from Arizona State University under a National Defense and Education Act fellowship awarded by HEW. Since returning to Sandia, he has concentrated on structural dynamics and vibrations.

Ben is a licensed professional engineer in the State of California. Off the job he enjoys outdoor activities, including camping, hunting, fishing and skiing, but his favorite hobby is automobile mechanics. He has overhauled several engines and completely restored a '54 Chevrolet. He and his wife Nancy and their two teen-age sons live on Guilford Avenue in Livermore.

Sympathy

To Martha Leverenz Z8273) on the death of her husband Bill, in Livermore, Jan. 22. Bill was a former SLA employee and president of the Metal Trades Council 1954-58.

To Bob Petersen (8412) on the death of his mother in Manteca, CA, Jan. 20.

To Lorraine Stamer (8266) on the death of her mother in May City, IA, Jan. 21.

To Rich Behrens (8442) on the death of his mother in Levittown, NY, Jan. 15.

Authors

John Smugeresky (8314), C.R. Heiple and J.F. Capes (Rockwell International), "Metallographic Observation of Cleaved Grains in Polycrystalline Beryllium," METALLOGRAPHY, Vol. 11, pp. 199-205, 1978.

Sheridan Johnston (8352), "Gasdynamic Measurements for the LASL Intense Neutron Source," AIAA JOURNAL OF ENERGY, Vol. 2, No. 4.

Speakers

Alan Kerstein (8328), "Managing Uncertainty in Strategic Targeting," 42nd Military Operations Research Symposium, Naval War College, Dec. 5-7, Newport, RI.

Billy Sanders and Marcus Libkind (both 8354) and C.V. Carter-Williams and W.D. Williams (both 1757), "Analysis of a Turbulent Flow Mixing Chamber for Dilution of High Explosive Vapor Streams," U.S. Department of Treasury New Concepts Symposium on Detection and Identification of Explosives (Aerospace), Oct. 30-Nov. 1, Reston, VA.

LIVERMORE NEWS

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SOME of over 300 coin banks Al Bastion (8257) has collected — including still, register and mechanical type.

Bastion Becomes Bank Buff

"A penny saved, a penny earned," reflects days-gone-by when parents taught their children the habit of saving by giving them small coin banks. The nostalgia of these old banks caught up with Al Bastion (8257) on his first visit to a local flea market about five years ago.

"I was hooked," he says. "I bought a couple that day and now have a collection of some 300 different kinds of banks."

Often called toy banks, sometimes penny banks or piggy banks, the early ones were made of pottery, glass or tin, but cast iron banks were popular beginning about 1870 and up until the 1940's. More recently, glass container banks and a variety of plastic banks have come on the market.

Al's most prized possession is a bank of cast iron in the shape of a floor safe and imprinted "1896." He's had a special key made to fit the safe door.

"Collecting banks is intriguing — like going on a treasure hunt," says Al. "Traveling through garage sales, flea markets and antique shops, I would usually find one at a reasonable price. My best bargain probably was an elephant bank I picked up for five cents. It's now worth \$35.

"But because of their growing popularity," he continues, "old banks are getting harder and harder to come by. And with everyone on the trail, prices are skyrocketing. They've sure become more than just small change."

Age is a factor, but a more important consideration is the artistry and history reflected in the various shapes and forms. Al reports that he has difficulty in tracking down this kind of information. As a result, he spends considerable time researching his collection.

Basically, there are three bank types — still banks which are literally without movement, register banks which in some way show the total amount of money deposited, and mechanical banks with an animated movement that is activated when the coin is deposited in the slot. Al's favorite mechanical types are his two musical banks, one of which plays "Edelweiss," the other "Pennies From Heaven."

The old banks are not super-expensive antiques since few are over a hundred years old. The scarcity exists in part because most mechanical banks had more than 15 pieces which had to be molded, painted and assembled. With the low cost of labor around the turn of the century, thousands were produced. But as costs increased, production dwindled until only simple mechanical or still banks were manufactured, with the last mass-produced banks appearing until WWII when metal was needed for war material.

Banks have been cast in many forms — political and other famous people, new-fangled inventions, and children's toys. Why collect them? Al replies, "I've got a piece of history."

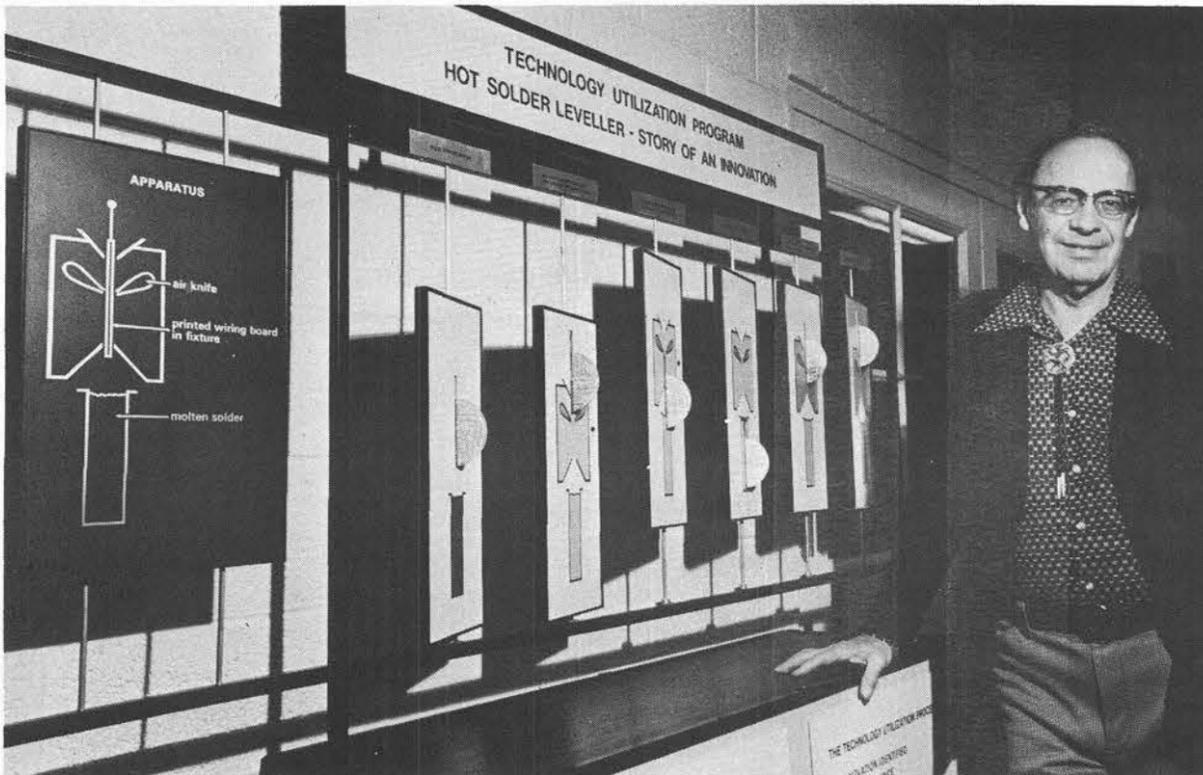
ECP At Work

Reserve Fund Helps Nine Agencies in 1978

The Employee Contribution Plan committee distributed almost \$3000 from the reserve fund to nine agencies in 1978 for emergency repairs and purchases. The reserve fund is .5% of total ECP contributions; disbursements are made on the recommendation of an allocation committee. Members of the 1978 allocation committee were Larry Garrison (1000), Gene Romero (3432), Ray Sanchez (3421), Abbie Williams (3152) and chairman Art Eiffert (2450).

Agencies receiving checks were:

Family Counseling Service	\$300 for two used electric typewriters
Albuquerque Boys Clubs	\$350 for P.A. system
Catholic Social Services	\$200 for typewriter, desk & chair
Christina Kent Day Nursery	\$250 for sandbox canopy
Martineztown House of Neighborly Service	\$310 for slide projector
The Salvation Army	\$250 for bed spreads & pillows
Chaparral Home & Adoption Service	\$263 for mattress & lamps
Rehabilitation Center	\$500 for emergency roof repairs
American Cancer Society	\$500 for health education kits



CORRY MCDONALD (2436), who heads the Technology Utilization Program at Sandia, looks for unclassified, innovative products and processes developed at the Labs as part of the weapons program that can be made publically available. Display was part of campaign to publicize Sandia's PC board solder leveller. Now manufactured by four companies, the device attained a 1978 sales level of \$6.5 million.

Technology Transfer

For The Taxpayer, Like Money In The Bank

With the cost of doing business (and thus the cost of products) increasing every day, the last thing we need is to pay industry to re-invent a process or procedure. And this is especially so if the process or procedure has already been developed through government funding and is thus available without charge.

Operating on the premise that unclassified technology developed at taxpayer expense should be available for use by industry, the government, nearly 10 years ago, established a Technology Utilization Program. Corry McDonald (2436), who coordinates this program at Sandia, points out that Sandia is a fruitful ground for technology of potential use to the nation.

"Advanced weapon systems challenge the limits of science, engineering and industry," he explains. "We're often so far ahead of the field we not only have to design the weapons, but also the technology and techniques required to produce them."

Corry's job is to make the Labs' innovative technology available to those who need it. To keep track of industry's interests, Corry reads a great many trade journals, belongs to a number of professional societies and inventor clubs, and participates in the Federal Laboratory Consortium (an organization devoted to technological utilization) and in state and regional industrial development groups.

"Many times," Corry says, "we become aware of a firm's problem through a letter or a phone call. If we have an unclassified capability that can solve a problem directly, we schedule talks. If some of our technology can be adapted, we encourage the requestor to retain a consulting professional engineer who will help work out a solution."

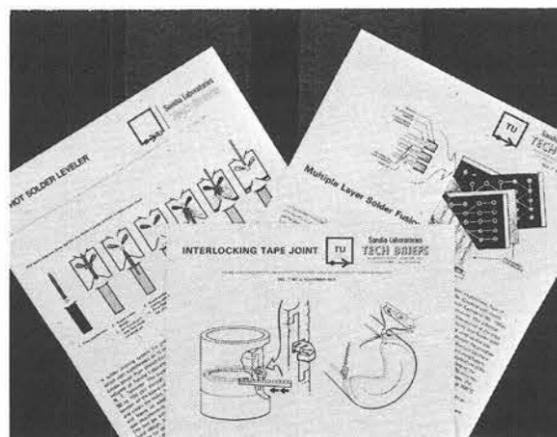
Within the Labs, Corry tries to keep on top of all technical developments. "It's difficult," Corry admits. "I try to review all public release material. And I observe tests and demonstrations of items that might have application in the program."

Once he discovers a process or product that fits the Technology Utilization Program, Corry writes a Tech Brief. Then he develops a mailing list of potential users. Some recent

tech briefs have described a hot solder leveler developed by T.A. Allen and Bob Sylvester (both 1473), a multiple layer solder fusion process developed by George Volda (2154) and an interlocking tape joint developed by Bob Alvis (4722).

"I'm always on the lookout for new ideas," Corry sums up, "and I'd like to sit down and talk with anyone with an innovative process or product. My number is 505-264-1947."

One of Corry's special concerns is the product or process that got away. "We're inventive enough here at the Labs," he says, "that we sometimes end up with three innovative solutions to a single problem. But only one can be used. The other two might be just what some industry is looking for. If people will give me a call before they shelve solutions they don't intend to use, I might be able to help them get their idea into the marketplace."



TECH BRIEFS on innovative process or products developed at Sandia are sent to potential users under Sandia's participation in the Federal Technology Utilization Program. Government-held patents are made available cost-free to any U.S. individual or manufacturer.



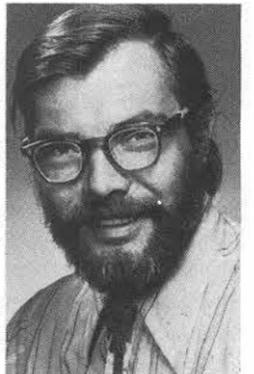
Here's good news for those who consider TV ads the best part of the broadcast. Using a technique called "time compression" to make voices sound normal even though the film is speeded up, researchers have concluded they can now bombard us (in any given time span) with twice the number of commercial messages.

Deaths

Jay Benson, supervisor of Experiments Division I 1112, died suddenly Jan. 30. He was 44.

He had worked at the Labs since February 1965.

Survivors include his widow, two daughters and two sons.



* * *

James South, a plastics craftsman in Development Laboratories Division 1472, died Feb. 5 after an illness. He was 58.

James had worked at the Labs since March 1952.

He is survived by his wife Marie.



Authors & Speakers

J.M. Hueter (3521), "Innovation and Imagination in Programming," annual state conference NM Extension Agents & Home Economists, Dec. 1, Albuquerque; "Creativity in Management," Advanced Management Program, UNM, Dec. 8.

D.C. Reda (4633), "Measurements of Transition Front Asymmetries on Large-Scale, Ablating Graphite Nostetips in Hypersonic Flight," AIAA 17th Aerospace Sciences Meeting, Jan. 15-17, New Orleans.

J. Holmes (4713), "The Solar Power Tower," Duke City Chapter, Refrigeration Service Engineers Society, Jan. 18, Albuquerque.

R.O. Woods (5715), "In-Situ Mass Spectrometry at Stratospheric Altitudes," Vol. 9, Spring '78, ATMOSPHERIC TECHNOLOGY.

Supervisory Appointments

DAVE DARSEY to supervisor of Computer Graphics Division 2644, effective Feb. 1. Following graduation from the University of Texas in 1965 with a BS in EE, Dave came to Sandia as a member of the Technical Development Program. He received his MS from UNM and is currently finishing requirements for his doctorate in EECS, also at UNM. At the Labs, Dave has worked in the environmental test directorate, on the COIN program, in solid-state research and, most recently, on computer control and data system development for the solar thermal test facility.

Dave is a member of the Association for Computing Machinery. He's active in his church, enjoys sports and woodworking. He and his wife Judy and their two children live in the NE Heights.

* * *

TOM HOBAN to manager of Data Systems Department 1520, effective Jan. 16. Following graduation from UNM with a BS in EE, Tom joined Sandia in December 1950. He was promoted to section supervisor in 1953 and was assigned to Cape Canaveral to work on weapon systems missile flight tests. For the next several years, Tom evaluated telemetry components for flight test applications. He was promoted to division supervisor in 1962, heading an instrumentation applications group. Since then he's supervised a range electronics development division, headed a couple of special projects divisions, completed a temporary assignment in Boston relating to Safeguards, and, most recently, has continued work in the Safeguards program developing a closed circuit TV system.

In his new position, Tom's department has responsibility for playback data reduction, development of software for data reduction applications, minicomputer and microprocessor software, and digital systems applications.



TOM HOBAN (1520), ED OPLAND (3532), and DAVE DARSEY (2644)

Tom is a member of the board of directors of the International Foundation for Telemetry and has served as president and treasurer of the organization. His hobbies include water and snow skiing, fishing and hiking. He has three children and lives in the NE heights.

* * *

ED OPLAND to supervisor Personnel Data Division 3532, effective Feb. 1. Joining the Labs in November 1958 as an administrative staff member, Ed worked on skills inventory with the personnel placement organization. A year later he transferred to the

employee benefits division where he was primarily concerned with the development of an automated health care claims analysis system. He transferred to his current division in 1964 where he has held various jobs relating to personnel information analyses.

Ed earned his BS in business management from Kent State University. He served four years in the Air Force as a senior cryptographer. Ed and his wife Nancy have two children and live in Bosque Farms. Ed's leisure time is chiefly concerned with activities of his church.

Fun & Games

Triathlon — A date for the third annual Triathlon has been set: Sunday, April 8. Format is the same as before with a 10-mile bike ride followed by a five-mile run followed by a quarter-mile swim. Last year's times ranged from the winning 62:22 to a 50th place 104:02. The Triathlon is held on Kirtland Air Force Base, with the Olympic Pool behind the gym serving as the site of the swimming phase. Contestants are age bracketed.

* * *

Shooting — Sandia Rifle & Pistol Assn. members are preparing for the annual national postal competition with air and .22 caliber rifles and pistols. Club equipment is available for member's use. Dave Overmier, 4-3436, is club honcho.

* * *

Skiing — Perhaps the best insurance against injury on the ski slopes is skiing skill, and the best way to get that skill quickly is through lessons. The Coronado Ski Club has worked out a discounted program of lessons with the Sandia Peak Alpine Ski School — six weeks of lessons, one day per week, same day, same class. The junior program starts on Feb. 17 or 18, while the seniors start Feb. 13, 14, 15, 17, or 18. (You pick out the day you prefer, then show up on that day for six weeks.) Retiree Walt Westman, 881-0471, and Jack Hanna (Org. 1500) are program coordinators.

There's a Wolf Creek trip set for the weekend of Feb. 24 with a bus leaving the C-Club Friday evening at 6 p.m. Dave Bushmire, 4-3045, is chaperon.

Ski tourers do the big one this weekend — the Valle Grande. They'll meet at Goodwill at 7:30 a.m. both days for tours to several parts of the caldera.

* * *

Running — A "fun run," in case you've just emerged from a decade of cryogenic isolation in the Greenland ice pack, is where a group of people run/jog together for an indeterminate distance at an indeterminate pace, and woe to him who tries to make a race of it. The Public Service Company Running Club is starting a weekly fun run and has invited Sandia Labs runners to join forces with them. They plan to meet next week on Saturday, Feb. 17, at 11 a.m. and do their thing along the San Gabriel park path just north of Central near the river. Phil Gilmore, 842-4619, is head arranger.

* * *

Bowling — A singles and doubles tournament with 4-member teams is scheduled for Feb. 17 and 18 at the Fiesta Lanes. It's sanctioned by ABC/WIBC. Contact Dora Montoya, 4-4052, or Leo Bressan, 4-5386, for further details.

SBA Bowlers of the Month for December were Jean Schroeder, 539(S); Kay Duvall

(2456), 632(H); Jack Strascina (1472), 639(S) and Steve Yazzie (DOE), 738(H).

* * *

Boating — The Coast Guard Auxiliary is again offering boating safety courses in sailing and general power boating. Register by contacting Hugh Lewis, 255-3483, or Ben Gardiner, 298-0116, by Feb. 27. The \$7 fee includes cost of the textbook. The Boating Skills & Seamanship course begins Feb. 28, while the Sailing and Seamanship course starts March 1. Both run for 13 weeks, start at 7 p.m., and are held at the Albuquerque Boys Club, 3333 Truman NE.

* * *

Golf — The Women's Golf Association is having its annual membership drive party on Feb. 20 at 4:45 in the C-Club's El Dorado room. Refreshments will be served and a no-host bar will be set up. Sandia and DOE employees, retirees and dependents are invited.

* * *

Softball — Women's softball teams are being formed now. League play begins in late April with each team playing a schedule of 20 games. Play is fast or slow-pitch. Call Pam Morenus (2516), 4-3265, for further information.

Valverde, Apache Canyon, Glorieta Pass — Battles of the Civil War

Early in the Civil War — March 1862 — two bloody battles were fought in New Mexico that kept a vast western territory securely in the Union fold. The Confederate dream of a country that stretched from the Atlantic to the Pacific rich with the gold of Colorado and California died in the battles of Apache Canyon and Glorieta Pass.

The dream had looked promising at the earlier battle of Valverde, fought Feb. 21, 1862, some 28 miles south of Socorro at a crossing of the Rio Grande. Here a column of invading Texans — a Confederate brigade of 2700 men strong commanded by Brig. Gen. H.H. Sibley — defeated Union troops and continued up the river to take Albuquerque and Santa Fe.

The battle of Valverde lasted from about 9 a.m. until sundown. Federal troops under Col. Edward Canby crossed to the east side of the Rio Grande into an area heavily wooded with brush and cottonwoods. The rebels advanced up a dry river channel behind a mesa and sand dunes. Artillery on both sides took a heavy toll. Much of the fighting was hand-to-hand using bayonets — bloody, vicious. Both sides mounted cavalry charges, and both were repulsed by the accurate fire of riflemen.

The Texans — all volunteers with their own horses and weapons — used shotguns and muskets, hatchets, even lances. At one point, Texas lancers charged into the bosque only to be devastated by the Union musket fire. This first of modern wars had made lances obsolete. More than half the lancers died in the charge.

Later in the afternoon the Texans rallied, concentrated on shelling the strong Union battery of six cannons, and followed up with an infantry advance. The hail of grape shot and cannister and the rain of musket balls was so intense that a battalion of Union soldiers — volunteers from New Mexico — broke and ran, abandoning the Union battery. The Texans captured the guns after a fierce last-ditch stand by regulars of the Union Army, then turned the captured guns against the Union troops.

Col. Canby, disappointed with his New

Mexico volunteers, regrouped and retreated to nearby Fort Craig. A truce was called to bury the dead and care for the wounded. The Texans had won the day, but at a cost — eight percent of Sibley's force was killed or wounded at Valverde.

Although the rebels rightly claimed a victory, they were in bad shape. Poorly supplied and outfitted from the beginning of their campaign, the Texans had field rations for only five days. A siege of Ft. Craig was out of the question. Sibley had to move up the river and capture supplies or his army would starve.

Canby, in the meantime, ordered part of his command to move up the river on the west side skirting around Sibley, then return to the river ahead of the Texans and take or destroy all available supplies. In the main, this tactic worked. Albuquerque and Santa Fe were practically empty of provisions by the time the Texans arrived. However, a forgotten Union outpost at Cubero did yield 250 rifles, considerable ammunition and 25 wagons of sorely needed corn and flour. From Santa Fe, Sibley planned to move on to capture Ft. Union near Las Vegas, the primary Union supply depot for the territory. A successful assault, and New Mexico would belong to the Confederacy.

From the north, however, a strong regiment of Colorado volunteers was marching to reinforce Ft. Union. After a gruelling climb through Raton Pass in mid-winter, the Colorado regiment rested a few days at Ft. Union and then marched toward Santa Fe. An advance party led by Maj. John Chivington surprised a Confederate group in Apache Canyon.

The Texans quickly recovered, dug into a strong defensive position, and brought out their cannons. Chivington's men spread out along the steep walls of the canyon, aiming a withering fire into the Confederate positions. The Texans withdrew around a bend in the Canyon and prepared another defensive line. Chivington pushed on, the cavalry charged, broke the rebel line and captured 71 Texans. Darkness brought an end to the battle at Apache Canyon. Besides those captured, the Texans lost 32 killed, 43 wounded. The Coloradans (with two companies of regulars from Ft. Union) suffered five killed, 14 wounded and three missing. Both sides withdrew and waited for reinforcements.

Two days later the Texans had 700 men facing 1300 Federal troops when the battle of Glorieta Pass began. Skirmishers on both sides edged forward, cannons opened with grape shot and cannister. The Texans pressed on through the pine forests on both sides of the canyon. Again, the fighting was hand-to-hand with bayonets, sabres, knives and hatchets. For six hours the battle continued until exhausted Union troops fell back. For a moment, it appeared that the outnumbered Texans had outfought the Colorado volunteers.

Earlier, however, Col. Slough, commanding the Union force, detached 450 of his men under Maj. Chivington to climb a steep mesa and circle behind the Confederates. This group was guided by Lt. Col. Manuel Chavez, an officer of the New Mexico volunteers. This force climbed the mesa, crossed it, and discovered the rebel supply train at the base of the mesa about six miles from the main battle. The train was lightly



COL. EDWARD CANBY, commander of Union troops in New Mexico during the Civil War.

guarded, fell easily to the Federals, and was destroyed on the spot. Also butchered on the spot were more than 1000 draft animals and cavalry mounts left behind by the Texans. With his prisoners, Maj. Chivington then took his men back around the rim of the canyon to rejoin the Federal troops.

Loss of the supply train was a severe blow to the Texans. The men were exhausted, hungry and cold. They spent two days during a truce caring for dead and wounded. Word arrived that Col. Canby had moved his Federal troops from Ft. Craig and was heading for Albuquerque to cut off the Texans' retreat.

The Confederates moved back to Santa Fe, left most of their wounded there, and marched double time to Albuquerque. Gen. Sibley abandoned eight of his cannons at Albuquerque, burying them in a corral near Old Town. (These were later recovered — four are in museums in Colorado, two are now on display in Old Town Plaza, and two are missing.) The Texans kept the six cannons captured at Valverde.

Col. Canby's troops met a rebel force in Albuquerque (the main body of Texans had moved south). Canby fired a few cannon shots into Albuquerque and the rebels returned the fire. More damage was being done to civilians than to the soldiers, so Col. Canby called off the siege. He withdrew to Tijeras Canyon where he was shortly joined by the Colorado



BRIG. GEN. H.H. SIBLEY, leader of the ill-fated brigade of Texas volunteers that invaded New Mexico in 1861-1862.

regiment. Canby now had some 2400 men under his command.

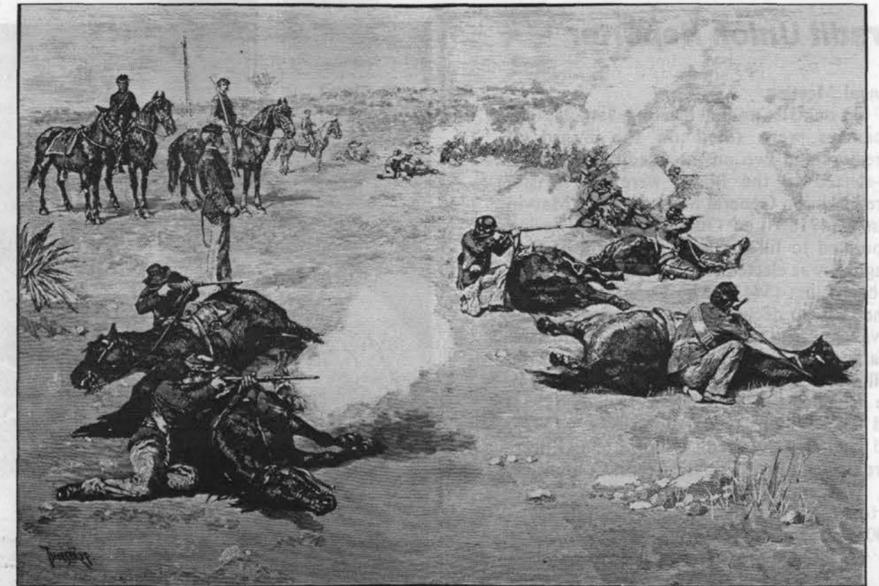
The rebels were heading down river from Albuquerque. Their plan was to retreat to Ft. Bliss and the Mesilla Valley, then a Confederate stronghold, and reorganize the campaign.

Canby caught up with them at Peralta. Cannons exchanged fire while the Texans crossed the river to the west side. Most of their remaining wagons were destroyed, and several men drowned making the crossing.

At this point Canby chose to let them escape. He could have decimated the Texans with his superior numbers or forced them to surrender.

One of the ironies of the New Mexico campaign is that Canby's wife and Sibley's wife were sisters. This was mentioned when Canby was harshly criticized for not pushing his advantage over the Texans, but the truth is that he could not afford to feed a large number of prisoners. Canby chose to drive them out of the country.

The Texans were in terrible shape. The men's rations were six ounces of flour per day. They bypassed Ft. Craig and staggered into Mesilla, rested and went on to Ft. Bliss in El Paso. It was obvious to the Confederates, learning that Canby had been reinforced by 1400 Californians, that New Mexico and West Texas were lost. Southern sympathizers in the area abandoned their homes and started the



THE CAVALRY didn't always fight astride a horse. During the Civil War and afterwards, cavalrymen took whatever shelter was available. The fight between Union and Confederate forces at Valverde saw both infantry and cavalry in action.

long journey across West Texas to San Antonio.

It was now June. The remnants of Sibley's volunteers trekked across the barren land under a blistering sun. Only half of the original brigade of 2700 made it home. Besides those killed and wounded, disease and privation took many.

Col. Canby, promoted to Brigadier General, served the remainder of the war in the east with distinction. Gen. Sibley disappears from the history books after being

• dg

Hope For The Future?

As Always, Possibilities Seem Mixed

From time to time, most of us ponder the possibilities of the coming generation, wondering if our progeny can take over where we leave off. Such ponderings tend to be inconclusive, but there are indicators that the future is likely to be more of the same — a mix of ingenuity and pedestrianism, of crackling intelligence and plodding ineptness.

A friend in Albuquerque's school system works with some of our young people — sixth graders. The following were extracted from their exam papers.

- Strategy is when you don't let the enemy know that you are out of ammunition, but keep firing.

- A Virgin Forest is a forest in which the hand of man has never set foot.

- Twilight sleep means you set your clock one hour early.

- Most of the houses in France are made of plaster of Paris.

- Animal husbandry is having more than one husband.

- The spinal column is a long bunch of bones. The head sits on the top and you sit on the bottom.

- One of the main causes of dust is janitors.

- Napoleon wanted an heir to the throne but since Josephine was a baroness, she could not bear children.

- We don't raise silk worms in the U.S. because we get our silk from rayon. He is a

• cec

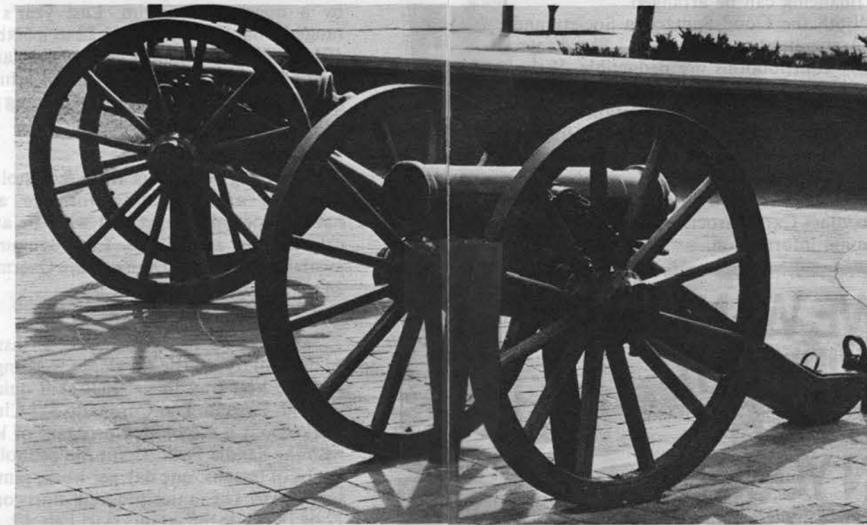


Anyone who's been squirted by a high powered water fountain would probably agree with two Kansas Univ. researchers who studied the efficiency of a water fountain in terms of the percentage of the water delivered that was actually consumed. Their conclusion, not surprisingly, was that "the water fountain is a highly inefficient water transfer mechanism." Nonetheless, it beats a paper bag four ways from Sunday.

commuting information
DIAL 4-RIDE



THE TEXAS VOLUNTEERS furnished their own weapons and horses. This is a sketch of a "typical" trooper made in 1861.



TO LIGHTEN THE LOAD during his retreat down the Rio Grande valley, Gen. Sibley buried eight of these brass cannons in a corral near Old Town. They were recovered and these two are now on display in Old Town Plaza.

Credit Union Reporter

Annual Meeting

At our 31st annual meeting, Jan. 25, four vacancies were filled on the Board of Directors and two on the Credit Committee. Re-elected to the Board were Bill Bristol (Credit Union General Manager) and Marvin Daniel (4716). Leo Gutierrez (8400), earlier appointed to fill the unexpired term of Don Wagner, was elected to a full term along with Robert Luna (5443). Mr. Luna replaces Bill Olheiser who declined to run again after long service. Other members of the Board are: Charles Barncord (3200), Ron Bodo (3242), Willie Garcia (3163), Joe Maldonado (9714), Joe Ruggles (2625), Clarence Sandy (2553) and Elsie Wilkins (1001). John Anaya (3725) and Jean Hagan (Credit Union Loan Officer) were elected to serve on the Credit Committee.

Winners of the drawings were: Joseph Sartori (3426) - \$500, Donald Cook (5426) - \$300 and Eugene Venturini (5132) - \$200.

On Jan. 26 the Board met to elect officers for 1979. Those elected: Marvin Daniel, president; Clarence Sandy, vice president; Elsie Wilkins, secretary and Bill Bristol, treasurer.

As of Dec. 31, 1978, the Credit Union had grown to a record \$42,738,834 in assets, breaking records in growth in assets and in loan volume. Significant changes which took place in 1978 included eliminating the \$40,000 maximum on deposits, payment of 1/4 of 1% bonus dividend for the fourth quarter and offering share certificates and investment certificates for the first time.

Investment Certificates

In December, investment certificates were made available at the Credit Union with a deadline of Dec. 22. The Board of Directors has now voted to extend this deadline through Feb. 28. Certificates are available for \$5000 (minimum) and for larger sums in increments of \$1000. They are issued for a period from six to nine months and earn 9.25% per annum. For further details contact the Credit Union.

Changes in Loan Policy

Effective Jan. 29, the Board of Directors made a number of changes aimed at improving our cash flow position. An extremely heavy loan demand along with heavy share withdrawals during 1978 prompted these changes.

Here are the new interest rates and maximum terms. Those in parentheses were not changed.

COLLATERAL	INTEREST RATE (APR)	MAXIMUM TERM (MONTHS)
Aircraft (New & Used)	12.00%	(60)
Automobiles (New & Used)	10.00%	36
Boats (New & Used)	11.00%	36
Furniture & Appliances	12.00%	(36)
Life Insurance	10.00%	(60)
Mobile Homes (New & Used)	11.00%	96
Motorcycles (New & Used)	12.00%	(24-36)
Motor Homes (New & Used)	11.00%	60
Real Estate First Mortgages	10.00%	96
Real Estate Second Mortgages	(11.00%)	96
F.H.A. Title I		
(Home Improvement)	(11.00%)	96
Signature	12.00%	(36)
Stocks (listed in		
Wall Street Journal)	10.00%	(60)
Bank Stocks & Securities	10.00%	(60)
All Other Securities	12.00%	(60)
Travel Trailers & Campers	11.00%	36
Regular Share Loans	(8%)	(60)

Terms on loans secured by collateral not shown remain unchanged, and existing loans are not affected unless the loan is refinanced or collateral is changed.

Loans using mobile homes as collateral



FOR RETIREMENT — Arnold Draper (2551) and Floyd Copping (4343) admire model of Manzano del Sol, a new retirement community set for construction in NE Albuquerque next April. The two are part of church group responsible for project.

Our Town

Sandians Help Plan Retirement Complex

Albuquerque is in many ways an ideal community for retired people, but its present facilities for retirees do not meet the need — there aren't enough facilities to go around. Four Sandians became aware of this problem several years ago and, together with other members of the community, have been working on one solution which is now at hand. The four are Floyd Copping (4343), Jack Reed (4533), Arnold Draper (2551) and Ruth Jansen (ret'd.), and the solution-at-hand is Manzano del Sol, a retirement center with 156 apartments that is supplemented by a health care center with 120 nursing home beds.

We discussed Manzano del Sol with Floyd. "Our church got this thing going in 1975 when a group of us agreed to serve on a committee to study needs of the elderly. Out of this came Care Associates, an incorporated group that bought land, worked with lawyers and architects, and completed the design of Manzano del Sol. We're planning ground-breaking for April next."

The 4.4-acre building site is located at 5100 Roma Ave. NE, near Lomas and San Mateo. Half of the land was donated and the balance was purchased. The city has rezoned

will be restricted to a maximum amount of \$10,000.

In the past the Credit Union has approved loans-in-advance, and the approval was valid for 90 to 180 days with the interest rate guaranteed for that period. This "approval only" policy will continue except that the interest rate is not guaranteed; when the loan is closed, the then current interest rate will be charged.

Also effective Jan. 29, the Credit Union will no longer make term, single-payment loans other than share loans (repaid automatically from your share account) and student loans.

the land to accommodate the retirement complex.

Care Associates have invited the Good Samaritan Society to become owner and manager of the project because of the Society's history of successful operation of similar facilities and ability to arrange long-term financing. Founded in 1922, the Good Samaritan Society currently operates 180 retirement/nursing projects in 26 states.

Total cost of Manzano Del Sol Good Samaritan Village is estimated at nine million dollars. Care Associates commitment to the Good Samaritan Society is about 1.3 million dollars. The group has to raise an additional \$30,000 to meet this commitment before long-term financing can be arranged.

"Both the Good Samaritan Society and Care Associates are tax exempt," Floyd says, "so any contributions are deductible. We've pre-leased 120 apartments already," he continues, "and with the completion date set for spring 1980, we won't have any difficulty leasing the other units. It's been a long pull, but we're almost there."

Persons interested in Manzano del Sol may contact Care Associates on 256-9050 for additional information.

WE WANT TO
WIPE OUT
CANCER
IN YOUR
LIFETIME

AMERICAN CANCER SOCIETY

More Emphasis on Q.A.

Quality Program Manual Available

Quality Assurance has always been of major concern in the weapons program. Now Sandia, along with other prime contractors and commercial suppliers, has been tasked by the Department of Energy to extend Q.A. into all phases of its work, including technical, construction, management and operation.

To help line organizations meet these new requirements, Quality Assurance, Acceptance and Evaluation Department 1410 has published and distributed a Quality Program Manual to Large Staff (with copies available to the line on request).

"Q.A. is certainly not new at Sandia," says Bill Kraft, Manager of 1410, "but we're being asked to use Q.A. techniques in new areas."

According to Joe Calek (1411), who coordinates Sandia's compliance efforts, the emphasis nationwide is now on safety and cost effectiveness (as opposed to cost alone, which once was a major determinant in many government programs). Joe illustrated the shortcomings of this old-style approach by recalling an apocryphal story about an early astronaut who confided to his project leader that the prospect of walking on the moon didn't trouble him at all — but that he was terrified about traveling there on a space vehicle with 40,000 parts, each of which had been built by the low bidder.

"The idea now," Joe explains, "is to put the burden for assurance of quality on organizations like Sandia which provide the goods or services. The government wants everything built to specifications under disciplined, controlled conditions. The idea is quality throughout. All of us have to convince the customer that our methods are cost effective and that our products are safe. And just saying so isn't enough. We have to detail the Q.A. procedures we'll be using to meet his specifications — and we have to convince him they're adequate."

The new 1410 Quality Program Manual is no be-all and end-all of Q.A., says Bill, nor is it intended to be. "It's a first cut," he told us. "As we better understand how to meet the Q.A. demands being expressed by our customers, I'm sure there'll be changes."

Copies of the Quality Program Manual are available from either Ruth Jones (1410) or Shirley Baker (1411). So, too, he tells us, is assistance from 1410 in preparing Q.A. plans and in auditing the effectiveness of those plans.

Events Calendar

- Feb. 9, 10 — New Mexico Symphony Orchestra, Popejoy, 8:15, 265-3689.
- Feb. 13 — Ramsey Lewis Concert, Popejoy, 8:15, 277-3711.
- Feb. 16 — "America the Beautiful," Kiwanis Travel Film, Popejoy, 7:30.
- Feb. 17 — The Albuquerque Jazz Orchestra, Kiva Auditorium, 898-7310.
- Feb. 18 — A tribute in concert to Victor Jara, Popejoy, 8:15.
- Feb. 19 — Russian Festival of Dance, Popejoy, 8:15.
- Feb. 21 — "Northwest Adventure," Audubon Wildlife Film, Popejoy, 277-3121.



FOR YEARS, STAGES LIKE THIS were the only commercial transportation between Tonopah and the railhead at Sodaville 65 miles away. Barring problems, the trip took 19 hours (5 a.m. to midnight).

Debt To A Burro

Photo Exhibit Reveals Old Tonopah

Indirectly, Jim King, Director of Weapons Electrical Subsystems 2300, owes a debt to a burro — and he hasn't a prayer of paying it off. But more of that later.

Let's concentrate first on the foyer in Bldg. 802. It isn't exactly noted as being a national historic site, but history buffs and nostalgia freaks (thanks to Jim's exhibit of photographs) can nod in on Tonopah, Nevada, at the turn of the century.

The genesis of the exhibit took place in 1970 when Jim visited Tonopah Test Range. Long an avid student of photographic history, Jim already had a large collection of daguerrotypes, ambrotypes and guttapercha (antique thermal plastic photo cases). So it was only natural that he stopped at an antique shop in Tonopah run by a lifelong resident, Mrs. Roy Knight.

She had only two historical photo negatives, both on glass plates and both broken. But there was, she told Jim, a collection of glass plates taken by an early Tonopah citizen named E.W. Smith out on loan.

Glass plates were a new field for Jim but one he couldn't resist. "It took several years to acquire them," Jim says, "but I finally got all 25 — and I'm indebted to the curator of the Nevada State Historical Museum, Guy Rocha, who helped me identify many of the people and occasions depicted in the photographs."

The plates (one of which is mounted in the exhibit) are 6½ by 8½ inches and presented quite a challenge to Jim, who made photographic prints from them himself.

"I had to run several experiments," Jim recalls, "but fortunately the early emulsions (with an ASA of 5) were extremely fine grained. And the negatives, all made between 1900 and 1910, had survived remarkably well, thanks to Tonopah's consistently dry climate."

E.W. Smith, the photographer, had drifted down from Alaska like so many others when the Klondike boom began to wane. He settled in Tonopah where he set up shop and lived the rest of his life. He took hundreds of photos of people — of mines and miners, of buildings and craftsmen, of local events. Those on exhibit in 802 will give you a feeling for what Tonopah was once like. As a matter of fact, they'll give you a feeling of what Tonopah is like today.

Time doesn't mean all that much in Tonopah. Almost any evening of the week you



SAM CLARKE DUNHAM, editor of the *Tonopah Miner*, was photographed at his executive desk by E.W. Smith in August 1902. Newspaper in Sam's side pocket reports on discovery of radio, "the electric wireless."

can find one or two grizzled miners in the bar at the Mizpah Hotel who will offer you a share of a fantastic find for a beer and the price of a grubstake. And more than once, even sober citizens have been heard to comment that Tonopah is on the threshold of a new bonanza.

And who's to say they're wrong. It's the same kind of faith that drove people like Jim Butler, the man who struck it rich in Tonopah. Myth has it that Jim was prospecting in the wilds of Nevada when he picked up a rock to speed along his lagging burro. He hefted it and decided to have it assayed instead. It was rich with silver and Jim staked out some of the richest claims in the state.

Thanks to E.W. Smith (and Jim King) Jim Butler still lives. His picture's in the exhibit (which runs through Feb. 23). So's that of his stubborn burro, without which (if myth-makers are correct) there would have been no Tonopah, no E.W. Smith photographs and no photo exhibit by Jim King.

So maybe we all owe something to the burro.

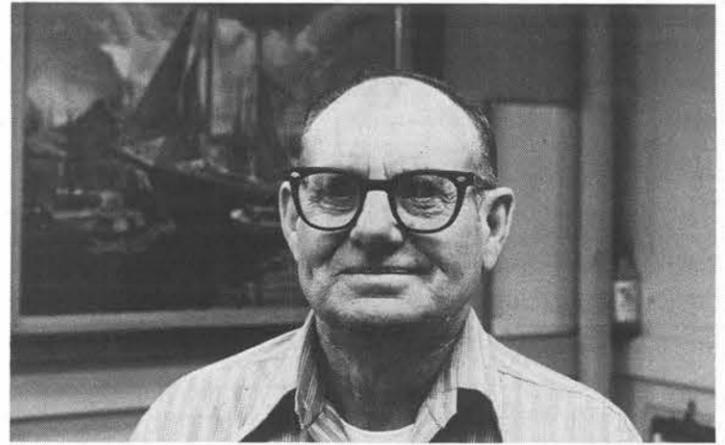
MILEPOSTS

LAB NEWS

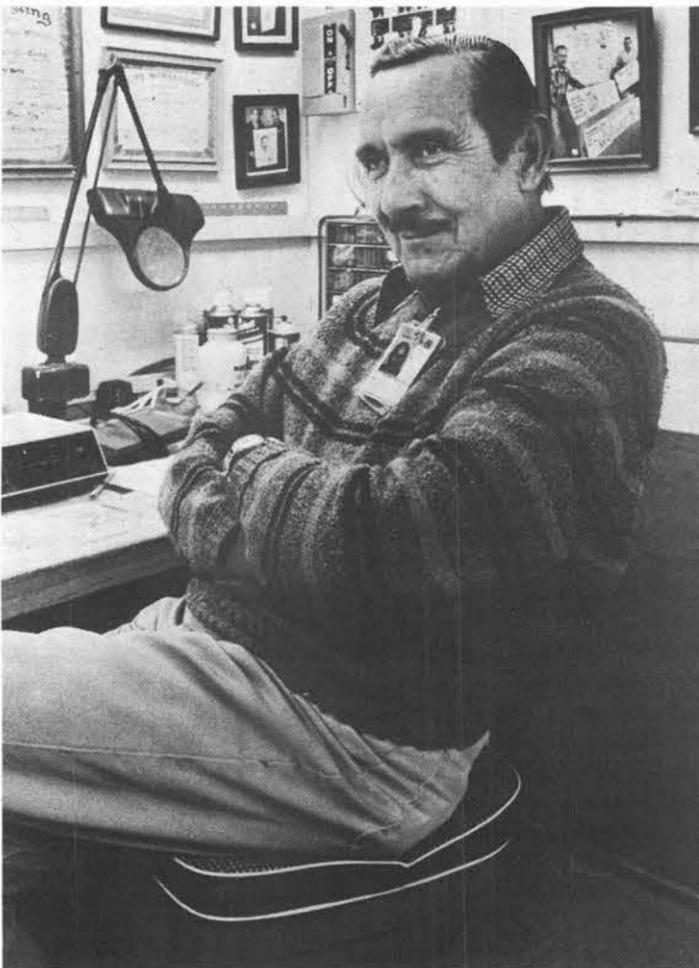
FEBRUARY 1979



Rudy Cavitt - 8271 15



Lorin Furrow - 3614 15



Felix Padilla - 3425 30



Roger Rizkalla - 3618 10



Gabe Sanchez - 1472 10



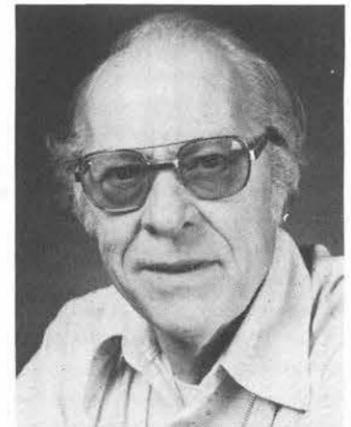
Carl Hullinger - 3727 15



Bill Snyder - 4400 25



Pat Childers - 8266 15



Ken Helmstadter - 8111 25



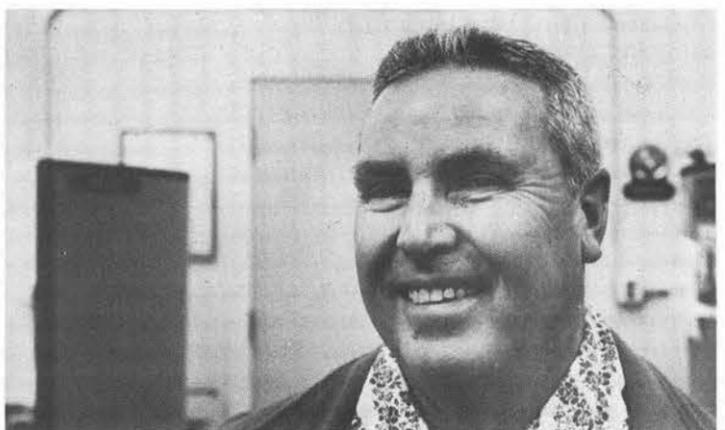
Frank Fuentes - 1471 15



Jim Dossey - 5614 20



Salomon Moya - 3618 10



Lyle Hake - 1132 30



Art Jones - 3172 30



Dan Blazek - 2424 15



Sherwood Duliere - 5822 20



Marshall Berman - 4411 10

Take Note

Feeling down? Psychologists note that depression is more prevalent during and after the holiday season. Some speculate that depression is the result of pursuit of the perfect Christmas. Or perhaps it's the let down following the excitement of the holidays. Fortunately for most, the depression disappears along with the holiday season. But for some, depression is more persistent. Psychologist Arlene Price at SLA Medical has prepared a videotape on this subject which includes a discussion on that most extreme manifestation of depression — suicide. Arlene would like to show the videotape to groups at the Labs, for example at safety meetings, and to discuss the film with the group. You can contact Arlene on 4-1057 to schedule a showing.

* * *

The GSA is conducting a spot bid sale of 120 used cars and trucks next Wednesday, Feb. 14, at 9:30 a.m. at the Indian School Auditorium, 1000 Menaul NW. A "spot bid" means that you write down your offer on a card, all the cards are collected, and the sale officials find the card with the highest amount. Items offered for sale include 53 pickups, 50 sedans, five carryalls, a van and

seven 4-wheel drive vehicles. The lot may be inspected at the GSA Motor Pool, 1800 12th St. NW between 8:30 a.m. and 3:30 p.m. on Feb. 12 and 13 and from 8:00 to 9:15 a.m. on the day of the sale.

* * *

Safety reports that you can get a sticker entitled "Important: How to Jump-Start a Car Safely" by writing to the National Society to Prevent Blindness, 79 Madison Ave., New York, N.Y. 10016. The sticker lists the steps to follow for using jumper cables safely and may be applied to a clean surface under the hood of your car.

* * *

Clark Terry, noted jazz trumpeter featured on NBC's *Tonight* show, will perform Wednesday, Feb. 14, with the El Dorado High School jazz band at a concert in the KiMo theater downtown. The show starts at 8 p.m. Tickets (\$3) are available at any Ticket Master location or at the KiMo box office.

Preceding the concert, Terry will conduct a free jazz improvisation clinic for students starting at 3 p.m. in the theater. For more information call 296-4871, ext. 266.

* * *

The recent series of lectures on "Diet for Health" by Susan Brammer, Sandia nutritionist, is now available on videotape from Medical Department 3330. Call Louise Bland, 4-1205, to schedule a viewing time.

* * *

Printing came early to New Mexico. How early and how is the subject of a lecture by Pam Smith of the Palace Print Shop, Museum of New Mexico on Sunday, Feb. 11 at 2 p.m. at the Albuquerque Museum. Included will be slides, historic materials and samples of printing technique. All are invited. No admission charge.

* * *

Larry Kehoe, recently appointed Secretary of the State Energy and Minerals Department will be speaker at the ASME/AIAA/ASQC joint February meeting at the El Gancho Inn on the Old Las Vegas Highway in Santa Fe on Wednesday, Feb. 21. Larry will discuss the energy issues facing NM and the manner in which the state plans to deal with them. Reservations: by 9 a.m., Feb. 19, Rod May (4-7669), or Bob Thomas (4-1557). Social hour is at 6:30 p.m., dinner at 7:30 and program at 8:30 p.m.

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CLASSIFIED ADVERTISING

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

RULES

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

MISCELLANEOUS

POTTERS WHEEL, Pacifica, \$130, Demmel, weekends 299-5639.
WHIRLPOOL 2-dr., 17 cu. ft., frostless refrigerator w/ice maker; Wards deluxe 2-oven elec. range. Haycraft, 299-3220.
KING SIZE BED, Serta Perfect Sleeper, extra firm, includes 5 sets of sheets, headboard & bedspread. Chapman, 296-4321.
QUAD, 3-band, 2-element, 1-piece spreaders w/ring balun transformer for single line feed, \$100. Baremore, 296-9267.
O'KEEFE/MERRITT gas range, chrome top, lg. grill, oven, 2 broilers, pan dwr., fold-down shelf, \$75. Joseph, 299-6989.
SHOEI motorcycle fairing, black w/built-in turn signals, \$80, (new \$125). Barnard, 831-4114.
REAR SEAT FOR VAN, blue, \$15; car speakers, \$9. Canfield, 299-9628.
P-38 PISTOL, Serial number in 6000—all matching, \$550. Bennick, 299-9687 after 6.
BASSET HOUND PUPS, reg., \$200 ea., \$75 down to hold prior to selling date (2/24). Horton, 255-7661.
PILLOW COUCH FRAME w/cushions, \$50. Jarrell, 266-7444.
WESTINGHOUSE built-in dishwasher, avocado, \$40; Smith-Corona typewriter, \$45. Arnold, 281-5542.
NEW LENS for Olympus O/OM camera, Vivitar wide angle, 35mm, f2.8, \$50. Roth, 877-4997.
CHICKENS: Speckled Sussex, Buttercups, Blue Andalusians, Houdans, Lakenvelders, etc., \$7.50/pr.; new chicks, 50¢; will trade, eggs hatched, need modern English game. Lackey, 898-6638.
INTERESTED IN flying? I have airplane, let's share expenses. Payne, 299-5966.
OBERNDORF MAUSER, training model, 9mm, military pistol, not shootable, \$45. Smitha, 881-1001.

"History of Science & Engineering in the Bell System," new, cost \$15, now half-price, South Hwy. 14 Project, LAB NEWS.

TIRE, L78-15, bias-belted. Coleman, 299-2377.

AM RADIO new, fits most '79 and older GM cars & pickups, \$35. Torres, 265-7194 after 6.

AKC GREAT DANE PUPPIES, fawn w/black mask, good show potential, 1 male, 3 females, will be available 2/10. Bogdan, 821-9242.

KNOX MARK IV projection screen, \$10; BAIA ultra-vue slide viewer, \$5; Model 3181 Vista III color slide projector by Realistic, \$75 new, still in box. Jewell, 293-4838.

FIRM BOX SPRINGS & mattress, full size, \$50 or best offer. King, 299-8768.

ALUM. garage door, 8x7, all hardware, \$25, you pick up. Batchelor, 299-4831 after 5.

GAS RANGE, 30", 4 burners, oven, broiler, white, \$100. Bisbee, 293-0356 after 5.

ELEC. DRYER, J.C. Penney's, sun gold, practically new, \$125. Cowham, 881-7193.

ROYAL Medallion II, all-elec. typewriter w/carrying case, \$165. Smiel, 865-9081.

PLYA AZUL CONGAS, \$200; 7' bar w/4 stools, \$150; chair, \$10. Hopper, 292-3059.

WOOD & wrought iron hanging light fixtures, yellow glass chimneys. Thalhammer, 298-8521.

2 BACK PACKS; 2 3x6 scopes; 4 3x9 scopes; 30 cal. M1 carbine; Lee loader (30-06), 30 cal. dies; 30-30 ammo. Zamora, 255-1305.

SMALL female beagle-cross puppy, 9 mos. old, spayed & immunized, \$35. Carter, 296-8709.

REMINGTON 1100 Barrels, 12 ga. plain imp. cyl., \$55; 20 ga. vent imp. cyl., \$75 Brammer, 266-5158.

FIREPLACE ACCESSORIES: Heat-A-Grate & power blower, \$135 list, sell for \$68; screen, black, 38"Wx24"H, sliding, \$10. Stevens, 299-6086.

1/2 HP AIR compressor w/3-gal. tank, \$140. Silverman, 298-1308.

WHIRLPOOL DRYER, hot & air dry; lg. bookcase. Silva, 869-2102.

FIREPLACE SCREEN w/andirons, black & gold, 31"Hx38"W, \$15. Donham, 299-0028.

THREE G78-14 tires, 15-20% tread, \$3 ea. Stuart, 299-9190.

GE ELEC. range, 66x30x25, 2 ovens, 4 burners, \$195. Gardner, 344-2547.

STEREO, Electroponic AM/FM w/turntable & 8-track, 2 speakers, \$125. Bobersmidt, 266-4579.

SNOW TIRES w/14" rims, F78-14, \$50/pr. Sheives, 296-9780.

GARAGE SALE: Bar-b-que, swing set, dictating equipment, kitchen accessories, etc. 12-5 p.m. Feb. 10 & 11. Gusinow, 12320 Eastridge Dr. NE.

SNOW TIRES, F78-14, \$35/pr., tire chains, 2 sets, 1 fits F or G-78-14, other fits G or H-78-14, G-78-15, \$12/pr. Cook, 869-6921.

YOUTH CHAIR, cherry, \$15; square, 42" extendable antique oak dining table, \$175, will deliver. Caffey, 296-3320.

HOOD, fits '78 Ford F-250, \$150. Wilkinson, 299-8327.

CHEV. 6-hole wheels for 4-WD, LR78x15, 6-ply & 4-ply tires; port. propane catalytic heater, make offer. Workman, 294-6210.

TRANSPORTATION

'73 GREMLIN-X, V8, AT, AC, Levi interior, highest offer. Burd, 884-9133.

'74 GREMLIN, AT, 6-cyl., AC, new tires, 24,000 miles, \$1850. Kresge, 821-3933.

'69 CHEVROLET Impala custom coupe, AT, AC, PS, \$650. Dugan, 821-0691.

'75 FORD F-100 pickup, 8-cyl., 302 V8, 4-spd., rebuilt front end, \$2500 or best offer. Harold, 293-4327.

'73 FORD pickup 1/2 ton SWB, AC, PS, PB, 360 Ranger, 62,500 miles, \$2000; insulated shell LWB, \$150. Ross, 296-9794.

'76 YAMAHA, 125 Y2 Mono-Shock, new tires, just been overhauled. Ortiz, 831-0274.

'67 DATSUN stn. wgn., PL411, for parts or fix clutch & drive it, \$150 or best offer. Copeland, 242-2102.

'77 PONTIAC Brougham, 400 engine, 27,000 miles, all power, make offer. Silva, 869-2102.

'76 MG-B, red, 17K miles. Thalhammer, 298-8521.

'76 GRAND PRIX, AT, PS, PB, V8, 350, HT, 2-dr., AC, bucket seats, console, vinyl top, AM-FM stereo-tape, 31,000 miles, \$4100. Goode, 864-8262 Belen.

'67 PONTIAC GTO, 4-spd. Weatherbee, 869-2849.

'76 SUBARU, stn. wgn., front wheel drive, AC, new radial tires, \$2800. Humberstone, 264-9221 on odd days only (9th, 11th, etc.)

'72 MERC. Montego Villager stn. wgn., PS, PB, AT, AC, \$900 firm. Nagel, 298-2779.

'77 DODGE Charger SE, sunroof, power windows-seat-locks, bucket seats, AM-FM stereo cassette, 22,000 miles. Shaffer, 268-1712.

'76 LINCOLN MARK IV, 37,000 miles, alum. wheels, cruise control, velour seats, cream puff, below wholesale. Browne, 345-2595 or 821-2087.

REAL ESTATE

5 IRRIGATED ACRES, Tome area, Green Valley Estates w/restrictions. Jones, 877-1202 after 5.

3-BDR./den, 1 1/2 baths, custom drapes, lg. backyard, covered patio, gas grill, open kitchen w/breakfast bar. Clarkson, 294-5834.

CUSTOM HOME, access to back yard, dbl. garage in back, 3bdr., den, fp, 2 baths, storm windows, NE heights. Chavez, 296-3590.

ACADEMY ACRES, 1 1/2 yrs., 3-bdr., 1 1/2 bath, extra lg. master bdr., energy efficient, mtn. view, \$56,900. Martinez, 821-8692.

TWO North Albuquerque acre lots on main street; 1/2 acre Glenwood Hills, improved lot w/city view. Key, 298-7988.

TWO acres land in Edgewood, south of I-40, view, wooded, water & elec. Humberstone, 264-2564.

1.3 ACRE LOT, 1 mile south of Bosque Farms, underground utilities, restrictions. Tucker, 869-3469.

FOR RENT

3-BDR., 1 1/2 baths, LR/DR w/fp, garage, dishwasher, refrig., range, Candelaria-Dakota area, fenced yard, \$375/mo., 6 mos. lease. Treadwell, 881-3433.

SANDIA MTN. HOME: 7-room, 1 1/2 baths, sunken tub, sleeping loft w/skylight & sundeck; view, furnished, \$375, avail. March. Hawkinson, 447-4763 Livermore.

3-BDR. house, unfurnished except for stove, available from 2/15-6/15, \$250/mo., 520 Washington NE. Schroeder, 344-1011.

SKI CHALET near Taos Ski Valley, deluxe accommodations, fully equipped kitchen, sleeps 8. Peet, 294-1250.

UNFURNISHED HOUSE, Ridgecrest area SE, lg. 3-bdr., den, fp, \$375/mo., water included. Yuhas, 293-3164.

UNFURNISHED HOUSE, San Pedro SE, 3-bdr., garage utility rm., \$300/mo., water included. Ruth, 266-4659.

2-BDR. furnished house, \$250/mo., available Feb. 15, 6 mos. lease required. McIlroy, 299-4977.

HOUSE IN NE heights, Eastridge area, available between 8/1/79 & 9/1/80; We'll consider renting house partly

furnished. Reif, 299-2665.
NEW APT., fp, private patio, offstreet parking, quiet residential area; water, major appliances furnished; washer/dryer hookup, \$290/mo. O'Bryan, 296-7259.

3-BDR., 1 bath, central heat, AC, carpet, oven, range, refrig., garage, walled yard, landscaped, near Base, \$300/mo. Patterson, 243-6219.

3-BDR. unfurnished house near Wyoming & Montgomery, avail. Feb. 15, \$360 plus \$200 DD, water furnished. Kluck, 294-0803.

3-BDR. unfurnished, 1 1/2 baths, garage, fenced yard, range, refrig., washer-dryer hookup, \$285/mo., water paid. Duvall, 881-4406 after 5.

3-BDR. HOUSE, near Sandia HS, includes all appliances, \$400/mo., avail. March 1. Renken, 296-9713 after 5.

WANTED

ROOMMATE to share 3-bdr. house: fp, washer/dryer, 2 baths, approx. \$225/mo. (incl. food). Stronach, 881-2309 after 6.

RESIDENTIAL LOT in Albuquerque. Sutherland, 266-4069.

OLD TABLE SAW, drill press or lathe; trade for old upright piano. Crafts, 842-9932 (leave number).

WE BUY BOOKS, 10% of cover value, for South Hwy. 14 Project. LAB NEWS, Bldg. 814, after work, Monday, Feb. 12.

GOOD, USED Ford or Chevrolet auto. Smitha, 881-1001.

BABYSITTING for 6-week-old infant, 7:30-5 beginning Feb.; preferably at your home near Eubank gate. Ahrens, 281-3920.

USED KILN in good condition. Nobles, 881-4023 after 5.

AIR PUMP for '75 Corvette, may be same as similar year Chevrolet. Gusinow, 296-5740.

SHARE RIDE from area of Indiana & Constitution, Schultz, 255-0686.

LOST AND FOUND

LOST — Woman's black leather glove, silver loop earring w/bird, ladies' knitted beige gloves w/leather palms, orange triangle scarf, orange stocking cap, silver Rx sunglasses in black case, ladies' brown leather gloves.

FOUND — Silver heishi necklace, brown tri-focal glasses in gold case, Timex man's gold watch w/black band, gold earring. LOST AND FOUND, Bldg. 832, 264-1657.

Chinese New Year Feb. 24

HAPPY HOUR TONIGHT is a disco thing with the electronic "Carter Express" playing records. Spread on the buffet will be your choice of king crab or a T-bone steak. Next Friday, Rio Grande-style Mexican food will be spread while the Prisoners are loose on the bandstand. Call the Club office by mid-week to reserve your buffet tickets, 265-6791.

* * *

SINGLES plan a special Valentine's Day party Wednesday, Feb. 14, starting at 4:30 in the El Dorado Room. There'll be fun and games plus singing and dancing by Lonnie Carreathers, your friendly Coronado Club neighborhood bartender. Also, try the chips and dips, win a door prize or do your own singing and dancing.

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TEENAGERS disco tomorrow evening from 8 to 11 with Ricci Dustin providing the electronics. Member parents should pick up tickets for their youngsters.

* * *

KIDS have their annual carnival Saturday Feb. 17, from 11 a.m. to 2:30 p.m. with a galaxy of game booths in the main ballroom. A book of 10 tickets sells for 75 cents. Super sandwiches will be available plus a raft of other goodies.

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ADULTS disco Saturday, Feb. 17, from 9 to 12 with tapes by Ricci Dustin. Members admitted free, guests pay \$1.

FRIDAY	SATURDAY
9 — HAPPY HOUR BUFFET King Crab or T-Bone Adults \$6.50 Under 12 \$3.25	10 — TEENAGE DISCO 8 to 11 p.m. Ricci Dustin
CARTER EXPRESS DISCO	17- KIDS' CARNIVAL 11 a.m. — 2:30 p.m.
16 — HAPPY HOUR Mexican Food Buffet Adults \$4.00 Under 12 \$2.00	ADULT DISCO 9-12 Ricci Dustin Members Free Guests \$1
PRISONERS	

THE BIG ONE this month is Chinese New Year set Feb. 24. Manager Pat Corcoran has put together a menu which includes egg rolls, sweet and sour pork, pepper steak, chicken chop suey and assorted Chinese-type goodies. The Top Hats play for dancing. All this goes for \$7 for members, \$8 for guests. Pick up your tickets (use your discount ticket on the monthly calendar) by Feb. 17.

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SKI CLUB members meet Tuesday, Feb. 20, at 7:30 p.m. Ben Abruzzo will discuss "The Flight of the Double Eagle II."

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TRAVEL DIRECTOR Ed Neidel announces a new travel package to Cancun, Mexican resort on the Caribbean side of the Yucatan Peninsula with close access to ancient Mayan ruins of Chichen Itza. Seven nights at the Cancun Caribe costs \$399 starting May 5. See Ed in the Club lobby tonight between 6 and 7 for the full scoop. Other travel packages open include a "go as you please" trip to England, Scotland or Wales and a trip to Jamaica March 30-April 6. Ed has the info.

Traveling the World? Here's Some Advice

For the international traveler, especially if headed for tropical or exotic areas, the N.M. Health and Environment Dept. has published two brochures and two passport-sized cards which will be useful. SLA Medical has copies of all four. One brochure, "International Travel and Your Health - Planning for Your Trip," discusses required and recommended immunizations, how to avoid malaria and contains general medical hints and a list of products you'd be well advised to take along. The second brochure, "Health Guide For The International Traveler - On The Trip," talks about general precautions, including food and water and prevention of foodborne and waterborne diseases, a section on what to do if you get sick and some suggestions on health monitoring when you get home. The cards concentrate on how to deal with travelers' diarrhea and how to avoid waterborne diseases.

* * *

Going to Vienna? The International Atomic Energy Agency operates out of that city and, from time to time, Sandians accept assignments with the IAEA which generally run from one to two years. Doug McGovern (1754) is one such Sandian who returned recently from such a tour, and he called to declare his willingness to talk with other Sandians who might be contemplating Vienna and IAEA. Doug was there with his family (three children) and can thus report with competence on living arrangements, schools, food, and what it's like to work for IAEA. Call him on 4-8726.

Retiring



Wilma Ash (3253)



Bob Gentzler (3424)



Jose Montoya (3727)



Joe Trujillo (3421)



Leon Wilson (5524)



Bob Cox (3222)

Reading between the lines is something we all do (and need to do) according to two Univ. of Glasgow professors who recently reported in *New Scientist* that "the study of psycholinguistics and the machine translation of languages shows that reading into a text more than is actually stated is with us all the time. It is an entirely necessary part of normal comprehension."

