

National Atomic Museum director reveals practical plans, grand dreams for Labs-operated museum

Three DOE employees join Sandia, three Sandians join museum

In her ten years as director of the National Atomic Museum, Joni Hezlep and her staff have steered the museum clear of fiscal crises, fought



TWO NAVY TERRIER ship-to-air missiles greet visitors to the National Atomic Museum these days. The museum has come a long way since its founding in 1969, says its director, Joni Hezlep. She believes the recent transfer of operational responsibilities from DOE to Sandia will result in even more improvements.

for building renovations, established a museum foundation, parked a rare B-29 in the museum's front yard, and taken home the spoils of countless political battles — including a 1992 Congressional charter establishing it as the nation's official museum of the Atomic Age.

But despite all those large and small victories, the recent operational transfer from DOE to Sandia may prove to be the most significant change the museum has witnessed since its founding in 1969, Joni says.

"I'm proud of what we've done with DOE's support, but there's still room for growth,"

she says. "With Sandia, I think we can take the museum to an even higher level."

"DOE's and Sandia's management both should be credited for recognizing the value of transferring museum responsibilities to the Labs," she adds.

"Everyone agrees Sandia is better equipped to support our mission."

Since the Oct. 1 transfer, Joni has filled three positions on the museum's staff with Sandia employees. (See "Three Sandians join museum's staff" on page 4.) They have become part of National Atomic Museum Dept. 12672, under Public Relations and Communications Center 12600. (See "How to contact National Atomic Museum Dept. 12672" on page 4.)

She says the response from Sandians has been overwhelmingly positive. "Many people have asked how they could help support our mission," she says. "That has made me feel welcome. I'm

(Continued on page 4)

"With Sandia, I think we can take the museum to an even higher level."

Electronic timecards coming to most Sandia desktops by early 1996

By Bill Murphy

Lab News Staff

The fundamental things apply . . . as time goes by. Sandia employees will always record their hours of work each week — that's fundamental — but sooner rather than later, they'll be recording those hours in a new way. Rather than using the do-not-fold-spindle-or-mutilate timecards that have long been a Sandia fixture, by the end of December, a large number of Sandians may be filling out and filing their timecards electronically from their desktop computers.

After more than a year of development — and nearly two years since the concept was first embraced as a serious possibility for the Labs — desktop-based electronic timecard processing is coming to Sandia.

In time, nearly all Sandians on system

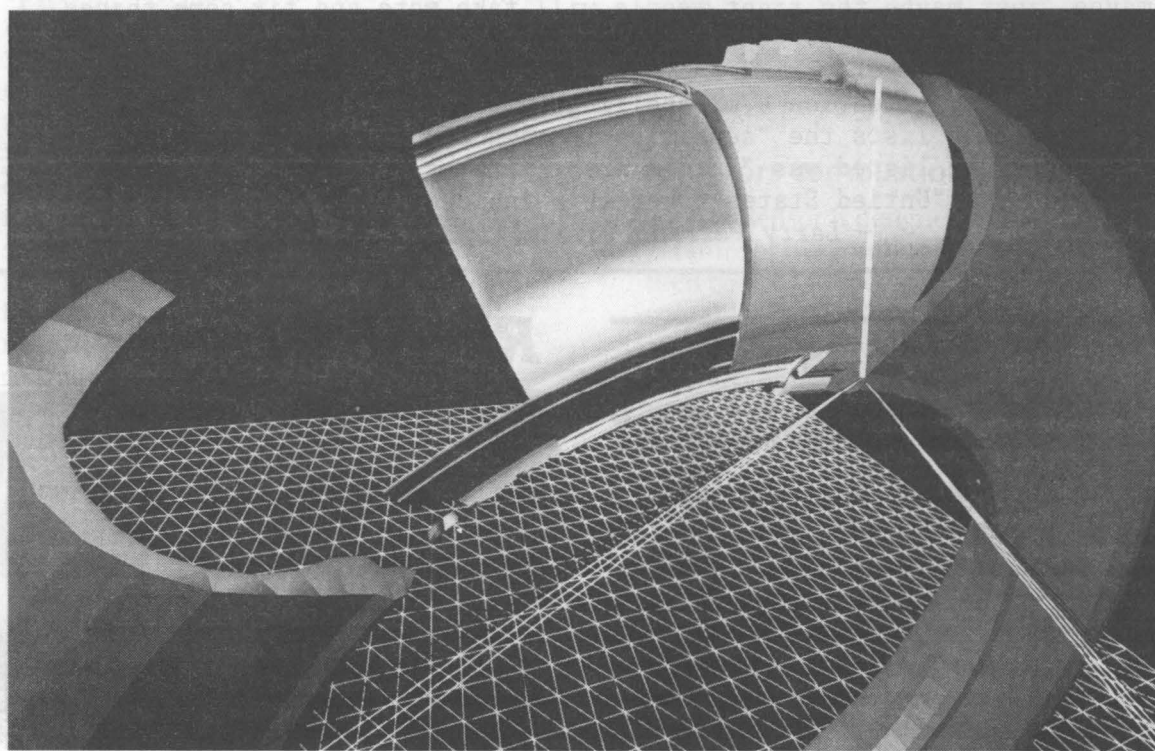
Ray Shaum, Manager of Payroll Services Dept. 10502, says that in the wake of successful completion of a 500-person pilot program, timecards for as many as 5,000 Sandians could be filed electronically early in 1996. Initially, he says, multiple timecards will be submitted from each workstation that has the application installed. In time virtually all Sandians at every site will have the electronic timecard system at their own desks.

Chief Information Officer Organization
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Sandia National Laboratories



TOURING TIRES — A virtual craft, its bow represented here by a white vertical line (right), is "piloted" toward a virtual 3D model of a car tire using Multidimensional User-oriented Synthetic Environment technology developed at Sandia. MuSE Technologies Inc. has been formed to market the technology with the help of Lockheed Martin's Technology Ventures Corporation and Sandia's tech transfer program. See story on page 5.

Labs' laser-based sensors could help improve steel mill processes **3**

Lockheed Martin President Norm Augustine visits Sandia **6**



7 Optical probe would enable speedy cervical cancer screenings

8 Child Care Task Force recommends near-site facility

This & That

Augie lasted the six months - If you've been around Sandia for several years, you may recall that I published an item in August 1994 about a 72-year-old Martin Marietta (now Lockheed Martin) employee at Vandenberg Air Force Base. Augustine Chiarenza had won 50 million bucks in California's state lottery and said he didn't plan to quit his job. But skeptical that I am, I said then that we should check back in about six months and see if the old boy is still around.

I'd forgotten about this until Linda Stefoin (3344) called several weeks ago asking whether he's still working. Maggie Daane, a public relations specialist at Lockheed Martin's Vandenberg facility, says Augie retired in February after 35 years with the company. He and the Mrs. are traveling and doing other fun things. Hey, wouldn't you be?

* * *

Two R. Wrights make me wrong - Apologies to both Rusty Wright (12671) and René Wright (contractor, 1325-1). I recently misread the e-mail address on a message from René, and in my last column mistakenly attributed a statement she made about Sandia's yellow duct tape to Rusty. Now that I've mentioned René, I'll also mention that she reports a strange title on some correspondence she received. A database system manager, she says she was once addressed as "Databaseroo."

Speaking of yellow duct tape (you and I both probably hope for the last time), several Sandians say you can buy it in Albuquerque at one of those megahumongous home improvement stores on Eubank near Kirtland AFB.

* * *

Guess who's coming to Sandia - You don't have to guess if you can access the Labs' Internal Web, because Sandia's Protocol Dept. 12670 is now placing the "Official Visitors/Events Calendar" on the web. Look for Corporate Calendar/Events under the Communications icon. The calendar shows the names of future Sandia "VIVs" (very important visitors), when they're expected, and who's hosting them, and extends several months into the future. For more information, contact Protocol and Community Relations Program Manager Deborah Payne at 844-3909.

* * *

What's your pet peeve? - Occasionally, folks take me to task for airing my pet peeves in this column (ugly yellow butt cans, buzzwords, unexplained acronyms, garishly colored e-mail messages, etc.). So, I've decided to give you readers a chance to air some of your own peeves. I can't promise to print them all (I still need this semi-prestigious job), but I'd like to know what bugs you at work. Mail or e-mail your pet peeves to me at the addresses at the bottom of this column. I'll even consider printing anonymous ones, but I'd like to have your name to begin with. Trust me. I won't print your name without your permission.

By the way, the idea here is not just to air negative complaints; maybe, just maybe the right people will take note and fix some things.

* * *

Spell checker claims another victim - Several sharp-eyed Sandians brought to my attention a misspelling on a recent Sandia Export Control Bulletin that lists the "sensitive foreign country mail list." One of the countries listed was "Untied Arab Emirates." So far, they haven't attacked the "Untied States" over this incident.

- Larry Perrine (845-8511, MS 0129, lgperri@sandia.gov)

A piece of Sandia races toward Dec. 7 Jupiter rendezvous

NASA's boldest interplanetary mission in almost two decades is nearing its climax, thanks in part to some important technology contributed to the project by Sandia scientists and engineers.

The telemetry data from NASA's Galileo spacecraft indicate its systems are functioning and that everything is "go" for a spacecraft insertion into Jovian orbit on Dec. 7. At the same time, a probe craft — which separated from the main craft and has been flying an independent trajectory since July — is scheduled to slam into the gas giant's swirling hydrogen/helium atmosphere, decelerating from 106,000 mph to less than 100 mph. During its 75-minute descent, the probe will transmit science data on the composition of the atmosphere and environmental conditions. Telemetry from the probe will be radioed to the mothercraft, where it will be recorded and retransmitted to Earth receiving stations.

For the next two years, the Galileo main spacecraft will make up-close observations of Jupiter and its moons while orbiting the planet. Scientists hope data from the mission will provide insights into how the sun and planets formed and how they continue to interact and evolve.

Two thousand Sandia chips

As Galileo approaches its ultimate destination, Sandia's contribution to the mission becomes increasingly significant. Galileo's designers knew the craft would encounter intense radiation in near-Jupiter space, exposing its all-important attitude-control electronics to the possibility of radiation-induced malfunctions. Knowing of Sandia's expertise in developing radiation-resistant electronics, the Galileo team turned to the Labs for help. After studying the challenge, a Sandia team provided Galileo's builders with more than 2,000 radiation-hardened silicon chips designed especially to operate in the severe radiation the spacecraft will encounter as it nears Jupiter.

The chips, designed by a team of Sandia engineers headed by Ray Bair, Director of Electronic Components Center 1200, and fabricated in conjunction with Allied-Signal's Albuquerque Microelectronics Operation, are built to resist so-called "Single Event Upsets" — temporary memory losses that stem from the collision of a highly charged particle with a transistor on a computer chip. Sandia's radiation-hardened chips were developed based on the Labs' years of experience in designing defense-related microelectronic devices.

A NASA award

The Galileo chips were manufactured in an ultraclean environment, and their electronic structures were chemically and physically altered to minimize the degrading effects of radiation.

Last year, Sandia was presented the NASA Public Service Group Achievement Award for its development of the specialized chips.

The NASA citation praised Sandia "for the successful development in record time of a CMOS (complementary-metal-oxide-semiconductor) replacement coprocessor and peripherals for the Galileo Attitude and Articulation Control Subsystem, thus enabling the successful mission of the spacecraft on its demanding flight to explore the Jovian system."

During its two-year mission, Galileo will fly much closer to Jupiter and its moons than did Voyager, NASA's triumphant interplanetary mission that sent two spacecraft past Jupiter in 1979. Galileo's pictures will thus offer a dramatic improvement over Voyager's memorable images.

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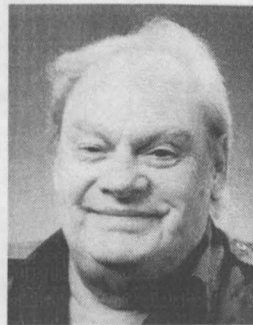
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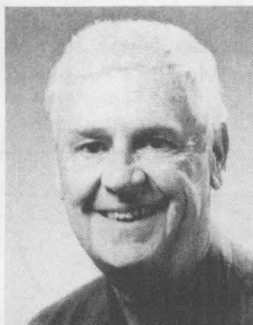
Recent Retirees



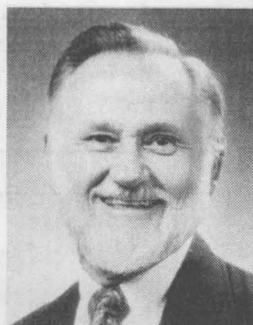
Allan Fine 42
7733



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6811



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Optical sensors track steelmaking during field trials

Partnership under federal directive yields new process-control approaches

By Nancy Garcia

California Reporter

Technologies originally developed to monitor coal combustion and welding in the laboratory are being applied to improve process efficiency in the harsh environment of a steel mill melt shop.

Sandian David Ottesen of Detection Technology & Organic Materials Dept. 8713 spent several days this spring covered with dust and "kish" (a steelmaking term for the abundant, airborne graphite particles produced during hot metal pouring) near a furnace filled with 300 tons of molten metal. He was demonstrating that a laser-based sensor can be used to measure the temperature and composition of gas above the melt to track the conversion of iron and carbon into steel.

"It was an outrageously successful test," David declared. He and Sarah Allendorf of Combustion Research Dept. 8361 are assisted by team members Alan Salmi (8361), Howard Johnsen (8713), contractors Gary Hubbard and James Ross, and Andrew Malcolmson of Insitac Measurement Systems, San Ramon, Calif., in

Sandia California News

conducting this part of the four-year project to develop optical sensors for improved oxygen steelmaking process control. Frank Zanner of Sandia's Liquid Metals Processing Dept. 1833 is consulting with the researchers as the project progresses.

The program is managed by the American Iron and Steel Institute (AISI) under the congressionally mandated Steel and Aluminum Energy Conservation and Technology Competitiveness Act of 1988, the so-called "Metals Initiative." Under way since 1993, the Sandia project is one of five AISI Advanced Process Control projects nationwide. The AISI funds 30 percent of the \$3.5 million project. The remainder is funded by DOE's Office of Industrial Technology. Bethlehem Steel Corp. is the sponsoring steel company. Insitac and Berry Metal Co. are the other partners, responsible for commercializing the Sandia-developed sensors.

The research focuses on improving the efficiency of the basic oxygen furnace (BOF), the heart of the process by which 60 percent of the country's steel is converted from iron. Upstream of the BOF, iron is produced by reducing iron ore with limestone and coke in a blast furnace. This high-carbon-content molten iron is transferred to the BOF site in a "submarine," a specialized, hot-metal, railroad car named for its distinctive shape. Once the liquid hot metal is in the furnace, powerful jets of oxygen are blasted at the surface, producing an intense combustion zone, burning off carbon in the melt in the form of carbon monoxide and carbon dioxide, as the molten iron is converted to steel.

100-millisecond laser snapshots

However, when economical scrap metal is used to augment the hot metal, it is difficult to predict how much carbon is present to start with. "The technical challenge," says project manager Don Hardesty of Dept. 8361, "is how do we know when we're done? By implementing fast, real-time sensors in the BOF process, can we reduce the time for each 'heat,' reduce oxygen consumption, and improve the efficiency and reliability of the process from heat to heat?"

David and Sarah's team is testing several infrared laser methods to measure the temperature, water content, ratio of carbon dioxide to carbon monoxide, and the presence of particulates in the gas above the melt. The carbon dioxide-to-carbon monoxide ratio may be used to indicate how much carbon remains in the steel. This content is normally analyzed after the steel is tapped (poured) into the teeming (casting)

ladle and transferred to secondary steelmaking for final ladle metallurgy adjustments. The final desired composition will vary for automotive sheet metal, steel plate, and other products. With very little plant modification, the team was able to align the laser optics above the furnace and collect absorption data in 100-millisecond "snapshots" during the feasibility tests in April.

The steelmaking furnaces are huge vats about 60 feet deep and 24 feet across, with a 12-foot mouth. They have a refractory ceramic lining whose life span can be extended by controlling the melt temperature. Currently, Sarah says, steel mills measure temperatures with single-use, platinum-alloy thermocouples, racking up about \$2,000 per day for temperature checks. In an operating steel plant, abnormally high temperature measurements would prompt plant operators to either raise the oxygen "lance" or reduce the oxygen flow rate. In field tests at a pilot-scale facility at Bethlehem Steel's Homer Research Laboratories, the team successfully monitored the gas temperature at the mouth of the furnace with a tunable diode laser.

Second task measures inside the tube

In the second task of this joint project, another team of Sandians is developing a suite of optical sensors to directly monitor the surface temperature and position of the molten metal and slag inside the BOF. The sensors are housed in the oxygen lance itself. The oxygen lance is a 70-foot-long, 10-inch-diameter tube that is used to deliver oxygen during heating. During processing, the lance sits about six feet above the molten metal. Although the furnace temperatures are in excess of 2,200 degrees F, water cooling keeps the lance interior at a cool 60 degrees.

Along with leader Beth Fuchs from Materials Reliability and Performance Dept. 8714, team members Lois Johnston (8714), designers John Korellis (8746) and Dick Roy (8417), Mike Bonin of Insitac, Joe Aland and Nick Rymarchyk of Berry Metal Co. (the principal manufacturer of oxygen lances for the steel industry), and Phil Stelts of Bethlehem Steel have worked to modify an existing oxygen lance to house the sensor package, as well as to



SENSOR PACKAGE — Examining the sensors that are packaged into an oxygen lance for use during steelmaking are, from left, David Ottesen, Andrew Malcolmson, Don Hardesty, Sarah Allendorf, and Beth Fuchs.

design the sensor itself. "It is critical that the modified lance perform exactly like an unmodified lance. At the first set of field trials at a full-scale plant in May 1995, the operators saw absolutely no difference between our lance and the regular lance," says Beth.

The sensor package contains instruments for measuring melt temperature and lance position relative to the melt surface, as well as the contours of the ceramic lining of the BOF after pouring (to monitor refractory wear). The package has two miniature video cameras, filters for controlling both the wavelength and the intensity of the light reaching the cameras, laser diodes, coherent fiber optics for guiding images, single fiber optics for guiding laser light, and circuitry for controlling the filters. All of these components fit into a compact package six feet long and two inches in diameter that is inserted into the lance, near the tip — "the only benign process environment in a steel melt shop," notes Don.

Monitors combustion-zone temp

The sensor is designed to monitor the temperature of the combustion zone, which can then be used to predict end-of-process carbon content. The blast of oxygen typically pushes aside thick, foamy slag at the bath surface. The first direct images of the combustion zone, the so-called "hot spot," created by the reaction of the oxygen with the carbon in the melt, were obtained at the field trials in May. At the end of an oxygen blow, the device also detects radiance from the bath, indicating melt temperature. The lance instrument package also collects real-time information on the bath height, "so they don't have to guess where the lance should be positioned," Beth says. After the melt is poured, the instruments also image the shape of the inside of the furnace to automatically and rapidly indicate any wear and tear or slag build-up on the ceramic lining.

In a rapidly developing, spin-off activity, Beth's team has conducted other field trials at Timken Steel's Faircrest plant in Canton, Ohio, to develop stand-alone, optical range-finding sensors for other steelmaking operations that will also have broad applications in the steel industry.

"People in the iron and steelmaking shops have had very limited modern tools available for fast process control," David says. "Being able to take advantage of advanced optical techniques developed at Sandia for other programs and then to see them working in this incredibly hostile environment is really exciting."

A laser-based sensor can be used to...track the conversion of iron and carbon into steel.

Museum

(Continued from page 1)

just thrilled to be a part of Sandia."

The new arrangement works like this: The museum is now managed, staffed, and operated by Sandia for DOE, in accordance with the Congressional charter. Sandia will provide funding for the museum's operations, but like any other museum, the staff and museum foundation will seek other sources of income, such as visitor donations and merchandise sales (a museum store is located near the lobby).

The museum staff is seeking grants to fund some educational programs and exhibits. If those efforts are successful, the grants would be administered by the National Atomic Museum Foundation, a nonprofit entity with 33 trustees and 200 members. "There's a tremendous amount of revenue out there in the form of grants," she says.

In addition, Joni believes corporate sponsorships may be a significant factor in helping fund future exhibits, particularly the museum's next big exhibit on the history of nuclear medicine, planned for September 1996. That exhibit will explore the genesis of nuclear medicine, beginning with its outgrowth from atomic weapons development through current-day uses and achievements.

The museum's staff is working closely with the Isotope Production Office in Applied Physics, Engineering, and Testing Center 9300 on the display, as well as with the nuclear medicine departments at the University of New Mexico and the Veterans Administration Hospital.

"It's going to be one of the most informative exhibits on nuclear medicine in the world," says Joni. (The museum typically opens one major exhibit each year, with smaller exhibits in between. The current exhibit,

How to contact National Atomic Museum Dept. 12672

Mail stop 1490 (NAM)	
Lobby	284-3241
Foundation	284-3245
Store	284-3242
Joni Hezlep, manager and museum director	284-3232
Darline Romero, secretary	284-3243
Sam Bono, assistant program coordinator	284-3226
Julie Butler, marketing and special programs coordinator	284-3233
Tom Salazar, exhibits and displays coordinator	284-3228
Virginia Salazar, educator	284-3229
James Wadell, historian	844-1710
Fax number	284-3244

Three Sandians join museum's staff

Three of the positions vacant after the National Atomic Museum was transferred to Sandia Oct. 1 have been filled by Sandia employees.

"Sandia people have a lot of expertise to offer," says museum director Joni Hezlep. "I'm thrilled to have so much talent to choose from."

Darline Romero, formerly of Digital ASICs Dept. 2274, was the first Sandian to join the museum. She now serves as department secretary.

James Wadell, formerly of Appraisal Management Dept. 10106, is the museum's

"Risqué Business — Nose Art in the Pacific War," runs through Dec. 31.)

Plans and dreams

Joni says the 1992 Congressional charter went a long way toward transforming the National Atomic Museum, once just a hangar full of nuclear odds and ends, into a national museum with a national focus. "The Congressional charter was a major accomplishment," she says. "Most people don't realize we're the only national museum in the state."

But her mind is always devising both practical plans and grand dreams for the museum, beginning with improvements to its permanent exhibits area.

Right now, she says, the text relating the history of the Manhattan Project and Cold War is "a little disjointed." One of the jobs of the museum's new historian will be to improve the story line.

She's also working to establish a World Wide Web page featuring the museum's attractions, store merchandise, research library, and theater. "With the help of Roger Hagengruber [VP-5000] and his staff, we are working to make that happen," she says.

And in the "grand dreams" category, Joni says she'd eventually like to move to a new location off base. A conceptual design for a spacious new building (ideally located outside the Eubank gate) has been completed. The new building would provide more exhibit and storage space, a larger theater, and an exhibit preparation area — amenities the museum now needs but does without.

Such a move also would make the museum more accessible to the public. "Our attendance is good now," she says, "especially considering that visitors must stop at a guard gate to get here, and that many Albuquerque residents aren't aware they can drive on base. We are a unique educational resource and we should be as accessible as possible."

The museum attracts some 200,000 visitors per year, a majority of those being students in large groups. Joni estimates the museum averages 200 bus loads of students a year. She believes much more is possible.

"If I get a new building, I will think I've died and gone to heaven," she says. "I'd love to see that happen. I know it can happen."

The biggest dream of all

She also hopes to refurbish the exterior of the B-29 now on display in the museum yard. The museum acquired the World War II bomber in 1993, one of only 15 B-29s in the world, but so far the funds haven't been avail-



MUSEUM DIRECTOR Joni Hezlep shows off an architect's model of a proposed new building for the National Atomic Museum. She hopes the museum eventually can be moved off of Kirtland Air Force Base, ideally to just outside the Eubank gate.

able to do the needed renovations.

"It took seven years to acquire the B-29," she says. "It frustrates me that it just sits there in need of repair."

She says attendees at the recent 509th Composite Group reunion (the Army Air Force unit that dropped the atomic bomb on Japan) needed her about the gray paint on the B-29's exterior. "They said they'd never seen a B-29 that color," she says. "Any refurbishing we do will include a silver paint job." She's requesting help from the National Guard and others to do the restoration.

By far the biggest dream of all, however, is not just having a B-29, but having *the* B-29, the *Enola Gay*.

Currently the Smithsonian is spending millions refurbishing the *Enola Gay* and has put its fuselage on temporary display in its Air and Space Museum. But getting the plane on indefinite loan is within the realm of possibility, says Joni.

"The *Enola Gay* is part of our nuclear heritage," she says. "It belongs here. A lot of veterans have asked why it's not here. We've asked for it, and our Congressional delegation is supporting the idea."

Realistically, though, the historic bomber would need to be displayed indoors. The Smithsonian's plan is to build an annex at Dulles International Airport in Virginia and display the *Enola Gay* alongside an SR-71 Blackbird and a space shuttle. But Joni's keeping her fingers crossed that with a little luck and a new building, the *Enola Gay* might someday end up "where it belongs." — John German

Sympathy

To Todd Sterk (9115) on the death of his mother-in-law, Rachel Tufaro, Nov. 10.

To Vincent Amatucci (9115) on the death of his father, Angelo Amatucci, Nov. 11.

Labs' 'virtual reality' shell gets down to business

Creve Maples goes on entrepreneurial leave to help produce the software

MuSE Technologies Inc., the most recent progeny of Sandia's tech transfer program, was introduced in a recent news conference at the Lockheed Martin building by its founder Creve Maples, formerly of Computer Architecture Dept. 1415.

The company was created primarily to market the technology known to Sandians as Multidimensional User-oriented Synthetic Environment, an advanced virtual reality-type shell developed by Creve and others while at Sandia (Lab News, May 13, 1994). Creve is currently on entrepreneurial leave from the Labs to serve as chairman of the board and chief technical officer for MuSE Technologies.

The software is a highly adaptable, highly interactive programmable shell designed to create a more direct human-computer link. According to Creve, this software aspires to "humanize" information by putting it in a format people can more readily understand by "wrapping around" sets of data to create easily manipulated visual images.

A neurosurgeon, for instance, could take data obtained from an MRI scan of a patient's brain, transfer it into the program, and create a three-dimensional image of the brain capable of being examined in detail without invasive exploratory surgery. The surgeon could analyze a brain tumor or aneurysm without having to go through sheets of information, piecing together numerical and two-dimensional, graphical data. The image could be enlarged or reduced, or pieces removed, to get a closer look.

Any set of data can be programmed, and the program has applications that extend far and wide, says Creve. Students could use it to explore subatomic worlds and watch the interactions of electrons and protons. Children could use it to piece together dinosaur bones or travel around space.

"The most beautiful feature of the program is that whatever you experience in [it] is a product of human artifice," says Joel Orr, an internationally recognized expert on virtual reality and computer-assisted design, who spoke at the Nov. 10 news conference. "You have to put it in there."

This type of technology addresses the "subcognitive ways people take in information," says Creve, including pattern recognition, trend analysis, and anomaly detection. Although the software has been called a virtual reality engine, Creve does not use the term "virtual reality." He says he prefers the term "anthropocyber-synchronicity," the coming together of human and machine.

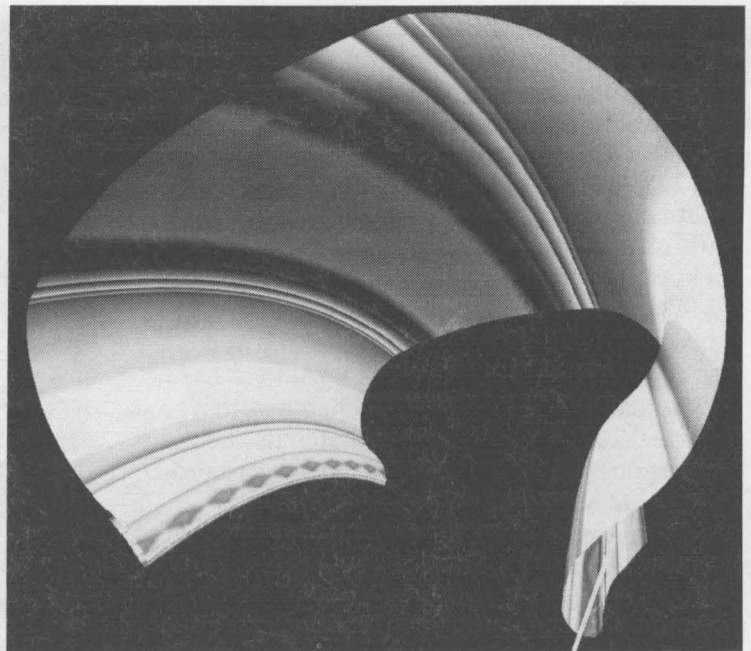
Unlike typical VR, this development allows participants to explore any aspect of the synthesized world. A homeowner could transfer data from a year's worth of bills into the shell and watch as the program created a moving 3D landscape from the numbers in her checkbook. The valleys might represent those times when little money was spent, and a hill might show up around Christmas, when checks were written in piles.

"Think of it as a word processing program," says Creve. "Someone has produced the software. Now you must write the text."

The software is also hardware independent, compatible with the highest of high-tech virtual reality equipment as well as with a standard terminal, keyboard, and mouse. Currently the system requires a high-end workstation, but the corporation is working on a desktop version that should be available within the next five years.

MuSE Technologies plans to market both the general software, able to accommodate almost any application, and application-specific packages, in which the corporation's programmers would work with companies and individuals in designing specific, tailored shells to handle certain types of data.

Sandia licensed the technology to VIGA Technologies, which in turn sublicensed it to MuSE Technologies Inc. earlier this year. The company already has contracts with major manufacturing and energy companies in the US,



A STRUCTURAL DEFECT in a tire is found using a virtual model produced by Multidimensional User-oriented Synthetic Environment technology. Individual layers of the tire's construction were analyzed by the tire's manufacturer using the model. The defect, previously unknown to the manufacturer, is revealed as the chain of diamond shapes on the bottom left.

and has received a contract for advanced research and development from the US Navy.

Creve was recently selected by the New Mexico Entrepreneurs Association as the first recipient of its "Software Author of the Year" award for development of the program. The award was presented at the news conference.

On hand to welcome the formation of MuSE Technologies were Sandia President C. Paul Robinson, Sen. Jeff Bingaman, and representatives from the offices of Sen. Pete Domenici, Rep. Steve Schiff, and Gov. Gary Johnson, along with Tom Murphy, the new chief executive officer of MuSE Technologies; Arlan Andrews, vice president of marketing and sales; and MuSE Technologies' board of directors. Arlan, also on entrepreneurial leave from Sandia, is a former manager of Advanced Manufacturing Initiatives Dept. 2902 (Lab News, Aug. 5, 1994). — Philip Higgs

E-timecards

(Continued from page 1)

4010 is spearheading the deployment of this application, including the provision of training for users. Users will be notified approximately two weeks before they receive the application. During installation, the user will receive information on how to sign up for a training class through the Sandia Business School (10506). Tuition is free, but class time is charged to the student's regular case or Center Support case.

For most Sandians, the new electronic timecard system isn't that much different from the current process. You'll still enter your hours into a form every week; your boss will still sign off (electronically) on your submission — and you'll still get paid the same old way. The only real difference for most employees is that they will be doing these things through a desktop-based software application rather than with a pen and paper.

Labs-wide, Ray says, Sandia stands to gain 40,000 hours in productivity each year, based on process flow chart projections. "The real subject," Ray says, "is reengineering. We're making fundamental changes in our

(Continued on page 6)

Electronic Timekeeping

File Edit Help

SSN: 530-52-6754
Name: SHAUM, RAYMOND W.
Org: 10502

Week: 12/07/1995
Schedule: 44 Hours
Case of Record: Full Distr Req'd

Case/A-Order	Chng Code	OT Code	Fri	Sat	Sun	Mon	Tue	Wed	Thu
↓									

Hours charged to
case of record: 0:00
Hours recorded: 0:00
Hours to be paid: 0:00

Welcome to Electronic Timekeeping

ELECTRONIC TIMEKEEPING — The above image is a representation of the way the electronic timecard will look on Windows-based PCs. Mac and Unix versions of the software will sport a similar interface.

A smorgasbord of Sandia science, and lunch too

Norm Augustine makes a whirlwind visit to the Labs

By Ken Frazier

Lab News Acting Editor

Norm Augustine, the man who will take over the helm of Lockheed Martin Corporation Jan. 1, spent five hours at Sandia Nov. 15 in what Labs Director Paul Robinson afterward enthusiastically characterized as a "knock your socks off kind of day."

Augustine still appeared to have his full footwear by day's end, but he clearly enjoyed the stay and was impressed with what he'd seen.

He started with an informal lunch with a cross section of Sandians, nominated by their vice presidents, and ended with a smorgasbord-like tour of Sandia science.

"The reason for my trip wasn't to convey any particular message," Augustine said in an interview with the *Lab News* and Radio Sandia riding to the airport afterward. "I hadn't been here for six months. I enjoy seeing how things are going."

The lunch was Augustine's idea. "When I travel to various locations in the company," he said, "one of the things I enjoy doing is being with groups in an informal environment.

Lunch is a good time to do that. I try to get a cross section of people so I can get views that I don't often hear through the normal chain of command but can get a first-hand feeling for what's on people's minds."

A lot of thoughts

He said there was much discussion with Sandians about how Sandia and the nation can maintain the talent base needed for accomplishing all that's necessary when budgets are not growing or are declining. "We didn't come up with a lot of answers," Augustine said. "There were a lot of thoughts."

"The conversation over lunch was very informal yet it dealt with some real issues," said Nancy Davis, a buyer in R&D Program Procurement Dept. 10230 and one of the lunch participants. "Everyone felt they were talking to someone who was interested and certainly concerned. He made us feel that we were all just people who have a common interest talking about common concerns."

As for Augustine's introduction to selected



LUNCH PARTNERS — Paul McWhorter (1325, center) and Ellen Stechel (1153, right) were two of the Sandians who participated in an informal lunch discussion with Lockheed Martin President Norm Augustine (left) during his Nov. 15 visit to Sandia.

Sandia technical projects, "I enjoyed it immensely," he said. He was treated to a selection of the "cream" of Sandia science and technology — the best of the best, in Paul Robinson's description. "It was a treat for me too," Paul says. "It was an exquisite tour."

The demonstrations and briefings including massively parallel computing, high-fidelity modeling, vertical cavity surface-emitting lasers, and state-of-the-art sensor systems. This latter series of demos, in Bldg. 868, included synthetic aperture radar, automatic target recognition, microsensors, intelligent micro devices, chemical microsensors, and micro-electromechanical systems.

'Must be a fun place to work'

"The technology I had a chance to see was just superb," Augustine said. "The spectrum ranged from massively parallel computing to microelectronics to micromachinery to some very sophisticated imaging work. Just really

exciting things going on. It must be a fun place to work every day.

"Sandia, as I have said before, truly is a national asset. It's a collection of technical capability that combines both science and engineering that's not matched very many places in the world."

But it's a changing world out there. "These are obviously very difficult times for the Department of Energy, the Department of Defense, and others," he said. "I think Sandia has done a good job of recognizing that we can't stay the same, we have to change, and that change entails continuing the old visions but at the same time taking on commercial tasks, helping competitiveness, and so on. I think the accomplishments in this area are very significant."

It's been a harder time for the people of Lockheed Martin, with declining defense procurement budgets, the merger, and subsequent

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processes." Changes, he adds, that will dramatically increase productivity at the labs through the elimination of 'hassle.'

"When these changes are in place, we'll be better poised to take the next step in reengineering of our business processes — buying commercial software to replace the in-house product."

System eliminates common mistakes

The gains, both in his operation and in Labs-wide productivity, won't come so much at the front end of the process (entering time on a timecard) as in the elimination of mistakes that require re-work, Ray says. In an average week, he notes, Payroll Services flags some 400 timecard mistakes, including an average of 300 invalid case numbers and about 100 mistakes related to the 9/80 schedule. The new software-based system will eliminate almost all of those errors, he says. In addition, the system will eliminate the need for contracted keypunch services; keypunchers currently type in about 45,000 line items per week (at a cost of about \$150,000 a year), Ray adds. The application also provides schedule relief for timecard col-

lection and approval. Timecard collection by Payroll will never need to happen before the workweek ends on Thursday, and timecard approval by supervisors can occur as much as five weeks after timecard submission.

The software that is the heart of the new system was developed by a team headed by Julie Perich of Electronic Commerce Dept. 4815. "Our objective," Julie says, "is to eventually move as much processing as possible to individual desktops. We're reengineering the process to take information from the mainframe and put it where people use it."

Many contributed to software

She explains that in designing the software, her team had to address the complementary challenges of: (1) designing a system that meets the needs of Payroll Services, including incorporating security, reliability, and data integrity components, while at the same time (2) putting the package into a design with a user-friendly, intuitive interface, and (3) allowing people to work in a familiar software environment. The application currently runs in both a Macintosh and Windows environment, with a UNIX version in beta test.

To meet the first challenge, Julie says, the

team established a Joint Application Design group, made up of a cross-section of Sandia employees. Their comments, Julie says, helped the team incorporate all the must-have features, as well as a lot of "wish list" concepts that streamline the process of filling out and filing a timecard. The new software, for example, has drop-down boxes with A-order numbers, which a user can automatically plug into his or her time card. The software also allows users to create template files (called profiles) and enables users to create timecards in advance, handy for Sandians when they plan on taking vacation time, and it calculates and displays overtime hours.

The timecard software has a very accessible interface; Julie notes that its final look-and-feel are the result of lots of feedback from a variety of user focus groups.

The security and data integrity aspects of the software are extensive, Julie says, with access levels based on job position, password protection, and sophisticated data tracking.

Julie notes that the electronic timecard system represents the first application in what will eventually become a whole suite of desktop-based electronic commerce applications available to Sandians.

Optical probe would speed cervical cancer screening

Simultaneous test and treatment of precancerous cells may become possible

By Julie Clausen

Media Relations Dept. 12621

Women often wait weeks and undergo additional tests to confirm the results of an initial abnormal Pap smear, a test used to screen for cervical cancer. As a result of work done at Sandia, there may be another test available soon that could provide immediate results.

A fiberoptic device now being tested at the University of Texas M. D. Anderson Cancer Center in Houston provides immediate and noninvasive detection of precancerous cervical tissue. The prototype device relies on differences in the way that normal and abnormal cervical tissues absorb and emit light to detect cellular abnormalities, which can progress to cancer if left untreated.

Abnormal Pap smears lead to a colposcopic examination, which involves the use of a magnifying device to examine the cervix. The new test would allow colposcopy and treatment to be conducted in the same office visit if abnormalities are detected.

The device is being developed through a cooperative research and development agreement (CRADA) between Sandia and the LifeSpex Corp. (formerly Patient Technologies Inc.) of Albuquerque, and through sponsored research agreements with the University of Texas.

Less anxiety

"This technology adds greater immediacy to the detection process," says Dave Murray, President of LifeSpex. "Women won't have to suffer through weeks of anxiety waiting for their test results. They will get those test results directly from the examining physician at the time of the exam."

A Pap smear is currently the most common method of screening for cervical cancer. The

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job reductions. "Overall for the Lockheed Martin family, I am acutely aware that the last number of years have been very difficult, very challenging, very trying for all our people," Augustine said. "The people have risen to the challenge in a magnificent way. They have continued to build quality products, provide quality services."

Tough times aren't over, but . . .

"I would like to be able to say that the tough times are over. I'm not able to say that, as much as I would like to. On the other hand, I think I can say that we're getting close to where I think things will begin to stabilize and begin to pick up again. There's not a company in the field I would trade places with in a minute. We're very strong financially, have superb technology, strong programs, and a huge backlog."

In a transition move announced a year and a half ago when Martin Marietta and Lockheed merged, Augustine, then Chairman and Chief Executive Officer of Martin Marietta and now President of Lockheed Martin, will succeed Dan Tellep Jan. 1 as CEO of Lockheed Martin. "Dan Tellep is a person who, I think, thinks essentially exactly as I do, so there will be no reason to change anything. I think we will find the transfer will be transparent entirely."

"We very much continue our strong support for Sandia. I'm very pleased to have Paul on board now and look forward to working very closely with both Paul and Al Narath. So I would say it's steady as she goes."

test involves taking a sample of cells from the cervix — the outer end of the uterus — and sending it to a lab to be analyzed. Test results may take a week or more. Any needed follow-up tests add to the wait — and the anxiety.

The LifeSpex probe uses "fluorescence spectroscopy" to detect abnormal cells on the outside of the cervix in seconds. Optical fibers at the end of a small probe illuminate the tissue of the cervix and collect the fluorescent light that is generated. Precancerous cells will fluoresce differently from cells of healthy tissue.

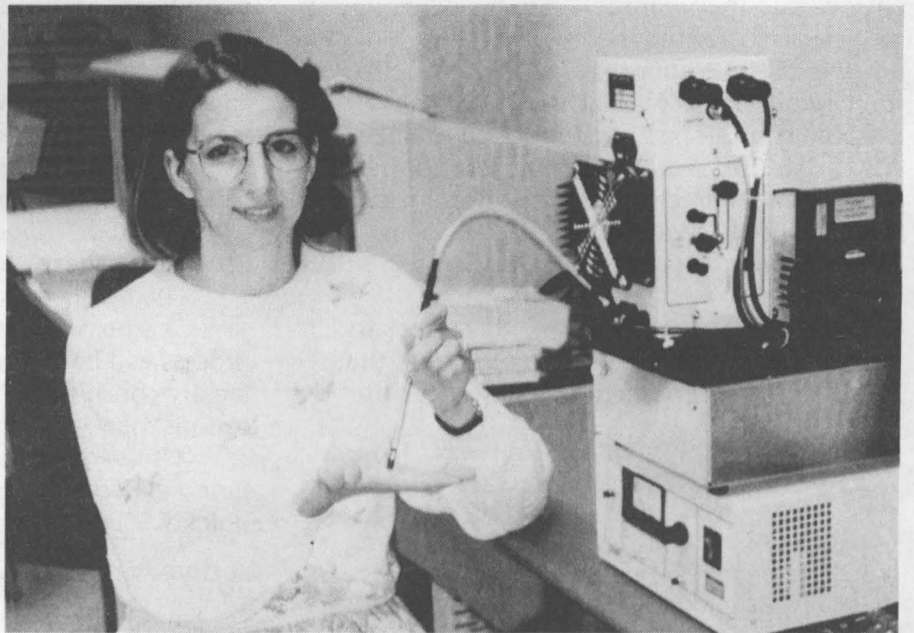
Tissue spectroscopy technology also has the potential to be used for noninvasive cancer detection in many other types of tissue.

"Imaging and spectral analysis technologies are an integral part of Sandia's satellite and weapons nonproliferation work," says project leader David Sandison of Instrumentation Engineering and Technology Dept. 2665. "The biomedical spectral imaging devices we are developing are on the technological forefront, and any advances we make in these technologies will directly benefit Sandia's nonproliferation mission."

Sandia helped make device smaller

The concept for the probe was originally developed and tested by the University of Texas at Austin (UTA) and M. D. Anderson (MDA) in Houston. LifeSpex licensed the technology through its sponsored research agreements with UTA and MDA.

In 1993, after hearing about Sandia's biological fluorescence-imaging capabilities, LifeSpex contacted Sandia to request technical assistance in refining prototype spectroscopic instrumentation. The first-generation proto-



A PORTABLE UNIT — Dr. Rebecca Richards-Kortum (University of Texas at Austin), one of the developers of the fiber optic probe concept, poses with a prototype portable spectroscopic instrument developed for LifeSpex by Sandia's Instrumentation Engineering & Technology Dept. 2665.

type was not marketable because it was too large (about the size of a washing machine) and too expensive to be widely available to patients. So the researchers asked Sandia for technical assistance in making the device smaller and more commercially feasible.

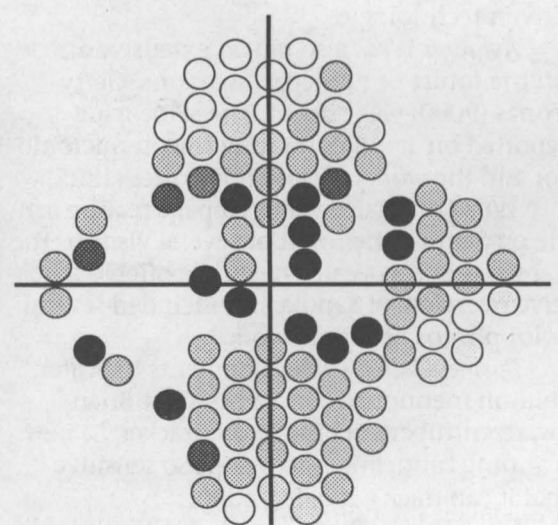
To address the problem, Sandia engineers used instrument development and miniaturization expertise originally gained in weapons research. They also drew on experience gained in other biomedical ventures.

A portable, less expensive prototype was delivered to LifeSpex in 1993. The success of this technical assistance project led to the signing of a CRADA titled "Fluorescence Detection of Pre-Cancerous Lesions." The agreement calls for developing, fabricating, and testing three devices over the next three years.

Sandians involved in the design of the prototype include Tim Vargo (2665) (computer and electrical design) and Mark Platzbecker (2665) (mechanical design). Technical support was provided by Ron Hartenberger (2412), Randy Normann (2663), and Richard Shagam (2732), and the project was also supported by Tom Perea and Ned Godshall (2665), Leland Traylor (4204), Don Schroeder (2605), and John Stichman (2600).



FIBER OPTIC SCREENING — On the cervix (left) is a transformation zone where cell properties change from those of skin to those of the uterus. Because cells in this transition zone continually change their function, they are at high risk for developing cancer. Using the new process, the cervix can be screened for abnormalities using fiber optic probes. At right, a probe containing 31 separate fibers is placed on the cervix four times,



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once at each corner of the compass. Each fiber detects the fluorescence from a 2 mm diameter area of the cervix, and algorithms developed at the University of Texas assess the health of the tissue.

Child care facility moves a big step closer to reality

Over the past several years, Sandians have talked about it, they have supported it, they've said they want it — now they're one step closer to getting it.

It is a Sandia-sponsored child care facility in close proximity to the Labs. A recommended course of action developed by the Child Care Task Force has won the endorsement of Labs Director C. Paul Robinson and VPs Charlie Emery (3000) and Lynn Jones (7000), Sandia's corporate champions for child care.

Paul has directed Charlie to take steps to implement a task force recommendation that calls for the development of a new, near-site



CHILD CARE OPTIONS — Sandian Randy Montoya (12614) prepares to drop off his children, Laura (left), age 4, and Amanda, age 2, at their child care facility. As a result of efforts of the Child Care Task Force, Randy and other Sandians may soon have new options for daily child care.

(Photo by Catherine Montoya)

child care center.

Under the recommendation, Sandia will not operate or subsidize a child care facility. Rather, having identified child care concerns as being important for a significant number of Sandians, the Labs will contract with a private-sector partner to run a near-site child care center under guidelines established by Sandia. The provider, in turn, will contract with a land developer to build a facility on private land near the Eubank gate.

"There's a lot of enthusiasm for a facility," says Charlie, whose first step in advancing the process will be to contract with a child care facility consultant to develop a list of specifications for a Sandia facility.

"Once we sign a contract with the consultant, I expect things to move along pretty quickly," he says.

A diversity issue

Sandia has looked at the issue of near-site child care for a number of years, Charlie says, noting that the issue sat on a back burner some time before emerging as a top concern during the March 1995 Large Staff Conference on Diversity. During the conference, Charlie says, participants recognized that workplace flexibility — particularly as regards accommodating the needs of Sandians with various family considerations — is a diversity issue.

"At the Diversity Awareness Workshop this past spring," explains Paul, "a number of us asked the question, 'How family-friendly is Sandia?' In noting all of the responses we got, the 4000 [Laboratory Development] organization attendees made a list of opportunities through which Sandia could demonstrate its commitment to families. Number 1 on our list was a child care facility. Organizations 3000 [Charlie's Human Resources division] and 7000 [Lynn's Laboratory Services division] agreed to team with 4000 to survey the Sandia public and, if the demand was sufficiently high, we would commit to creating a Sandia Child Care

facility at the earliest possible date."

To advance the issue in as timely a way as possible, a Child Care Task Force was created. The interest in child care was immediately obvious — 88 Sandians volunteered to serve on the group chaired by Sandra Begay-Campbell of Corporate Planning Program Office 4514.

Survey results guided task force

The task force first surveyed Sandians for their views on child care issues. The survey confirmed previous survey results that there is a high level of interest in a Sandia-sponsored child care facility.

With the survey results serving as a green light to proceed, the task force next considered several options for creating a child care facility. According to Sandra, the group looked at the pros and cons of:

- (a) building a new on-site facility
- (b) remodeling an existing on-site facility
- (c) building a new facility near-site on DOE land, and
- (d) building a new near-site facility on private land in cooperation with private sector partners.

Option "d" proved to be the most cost-effective; because the vast majority of cost and risk associated with the project would be borne by private sector partners, the cost to Sandia to implement option "d" was estimated by the task force to be approximately \$45,000. By contrast, the cost to Sandia for implementing the other three options ranged from \$900,000 to \$1.8 million.

The task force, in its presentation to Paul, Lynn, and Charlie, noted that the recommended option "imposes the least cost for construction and operation and yet allows for quality control through the contract with the child care provider."

The report also noted that "the contract with the child care provider is critical to insure our quality care with reasonable fees."

— Bill Murphy

Sandia in the news

A lengthy article on the future of tech transfer ran in *Aviation Week and Space Technology*. Sandia President C. Paul Robinson is quoted. The article discusses the funding and policy turmoil surrounding tech transfer and gives examples of commercialized defense-driven technologies.

Aviation Week also ran an extensive article on the future of nonlethal weapons. Gerry Yonas (9000) was quoted. The same issue reported on Sandia's rotating silicon micromotor and the work of Paul McWhorter (1325).

Wired magazine ran a 16-page feature article on Sandia, the result of several visits to the Labs earlier this year. The article offered a positive overview of Sandia and included several color photos of Sandia work.

Business Week's "Developments to Watch" column mentioned Sandia physicist Brian Swartzentruber's (1114) "atom tracker," a new scanning tunneling microscope so sensitive that it can track a moving atom.

Lew Newby (9602), Sandia's NEST (Nuclear Emergency Search Team) project manager, appeared briefly on the ABC-TV newsmagazine "Behind Closed Doors," hosted by Joan Lunden. One of the program's four segments chronicled a recent NEST exercise that challenged team members to find a mock nuclear weapon in New Orleans.

The Associated Press article on Sandia's Science Advisors (SCIAD) program ran in newspapers across the country including the *Las Vegas (Nev.) Review-Journal-Sun*; the *Midland (Texas) Reporter-Telegram*; the *Alexandria (La.) Town Talk*; and the *Jonesboro (Ark.) Sun*. Sheri Martinez (3613) and Lynn Ritchie (12913) were quoted, and Lynn was pictured giving a science lesson to Navajo elementary school students.

The November *Popular Mechanics* ran a story with color drawing of the proposed super-fast Seraphim train. "While the world waits for magnetic-levitation (maglev) trains to enter commercial service," the piece began, "engineers at Sandia National Laboratories have other plans. They think they can get mag trains to run on today's rail lines, for a fraction of the cost of the maglev system."

The *Boston Globe* did an extensive story on less-than-lethal weapons as alternatives to deadly force. Sandia's sticky foam and smart gun were mentioned.

The *San Diego Union-Tribune* reported on the continuing debate over barriers at the US-Mexico border to prevent illegal immigration. The article mentioned a Sandia study that recommended installation of a triple fence and use of checkpoints at the border. This study continues to be referenced in a

variety of publications.

Both the BBC and Japan's *Economic Newswire* reported on an agreement between DOE and Japan's Power Reactor and Nuclear Fuel Development Corp. to jointly develop a system to remotely monitor the movement of nuclear materials. The mutual monitoring of each other's facilities will occur in real time. The reports said a data collector and image monitor will be installed at Sandia.

The *Times-Picayune* (New Orleans) reported on work by Sandia and the Alton Ochsner Medical Foundation to study coronary-artery disease and determine how the costs of treatment and diagnosis could be cut. The process will model health-care treatment paths and provide an example of how to construct models for studying other illnesses.

The Sandia/Intel partnership to design and build a new supercomputer to monitor the safety of the nuclear weapons stockpile has been reported in dozens of publications, including the *Los Angeles Times*, *New York Times*, *Washington Times*, *San Diego Union*, *San Francisco Examiner*, *Reuter Business Report*, *Boston Herald*, *Denver Post*, *Washington Technology*, and two London newspapers, *The Guardian* and the *Sunday Telegraph*.

— Kathy Kuhlmann, Media Relations Dept. 12621

Sandia turns in 'stellar performance' on Lockheed Martin ES&H audit of all tech areas

A Lockheed Martin Corporation team of 21 subject matter experts visited Sandia/New Mexico Sept. 11-22 to conduct a comprehensive environment, safety, and health (ES&H) audit of Sandia facilities and operations (*Lab News*, Sept. 15). The results are now in.

At a forum following the audit, the Lockheed Martin corporate auditing group said Sandia's performance during the audit was "stellar." And when Lynn Jones, Vice President of Laboratory Services Division 7000, reported on the audit results at a Sandia Board of Directors meeting, she drew a round of applause.

The audit was limited to Sandia's Albuquerque facilities and operations. Sandia / California will receive a similar audit in the spring of 1996.

Auditors thoroughly inspected all tech areas and scrutinized mounds of documentation.

Their audit focused on:

- Assessing current ES&H compliance with laws, rules, and regulations; with Lockheed Martin and Sandia policies and procedures; and with selected DOE orders;

- Confirming that appropriate and effective management systems exist that ensure long-term compliance; and

- Validating that programs have been established to minimize potential risks to employees' safety and health, the environment, and Lockheed Martin.

"Even before the auditors arrived, this audit was characterized by a genuine spirit of cooperation and partnership between the audit team and Sandia," says Joe Stiegler (7001), leader of the Sandia Audit Coordination Team. "Instead of an us-against-them, we're-here-to-catch-you-doing-something-wrong mentality, the prevalent attitude exhibited throughout this audit was, 'Let's work together to see what you're doing right, where you can improve, and what we can learn from your processes.'"

No major findings were identified during the audit; however, 33 minor issues were noted. Before the audit was finished, nearly half of these issues were corrected, and the others are being quickly addressed. At audit's end, the overall opinion of the audit team was that controls provided at Sandia were adequate and operating effectively.

The audit team identified three "Excellent Programs," and these are now candidates to become models throughout Lockheed Martin:

- Pressure Safety
- Ergonomics
- Title V Air Permitting Strategy

Auditors also categorized eight activities as "Notable Programs:"

- Management involvement
- Housekeeping
- Construction Safety Program
- Operator/safety training in accelerator organizations
- Laboratory Safety Standard Program
- Trending of environmental monitoring data
- Transportation documentation
- Documented facility safety review process

The auditors said Sandia has some areas that could stand improvement:

- ES&H training processes
- Documentation of inspections and informal agreements
- Posting of notices in radiological areas
- PCB transformer management
- Waste characterizations



AUDIT CENTRAL — A command center was used during the audit to maintain and update the interview and site-visit schedules and to enter data from the findings as the corporate audit reports came in. At the phone and computer terminals are, from left, Grace Delgado (8609), Diana Frederick (7711), and Joanna Lewis (7314). At table in left rear is Marti (Marlene) Martin (6421).

- Release of materials from controlled areas
- Internal Sandia policies/procedures that sometimes exceed regulatory requirements

Improvement efforts have been initiated in each of these areas, says Joe.

Lynn Jones says there was great preparation, coordination, and follow-up by the Sandia Audit Coordination Team, which included Joe, Richard Rohde (7501), William Burnett (7701), Elizabeth Krauss (11300), Terri Lovato (7313), Al Stanley (7314), Brian Kelly (7314), Joanna Lewis

(7314), and Joe Honest (15106).

Knowledgeable counterparts from both ES&H and line organizations worked with each auditor. In addition, Joe says, an excellent communication process was established and staffed by the Line Implementation Working Group (LIWG) and Center ES&H coordinators. "People in the line organizations represented Sandia remarkably well with their knowledge, openness, honesty, and willingness to share information," says Joe.

! Take Note

A group of women from Albuquerque is donating time to repair the shelter at Laguna Pueblo for women and children leaving violent relationships. The shelter has been uninhabitable for the past few years, needing all new floors, painting inside and out, stucco work, electrical work, plumbing, and general fixing up. Most women working on this project are graduates of the basic home repair class offered through the UNM Continuing Education program and are learning as they work. They are also the major fund-raisers for all the materials, either through donations of cash or materials. The shelter needs additional materials, including security lights, kitchen cabinets, shelving, and fencing. To donate material or work on the project, call Denise Wheeler at 343-9307. For additional information, call Redd Eakin (12671), Sandia Volunteers in Action Program, at 844-4124.

Retiring and not seen in *Lab News* pictures: Harry Pike (1144), 39 years; Robert Taylor (2122), 39 years; Paul Leonard (7614), 38 years; James Parvin (4112), 30 years; Joe Gabaldon (7612), 26 years; Clarence Walker (7613), 20 years; June Smith (5111), 20 years; Lawrence Anderson (14811), 11 years.

★ Congratulations

To Mina and Basil (9115) Hassan, a son, Amir Basil, Oct. 14.

To Vickie and Nick (7513) Durand, a son, Jacob Kasheem, Oct. 24.

To Janet and Eric (12323) Grose, a son, Conner Stevens, Oct. 28.

New Sandia brochure available

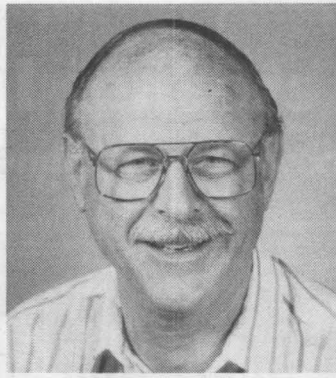
A new general information brochure about Sandia is now available through Laboratory Communications Dept. 12610. The brochure gives visitors, government officials, business contacts, and potential new employees an overview of the work performed at Sandia. For copies, call Linda Doran at 845-9314 or Mike Lanigan at 844-2297.

Retirement open houses

Sandia is holding open houses in honor of retirees **Harry Pike** (1144) on Tuesday, Dec. 19, in the Area 1 Cafeteria (Bldg. 861), 2-4 p.m.; and **Joe Gabaldon** (7612) on Friday, Dec. 22, in the Area 1 Cafeteria (Bldg. 861) at 1:30 p.m. Refreshments will be served. Friends and acquaintances are invited.

Mileposts

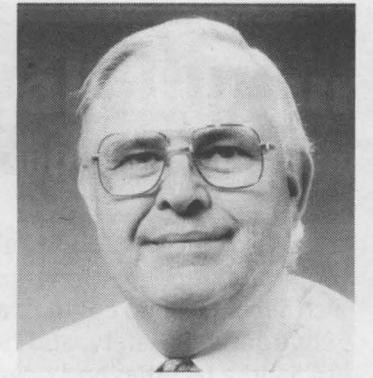
December 1995



Dwayne Mohrman 35
8600



Janet Padilla 15
4911



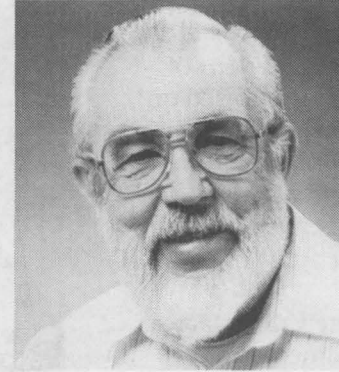
Frank Dean 30
2102



Fred Schkade 25
9427



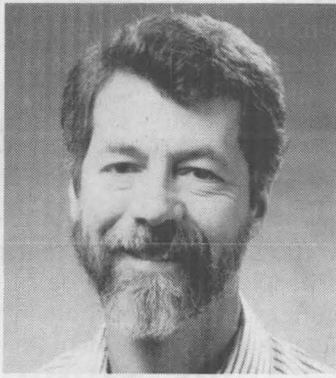
Mike Dyer 20
8800



Alan Beattie 30
9752



Andy Charley 15
1481



Gary Carlson 25
6211



Peg BonDurant 15
2261



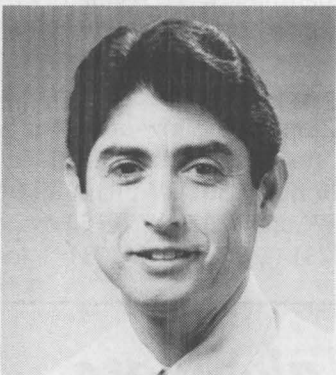
Barbara Freeman 25
8910



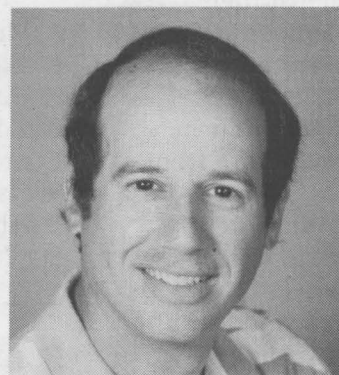
Frederick Luetters 20
5822



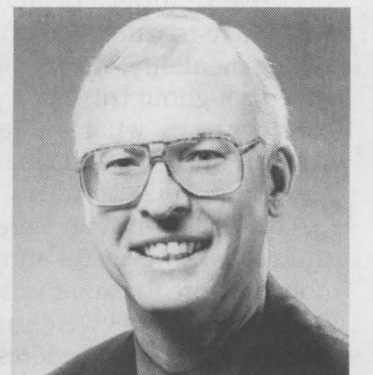
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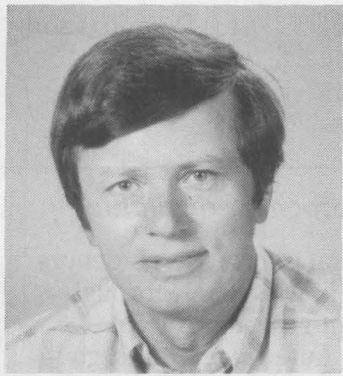
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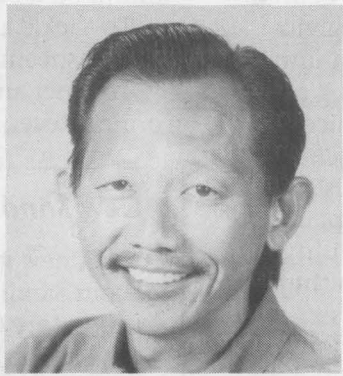
John Goldsmith 15
8351



John Cummings 20
4000



Kenneth Condrea 15
8416



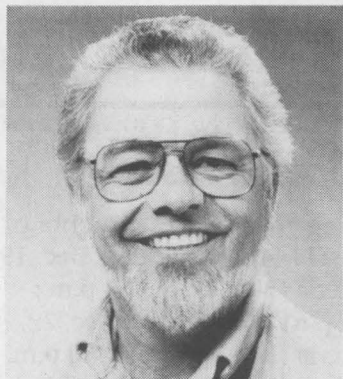
David Chin 20
2282



Eloisa Maldonado 15
4415



Sam Beard 30
9113



Philip Garcia 15
5933



Deborah Linnell 20
2265



Julie LeTourneau 15
3535

Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads Sandia Classified Ads

MISCELLANEOUS

COCKTAIL RING, round fire opal, surrounded by 10 smaller fire opals, 14K, size 5-1/2, lovely, \$350 OBO. Anderson, 296-3352.

NEW SANDIA GOLF SHIRTS, \$15; Sandia T-shirts, \$9; caps, \$8; mugs, \$8; South 14 Project. Lab News office, MO172. 844-7522, ask for Nancy.

REAR CAR SEAT, for Chev. Astro van, seats 3, gray corduroy, \$299 OBO; solid-oak bath cabinet, 48 in., \$200 OBO. Luther, 822-1187.

ARC WELDER, 110V-DC, \$40; 8086 computer/monitor, \$80. Guerin, 877-2726.

TUBE BED, w/built-in desk & shelves, black, brand new mattress, \$200. Russell, 294-0229.

QUEEN-SIZE FUTON, cost \$600, will consider any offer of \$200 or more. Christopher, 298-4826.

TWO EXERCYCLES, washer & dryer, wooden rocking chair, leather recliner, 4-drawer file cabinet. Yaniv, 294-4490.

CAMELBACK SOFA, 90 in., burgundy velour, \$275; 14-in. SVGA monitor, no documentation, \$60. Burstein, 275-3370.

HP LASERJET "CLASSIC" PRINTER, serial input port, will need toner cartridge soon, \$75. Schkade, 292-5126.

NORDICFLEX GOLD, workout machine, like new, w/all attachments & materials, paid \$1,300, asking \$600. Hauber, 898-0997.

SOLOFLEX, w/leg extension, perfect condition, \$600 OBO. Costales, 260-1407.

WOODBURNING STOVES, two, long-burn capacity, electric range, w/hood vent; 18-spd. girl's bicycle. Garcia, 343-8207.

COMPUTER, Gateway 486DX33, 8M RAM, 230M HD, MS Office w/manuals, \$1,100 OBO. Swahlan, 292-3598.

CHEST WADERS, Remington, canvas, 2 months old, size 12 boot, \$70 at Oshmans, too big for me, \$39. Green, 281-4533.

DAYBED, like new, white, mattress very good condition, bedding included, \$75 OBO. Lucy, 897-1027.

CELLO, full-size, \$700; violin, full-size, \$275 (both w/bow & case); trampolines, 14-ft. round, \$100. Sayre, 296-9341.

SMALL REFRIGERATOR, for dorm room/bar, 2.5 cu. ft., used 7 months; two 20-gal. fish tanks, complete. Doughty, 296-4142.

BEDROOM FURNITURE, dark finish, bureau has six drawers & large mirror, matching nightstand, \$50. Kelly, 293-2475.

QUARTER-HORSE MARE, 16 hands, 7 yrs. old, bay, trained but needs experienced rider, roping prospect, \$1,000. Nelson, 856-6168.

COBRA CB RADIO, Iomega parallel zip drive; Tappan 5.0-cu.-ft. freezer, Reveal internal 4XCD ROM drive. Madrid, 271-9752.

WOODEN ARMY BUNKS, pair, w/firm mattresses, virtually indestructible, \$50 OBO. Lauben, 275-7466.

QUEEN-SIZE WATERBED, bookcase headboard, 6 drawers, good condition, \$100 OBO. Girand, 256-0582.

EUREKA "ESP" VACUUM, w/attachments, \$25; Dirt Devil hand-vacuum plus attachments, \$20; VCR Plus, \$20. Prins, 867-7440.

CONSOLE TV, 25 in., Curtis Mathes, good condition, \$100 OBO. Behr, 856-6273.

PUPPY, red heeler mix, 6 months old, needs plenty of room to run, free to good home. Kovarik, 897-2188.

TABLE SAW, Sears, 10 in., \$200; Wilson stair-stepper, like new, \$150. Torrez, 897-5083.

DRILL PRESS, Cal Hock, floor mount 5/8", 1/2-hp, 5-spd., like new, \$225. Carroll, 281-2145, evenings.

CANON AE-1 CAMERA, 50mm lens, plus 70-150/4.5 zoom lens. Simon, 299-8468, evenings.

TRUNDLE BED, w/twin mattress & box spring if desired, \$50. Plimpton, 275-7456.

BABY GRAND PIANO, walnut Kawai, w/matching bench, excellent condition, \$3,500. Madrid, 281-8782.

DAYBED, oak/brass, excellent condition, 1 yr. old, not being used, \$300. Clavey, 292-7667.

SEWING MACHINES: 1475 Pfaff, w/computer capability, \$2,200; POEM embroidery machine, w/computer interface, all accessories, \$1,400 OBO. Dunham, 828-1755.

WOODBURNING STOVES, Orley back draft, w/fireplace sheet metal, Regent top draft, make offer. Bauer, 266-8480.

FREEZER, 20 cu. ft. chest model, excellent, \$200; tables, coffee & end styles, glass-top insert, \$40 ea. Holmes, 292-0898.

CHINA SET, for 8, Rosenthal Continental "Japanese Blossom" pattern, complete set w/serving pieces, gorgeous, immaculate, \$675. Wagner, 823-9323.

OAK DINING TABLE, 4 upholstered chairs, excellent condition, \$500 OBO; Perception kayak w/paddle, \$500 OBO. McMahon, 323-0771.

STORM DOOR, like new, metal, w/glass insert & hardware, (new \$106), \$55. Lujan 299-4820.

CHRISTMAS TREES, w/ornaments & lights, 10 ft, \$75; 7 and 6 ft. tall, \$60/ea. Schofield, 292-7220.

LI'L TIKES DOLLHOUSE, w/many extra accessories, like new, \$60 for everything. Surbey, 823-2843.

QUEEN SOFA SLEEPER, white, \$400; trundle bed, w/Spiegel covers, wedges, linens, \$300; both immaculate. Hampton, 293-7045.

BED FRAME, king-size, \$15. DiPrima, 275-3479.

SNOW BLOWER, 8-hp, rubber tracks, electric start, light, Sears best, like new. Greer, 299-9455.

DEMCO TOW DOLLY, spare mounted on dolly's frame, very good condition, \$750. Rael, 884-4778.

COMPUTER, 386DX, VGA monitor, 8M RAM, 120M HD, 1.44 FDD, 40M tape backup, 2400-BPS modem, printer, computer stand, \$400. Hassig, 293-5423.

REAR DISC BRAKE, \$40; O-rings kit, \$20. Mays, 844-2546.

COLOR TV'S: 19-in. Sanyo & 9-in. Sharp, \$50 ea.; surveyor's tripod, \$40; 10-ft. rod, \$60; both excellent. Abbott, 298-2039.

HEATER, kerosene, for room or workshop, \$22; whirlpool for bathtub, \$18; ski & pole combination locks, \$6. Horton, 883-7504.

VCR/STEREO/TV, 3-piece cabinet matched set, oak finish, glass doors, on rollers, excellent condition, \$400. Seyfer, 292-0179.

PORTABLE TABLE SAW, Makita, 8-1/4", \$150; Pro Air 5-hp air compressor, \$200; both excellent condition. Stewart, 281-7906.

PECAN DINING SET, formal, china cabinet, large table w/leaf, 4 side & 2 end chairs, \$2,500; matching curio cabinet, \$300. Olona, 268-3604.

NORDICTRACK PRO, w/electronics & accessories, new condition, \$500. Crego, 292-0266.

DOGHOUSE, igloo, medium-good condition. Brigham, 293-6914.

ACOUSTIC BASS AMPLIFIER 220, speaker cabinet, model 402; Rhodes Mark I electric stage piano, \$250 both. Denaple, 298-2778.

WASHER & GAS DRYER, Whirlpool, both work well, \$200 for pair. Woodstra, 266-4132.

ELECTRIC RANGE, Whirlpool, micro shelf, self-cleaning, yellow, excellent condition, very clean, \$200. Chorley, 296-1454.

AVON COLLECTIBLES, 40 different bottles, most w/cologne or shaving lotions still in bottle, \$2 ea. Daniel, 260-0461.

SONY VCR, automatic features, \$30; 5-in. B/W portable TV, built-in charger, \$20; 12-in B/W TV, \$15. Norwood, 292-0072.

AUSTRALIAN SHEPHERD PUPPIES, dual reg., champion parents, OFA, certificate, vaccinated, wormed, written guarantee. Bohannon, (510) 606-1194.

PROFESSIONAL RECORDING STUDIO, complete, w/Ensoniq TS-10 keyboard, Roland synthesizer, Tascam 8-track recorder, more, \$4,450. Rea, 296-4620.

SMALL PROPANE HEATER, for RV or camper, \$175; four 4-on-4-1/2 Tru-Spoke chrome wire wheels, 14 x 6, \$300. Lucero, 296-2473.

OAK DINETTE TABLE, w/4 upholstered chairs, \$100; 2 Lane walnut end tables, \$35 ea.; small metal office desk, \$25. Alvis, 298-3906.

MAN'S LEATHER MOTORCYCLE PANTS, Harley-Davidson, 1 pair, size 42, \$60; 1 pair, size-42 leather chaps, \$50. Oatley, 821-6801.

PRINTER, letter quality, NEC 5500, serial, guaranteed, \$25; cable, \$8. Dietzel, 294-4702.

AQUARIUM, 55 gallon, w/metal stand, gravel, lights, \$175. Leslie, 293-0339.

ELECTRIC TYPEWRITER, Smith-Corona, self-correcting, excellent shape, \$60; fancy-dressed teddy bears, \$12-\$50. Woodward, 293-4369.

ANKLE WEIGHT, holds up to 20 lbs., excellent condition, \$15. Meeks, 828-9825.

DOONEY & BOURKE HANDBAG, drawstring style, bone color, like new, paid \$180, asking \$80. Zaorski, 263-6435.

OAK TV STAND; Minolta X700 camera, w/lens; brass fireplace set; Kenmore vacuum cleaner; National Geographics, free. Lott, 281-0702.

SMALL UTILITY TRAILER, 3' x 4' x 5', enclosed, \$200; steel-frame bunk bed, \$75; rabbit cage, accessories, \$20. Schmidt, 275-7254.

BRASS HEADBOARD, new, queen, \$75; pine headboard, new, queen, \$50; large pet carrier, \$40. Sanchez, 898-9598.

DEADLINE: Friday noon before week of publication unless changed by holiday. MAIL to Dept. 12622, MS 0413, or FAX to 844-0645. You may also send ads by e-mail to Nancy Campanozzi (nrcampa@sandia.gov). Questions? Call Nancy on 844-7522.

Due to space constraints, ads will be printed on a first-come, first-served basis.

Ad Rules

- Limit 18 words, including last name and home phone (We will edit longer ads).
- Include organization and full name with the ad submission.
- No phone-ins.
- Use 8 1/2-by 11-inch paper.
- Type or print ad; use accepted abbreviations.
- One ad per issue.
- We will not run the same ad more than twice.
- No "for rent" ads except for employees on temporary assignment.
- No commercial ads.
- For active and retired Sandians and DOE employees.

ORLEY'S CUSTOM WOODSTOVE, like new, \$350; 4 radials, 195/60/R14, w/rims, good tread, \$300. Glover, 898-4305.

HEATING MATERIAL, 8" x 8" x 8", T's & Y's; 5" x 5" double-wall flue pipe; 6" x 20' insulated flex duct, other pieces, \$39.95/all. Pennington, 265-3419.

FERTILIZER SPREADER, drop-style, \$15. Smith, 299-6873.

ONEIDA MICHELANGELO STAINLESS, 65 pieces, never used, for your holiday table, (Broadway's price \$800 plus tax), \$550. Pitts, 293-5481.

CPU CHIP, 486DX4-100, \$80; mini-tower case, w/220-watt supply, \$40; 84M IDE disk, \$60; 20-in. girl's bicycle, \$30. Lanes, 856-6237.

The next Lab News will be published Dec. 15. Deadline for ads is noon, Thursday, Dec. 7.

RING, wedding set, gold w/1/3-carat diamond, size 4-1/2, beautiful, \$1,000 new, asking \$550. Schriener, 866-1612, evenings.

COMPUTER EQUIPMENT: 486DX2-66 VLMB, w/CPU, \$100; (4) 4MB RAM, \$85, \$85/ea.; CD-ROM, \$35; hard disks, more. Ennis, 836-0504.

PARROT, young, Double Yellowhead, talks, very friendly, must see, \$700 OBO. Babcock, 299-3121, leave message and phone number.

CUISINART DISC SET, (9 discs), for DLC-7 food processor, \$40; Juiceman Jr. juicer, \$35, all like new. Slutts, 255-3693.

MINK JACKET, medium-size, great condition, \$350. Maestas, 299-6514.

TRAILERS, car-hauler and homemade, \$300/ea.; microwave, \$40; console TV, \$100; gas heater, \$45. Trollinger, 268-3414.

LEAF BLOWER & VACUUM, Craftsman, 1-hp, hardly used, great condition, \$21. Ludwig, 856-5111.

BABY ITEMS SALE, 7412 Arroyo Del Oso NE, east off Louisiana, south of Osuna, Dec. 2, noon-4 p.m. Rightley, 293-9780.

VITA-MIX SUPER TOTAL NUTRITION CENTER, good condition, all parts working, w/recipe books & accessories. Holmes, 299-4141.

NORDICFLEX GOLD, w/all attachments, electronic display, oak bench, excellent condition, \$450 OBO. Klamerus, 294-3398.

TRANSPORTATION

'88 JEEP CHEROKEE, fully loaded Laredo, 4L, 4x4, 135K miles, PD/PL, Viper alarm, excellent condition, \$8,000. Matz, 296-0209.

'79 VW SUPER BEETLE, convertible, very clean, excellent condition, new tires & brakes, collector car. Matier, 821-0596.

'87 TOYOTA COROLLA GTS, sport coupe, 5-spd., 87K miles, excellent condition, \$3,400. Pettit, 899-1150.

'85 CUTLASS CIERA LS, needs engine work, \$1,000 or trade for trailer. Bukaty, 345-4691.

'84 MAZDA B-2000 PICKUP, white, \$3,000 OBO. Eberhardy, 265-0808.

'73 CHEV. C20 PICKUP, 3/4-ton, 350, PS, AT, 2WD, runs/drives great, looks bad, work truck, \$1,500. Larson, 281-6979.

'94 GRAND CARAVAN, 3.3L engine LE, towing & sport packages, ABS, dual-air bags, 32K miles, emerald, \$17,000. Hesch, 473-7799.

'95 NISSAN, 4x4, white, tinted windows, alarm, standard 5-spd., \$15,000 OBO. Delgado, 345-7715, ask for Marie.

'93 CHEV. SUBURBAN 350, 4x4, new tires, must sell, \$21,000. Scouten, 299-0413.

'90 FORD T-BIRD, AT, PS, AC, coupe 2D, good condition, \$4,300. Kudo, 296-7206.

'82 MAZDA GLC, hatchback, AT, AC, tan, runs great, reliable, only 87K miles, \$1,050. Haschke, 299-0348.

'95 DODGE STRATUS, 5-spd., PW, PL, cruise, AC, AM/FM cassette, 24-hr. roadside assistance, 3-yr./36-mo. warranty, \$16,400. Hayward, 292-6284.

'89 NISSAN 240 SX, excellent condition, 5-spd., red. Nienow, 856-6096.

'85 FORD MUSTANG LX, original owner, excellent condition, new tires, new paint, AC, automatic door locks, tinted glass, \$5,000. Rivera, 293-1880.

'87 TOYOTA COROLLA GTS, sport coupe, 5-spd., 87K miles, excellent condition, \$3,400. Pettit, 899-1150.

'94 NISSAN SENTRA LE, 27K miles, full power, AC, AM/FM cassette, \$12,700. Roman, 256-4859.

'89 PLYMOUTH GRAND VOYAGER SE, V6, AC, PB, PS, AM/FM cassette, excellent condition, \$5,500. Shaw, 856-1141.

'91 SUZUKI SIDEKICK CONV., 5-spd., 4WD, AC, stereo, new top, 68K miles, many extras, \$7,500. Wickham, 898-7601.

'90 SUBURU LEGACY WAGON, 4WD, white, 5-spd. std., 67K miles, electric sunroof/windows, \$8,000. Semonisck, 883-4212.

'91 FORD CONVERSION VAN, loaded, excellent condition, V8-302, dual AC, \$11,900 or trade. Beazley, 837-4749.

'81 VOLVO WAGON, needs clutch, will consider part out, \$500/all OBO. Craft, 275-0821.

'88 DODGE CARAVAN SE, room for wife, kids & the airdale, one owner, all records, clean, \$4,500. Bridgers, 296-4218.

'60 DODGE PICKUP, good winter project, short wheel base, old body style, 318 AT, runs well but smokes, updated electrical system, \$1,500. Pantuso, 865-1597.

'84 VOLVO ("HERSHEY"), 146K miles, 13 modifications to improve performance, durability, reliability, safety, comfort & economy, \$3,500. Baugher, 265-8306.

'79 CHEV. MALIBU CLASSIC, 4-dr., V8, AT, 90K miles, excellent condition, \$900. Cannon, 299-4111.

'87 CADILLAC BROUGHAM, 75K miles, all options, great condition/performance, beautiful, comfortable & reliable, \$5,000. Graham, 296-0462.

'89 PLYMOUTH ACCLAIM, 5-spd., AM/FM cassette, AC, cruise, 43K miles, good condition, \$3,300. Higgins, 299-3669.

'74 CHEV. NOVA, V8 (350), AT, AC, 117K miles, good dependable, needs some work, \$800. Gardner, 822-0067.

'92 CHEV. CAMARO RS, red, V8, AT, 50K miles, AC, alarm, Bose stereo/cassette, excellent condition, \$10,900. Trujillo, 281-0568.

'93 DODGE CARAVAN, 26K miles, excellent, new safety latch installed, \$11,900. Thomas, 822-1923.

'57 THUNDERBIRD, red/red/white, both tops, rebuilt 312, AT, PB, PS, T&C radio, excellent condition, \$29,500. Lachenmeyer, 268-7818.

'74 PONTIAC TRANS AM, 4-spd., built 400, AM/FM cassette, sunroof, good condition (must see), \$5,000. Adams, 299-6943.

'89 ACURA LEGEND, 4-dr., V6, 5-sp., PW, PL, PB, AC, power sunroof, AM/FM cassette, new tires/brakes/battery, 85K miles, \$11,000 OBO. Golden, 291-1112.

'69 CLASSIC MERCEDES COUPE 280 SE, 80KM, second owner, gas engine, sunroof, AT, runs like a charm. Garcia, 266-6596.

'86 FORD BRONCO XLT, SL HO, AT, loaded, 142K miles, well maintained, brown/tan, \$5,900 OBO. Brusseau, 286-1580.

RECREATIONAL

'79 MOTORHOME, low mileage, good tires, AT, AC, lots of storage, full bath, sleeps 6, \$8,000. Sifford, 869-3982.

GOLF CLUBS, man's Macgregor Nicklaus Tour Classic, 3-W, 1, 3, 5 woods, \$230; woman's petite basic set, \$85, both good condition. Templin, 884-4293.

'90 HARLEY DAVIDSON 1200 SPORTSTER, 9,800 miles, candy apple red, backrest, saddlebags, windshield, \$7,500. Carr, 897-1749.

RV MOTORHOME, 23 ft., Dodge 440, awning, 4KW generator, AC, dinette & couch, \$7,995 OBO. Deller, 298-5705.

TWO LOBO BASKETBALL SEASON TICKETS, excellent seats, chairbacks, w/parking pass, \$579. Romero, 821-3113.

BICYCLES: woman's 5-spd. Schwinn, 26 in., \$40; woman's 10-spd. Schwinn, 27 in., \$50; VCR, RCA, needs adjustment, \$10. Abel, 296-6089.

'75 TRAVEL TRAILER, Airstream, fully self-contained 25-ft. Land Yacht, clean, extras, \$6,000. Glenn, 293-3059.

SKI BOOTS, Nordica, 3-buckle, size 9, latest DIN safety standard, \$10. Kerschen, 821-2848.

MAN'S SKI BOOTS, Salomon/SX42, size 11; woman's Tecnica/T450, size 6-1/2, almost new condition, \$50 ea. Duniyan, 296-3937.

'93 MOTORHOME, Dutchman Class A, 32 ft., 454 Chev. chassis, 8K miles, excellent condition. Drebing, 293-3335.

SKIS & POLES, \$150, Elan 175's, white/teal w/bindings, Scott, black/teal poles; woman's ski boots, Nordica, white, size 6-1/2, \$60. Conaway, 296-6210.

MOUNTAIN BIKE, Bridgestone MB-3, Marzocchi XC-500 shocks, Nuke-proof carbon fiber hubs, excellent shape, \$750 OBO. Higgs, 268-9709.

TIMESHARE, 2-bedroom condo, anywhere in the world, including Hawaii, 1 or 2 wks, \$560/week. Givens, 292-2058.

TIMESHARE, southern Colorado, "double share," white week, accommodates 8, skiing, golfing, fishing, hunting, deeded property, all amenity resort, \$6,995. Cocain, (505) 281-2282.

REAL ESTATE

3-BDR. TOWNHOUSE, in Tanoan, 2-story, 2-3/4 baths, 2-car garage, FDR, 9 yrs. old, \$168,500. Jackson, 821-5315.

2-BDR. MOBILE HOME, '82 Breck, 14 x 56, 1 bath, AC, skirted, in park close to base. Ortega, 293-5662, leave message.

3-BDR. MOBILE HOME, '86 Redman, 2 baths, 16 x 20, needs minor repairs, buyer must transport, \$10,000. Olivas, 387-2918.

4-BDR. HOME, beautiful Bosque Farms, oversize 2-car garage, great family area, 1/2 AC, horse facilities, \$109,900. Pate, 869-5618.

3-4 BDR. HOME, 2 baths, 2-car garage, remodeled, 2,580 sq. ft., open house Saturday, 10 a.m.-4 p.m. & Sunday, 2-5 p.m., 1605 Georgia NE. Boverie, 255-1071.

20.5 ACRES, east of Sandia mountains, heavily wooded, w/beautiful vistas all directions, excellent for spec home. Farmer, 284-2552, ask for Lon.

3-BDR. HOME, 2-1/2 baths, 2-story, 1,760 sq. ft., 8 months new, premium corner lot, numerous upgrades, great views, \$127,700. Williams, 833-0517.

3-BDR. MOBILE HOME, 16 x 60, 2 baths, excellent condition, new appliances, \$16,000. Phil, 281-5555.

2-BDR. STARTER HOME, Northeast heights, freshly remodeled, 1-car garage, large fenced yard, \$74,900. Burns, 281-2793.

WANTED

GOOD HOME for three mixed-breed dogs, baby has allergies. Fitzpatrick, 275-3422.

SCUBA EQUIPMENT, BCD, regulator, wet suits, other equipment. Gonzales, 294-2425.

BATHROOM SINK, 19-in. cast iron or ceramic, white. Lucero, 296-2473.

STOVEPIPE HEAT RECLAIMER, for 6-in. pipe, "Magic Heat," may consider one that uses 8-in. pipe. Zirzow, 281-9896.

SHELVES & SHELF SUPPORTS, for Berger cabinets, have extra drawers & corner uprights, for trade. Brown, 884-8581.

ENGINE OR ENTIRE CAR, 390 or 401 American Motors. Prevender, 296-8586.

RADIAL ARM SAW, Craftsman, good condition. Raymond, 281-8559, after 7 p.m.

RETIRES to start poker club and/or investment club, not necessarily intermingled. Barnaby, 255-5624.

LOST & FOUND

LOST: Black leather glove, east of cafeteria parking lot, on November 8, reward. Bemis, 828-0922 or 845-8754.

FOUND: Seiko watch, woman's, in parking lot west of electrical substation on "F" street, on Nov. 15. Baltz, 845-8584, ask for Alice.

Sandia News Briefs

Nondestructive technique okayed for DC-9 inspections

A new technique developed by Sandia's Airworthiness Assurance Nondestructive Inspection Validation Center dramatically improves the efficiency and effectiveness of a safety inspection for DC-9 aircraft. The technique, which uses ultrasound imaging, enables inspectors to complete an inspection of the plane's wing attachment area in about 48 hours, compared to 800 hours under old procedures that required substantial disassembly. In the process, sound waves projected through the plane's skin are reflected back in distinctive patterns that reveal whether corrosion is occurring inside the structure. The technique could result in a savings to airlines of about \$9,000 per aircraft; the procedure also reduces an aircraft's downtime, which amounts to a savings of about \$20,000 per day. The technique, recently approved for use on DC-9s by the Federal Aviation Administration, was developed by a team headed by contractor Mike Ashbaugh.

Dick Schwoebel joins team to study FBI lab

Recently retired Sandian Richard Schwoebel has been selected to serve on an expert panel established by the Justice Department to investigate an FBI chemist's allegations of a prosecutorial bias at the FBI crime lab. Dick is part of a five-member team that represents, in the Justice Dept. Inspector General's description, "a variety of forensic science disciplines and an extraordinary wealth of experience." Dick, most recently Director of Surety Assessment Center 12300, retired in October after 33 years at Sandia. He was responsible for nuclear weapons safety and reliability and led the Sandia scientific team that conducted an independent assessment of the April 1989 explosion aboard the USS *Iowa*.

Rohwein wins 'high voltage' award

Gerald Rohwein of High Powered Electromagnetics Dept. 9323 was presented with the 1995 High Voltage Award by the National Advisory Group on Electron Devices at the High Voltage Workshop at the University of Utah. The award is for "continuing contributions to high voltage power electronics technology and for pioneering efforts and dedication in communicating that technology to the high voltage community." Gerry is the developer of the "Rohwein transformer," the most advanced lightweight, multi-megavolt pulse transformer available. He is respected among his peers for his leading-edge research in dielectrics under pulsed stress spark gap switching and for his use of semiconductor switching in pulsed power applications.

Sandians recognized for 'outstanding paper'

Dan Fleetwood (1332), Bill Warren (1845), Jim Schwank (1332), Peter Winokur (1332), Marty Shaneyfelt (1332), and Leonard Riewe (L&M) were selected as recipients of the Outstanding Paper Award at the 1995 IEEE Nuclear and Space Radiation Effects Conference. Their paper, "Effects of Interface Traps and Border Traps on MOS Postirradiation Annealing Response," describes the importance of a newly defined sub-class of defects, "border traps," to the radiation response and long-term reliability of commercial off-the-shelf metal oxide semiconductor (MOS) electronics. Border traps lie within the MOS gate insulator but are close enough to the underlying silicon conduction channel that they can switch charge states during device operation as do interface traps. Controlling the density of these defects will be important to developing more radiation-tolerant MOS and bipolar technologies. This is the fifth time since 1984 that Sandia researchers have received this award.

Send potential Sandia News Briefs to Lab News, Dept. 12622, MS 0413, fax 844-0645.

Coronado Club

Dec. 1 — Friday night dinner/dance. \$7.95 all-you-can-eat buffet, 6-9 p.m. Music by Isleta Poorboys, 7-11 p.m.

Dec. 1 — New Year's Eve party tickets on sale; \$25 per couple/\$30 per guest couple. Tickets must be purchased by Dec. 18.

Dec. 3 — Sunday brunch buffet, 10 a.m.-2 p.m. \$7.95 adult members, \$8.95 guests, \$2.95 for children 4 to 12, free for children 3 and under. Music for buffet by Bob Weiler, 1-4 p.m.

Dec. 7, 14, 21 — Thursday bingo nights. Card sales and buffet start at 5 p.m., early birds' bingo at 6:45 p.m.

Dec. 8 — Friday night dinner/dance. \$7.95 all-you-can-eat buffet, 6-9 p.m. Music by the variety band "Together," 7-11 p.m.

Dec. 9 — Kids' Breakfast with Santa, 9 a.m.-1 p.m. Santa visits with kids, 9 a.m.-1 p.m.; cartoons and breakfast, 9 a.m.-noon; floor show, 10 a.m.-11 a.m.; members free with a donated can of food for the needy; guests, \$1.50

Dec. 15 — Cantina opens at 4 p.m.

Dec. 17 — Sunday brunch buffet, 10 a.m.-2 p.m. \$7.95 adult members, \$8.95 guests, \$2.95 for children 4 to 12, free for children 3 and under. Music for buffet by Bob Weiler, 1-4 p.m.

Dec. 22 — Friday night dinner/dance. \$7.95 all-you-can-eat buffet, 6-9 p.m. Music by Isleta Poorboys, 7-11 p.m.

Dec. 23-Jan 2 — Club closed.

Dec. 31 — New Year's Eve party; dinner 7-10 p.m.; music by the variety band "Together," 9 p.m.-1 a.m. Tickets on sale Dec. 1; must be purchased by Dec. 18.

Welcome

Virginia — William Norris (12301)

Michigan — Richard Harris (4422)

Sandia Quilters patch masterpiece for member with cancer

Raffle to benefit People Living Through Cancer

When one of their own was diagnosed with cancer, members of the Sandia Quilters knew what they had to do.

They put their heads and nimble fingers together and pieced a masterpiece: a colorful, hand-stitched quilt that's more art than bed covering. They dubbed it "Roberta's Friendship Quilt" after member Roberta Chinn of Financial Systems Dept. 4815. (Roberta was diagnosed with lung cancer in January.)

In quilt parlance, a "friendship quilt" is a blanket crafted from blocks, or squares of material, collected from relatives, neighbors, or friends. Traditionally the contributors gather, lay out the blocks, arrange them, and sew them together.

For Roberta's quilt, each member contributed several blocks. Then the group met periodically to sew the diversely colored and patterned panels together.

"We asked people to bring blocks with white or cream backgrounds," says Cindy Gregory (3526). "It was amazing how all the colors came together."

When top and bottom sections were complete, the group "sandwiched" them with batting in between. Roberta did most of the quilt-

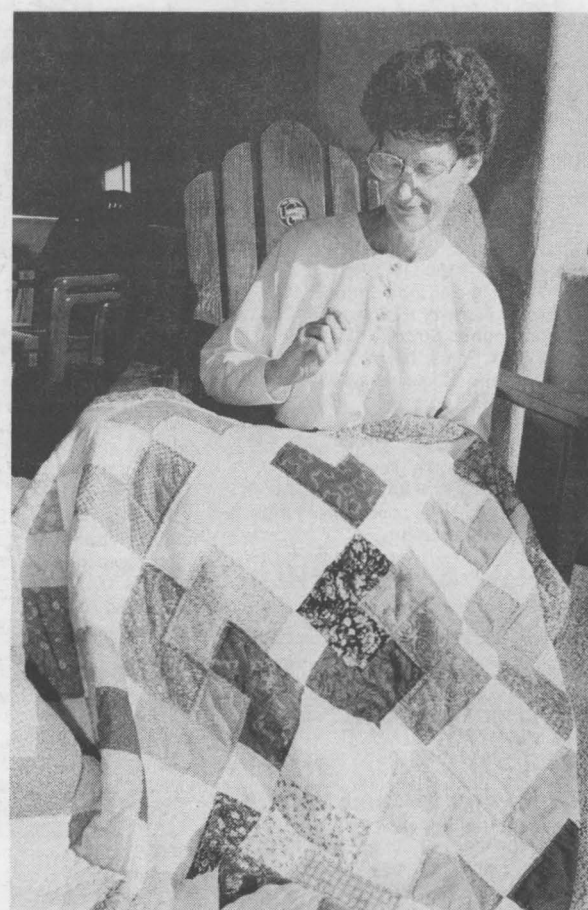
ing (hand stitching) work, with the assistance of Jane Elson (1). The resulting arrangement is called a "card trick" pattern because it gives the illusion of overlapping cards, says Cindy.

Sandia Quilters members are raffling the quilt. Each ticket costs \$1. Their goal is to raise as much money as possible before the raffle date, Dec. 20. All proceeds will be donated to People Living Through Cancer, a New Mexico support group founded by cancer survivors that counsels cancer patients and their relatives, friends, and co-workers. Member Jennie Negin (4403) became involved with Living Through Cancer in 1992 when one of her employees in the Technical Library was diagnosed with cancer.

Already the Quilters have raised more than \$1,500 through raffle sales, says Cindy.

Other members who contributed include: Pam Stringfellow (4814), Brenda Zepper (4815), Dawn Abbott (7713), Julia Norwood (7435), Mary Compton (4415), Suzette Beck (10203), Tammy Strickland (4812), Connie Blanton, and Ruth Porter (non-Sandians).

The Sandia Quilters meet once a month at a member's home. For more information, contact Cindy at 275-3855. — John German



FRIENDSHIP QUILT — Roberta Chinn (4815) puts finishing touches on a quilt created by members of the Sandia Quilters. The group is now raffling the quilt, with proceeds going to People Living Through Cancer.