

RETRVIR breaks ground on new robotics headquarters

Facility includes labs, test track, tour route

By John German

Lab News Staff

Right on cue, the Remote Telerobotic Vehicle for Intelligent Remediation (RETRVIR) puttered gallantly across the dusty field,

paused like a golfer pondering a difficult putt, and plunged a specially designed grabber tool into the soft earth.

Twenty feet away, an audience of more than 300 Sandians and visitors watched in silent anticipation from the shade of a giant tent. A cool breeze ruffled the tent flaps.



STAR OF THE SHOW — The Remote Telerobotic Vehicle for Intelligent Remediation, or RETRVIR, locates and excavates a buried sign bearing the letters "ISRC" (for Intelligent Systems and Robotics Center 2100) during a recent ground-breaking ceremony for Sandia's new Robotic Manufacturing Science and Engineering Laboratory. (Photo by Randy Montoya)

This was no ordinary ground-breaking ceremony.

Then Sandia's most renowned robot pulled a small sign bearing the letters "ISRC" from the dust and planted it in the ground. Its hydraulic arm rotated, stored the grabber tool in a side-mounted "tool belt," unsheathed a specially designed shovel, and began digging.

At last the Robotic Manufacturing Science and Engineering Laboratory (RMSEL) — new headquarters for Sandia's Intelligent Systems and Robotics Center 2100 (ISRC) — was to be a reality. The new facility will soon provide a home for what 2100 Director Pat Eicker believes is "the highest quality, largest robotics program in the US."

"RMSEL will be both functional and distinctive," says Pat. "I believe it will be one of Sandia's technical landmarks well into the future."

Outdoor robotics test track

The planned two-story, 70,000-square-foot building just east of Tech Area 1 will house about 150 people and include 36 individual laboratories, an auditorium, conference rooms, a tour route that will allow visitors to view robotics work through glass windows, and an outdoor robotics test track.

Staffers at the new facility will develop robotic and automation technologies critical to two primary future missions of DOE — hazardous waste cleanup and nuclear weapons disassembly — as well as perform R&D of sensors, virtual reality, autonomous vehicles, automation, teleoperation, graphical programming, control technologies, surface mapping,

(Continued on page 5)

Sandia National Laboratories **Sandia** LabNews

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Sandia's Bldg. 800 main entry about to get a major facelift

Design intended to soften visitors' first impressions

A renovation project just getting under way will present a new face for Sandia, at least to those entering through the "front door" in Bldg. 800, using many of that building's offices, or walking through some first-floor lobbies and corridors of Bldgs. 800-801-802.

Specifically, says Project Manager Cynthia Figueroa-McInteer of Corporate Construction Program Office Dept. 7903, the project involves remodeling the Bldg. 800 outside entrance area, lobby, Badge Office, and restrooms; and the corridor that runs through Bldgs. 800-801-802 to the first-floor lobby area of Bldg. 802.

"Several possibilities were planned, examined, and discussed as we first began considering options for the renovation," says Cynthia. "We wanted to retain as much of the architectural flavor of the existing building as we could, such as the angled column detail that exists at the main entry. And, we opted for terrazzo tile for the inside floors, because the original floors were terrazzo [concrete with colored stones, which is ground to a level, polished finish after being poured]."

DOE approved the final plan and authorized (Continued on page 6)

Sandia again takes top honors, with seven R&D 100 awards

For the second year in a row, Sandia is the big winner in the R&D 100 competition, taking seven awards to lead all organizations entering the prestigious contest. Last year Sandia took five awards, then also the most of any organization.

The competition, sponsored by R&D magazine, recognizes the 100 most technologically significant new products of the year. The awards have been called "the Oscars of invention" by the *Chicago Tribune* and the "Nobel Prize of applied research" by others. Since it began to compete in the competition in the late 1970s, Sandia has won a total of 34 of these awards.

Sandia's winning projects in this year's competition are the Interfacial Force Microscope, the SANDROS computer code, a parallel dense equation solver, the red vertical cavity surface emitting laser, the SHIELD™ test chip, a high-performance silicon photovoltaic cell, and the SEAMIST™ instrumented well monitor.

The winners will be recognized at the annual R&D 100 Awards banquet Sept. 22 at the Museum of Science and Industry in Chicago.

"Nowadays, to win an R&D 100 award is a (Continued on page 4)

The awards have been called "the Oscars of invention" and the "Nobel Prize of applied research."

Fireballs from comet collision confirm Sandia predictions

7

Flash flood modeling project wins student intern top honors

8



This & That

Tops in the "Oscars of invention" - If you're not impressed by this, you're hard to impress. For the second year in a row, Sandia leads the nation in the number of R&D 100 awards received. Seven Sandia projects won these prestigious awards this year, which are presented by R&D magazine to recognize the 100 most technologically significant new products of the year. Last year the Labs topped the nation with five R&D 100 awards. A hearty *Lab News* congratulations to all the winners! Read all about 'em starting on page one.

* * *

An omen? - As I was returning from a trip via airplane last week, I was preparing to work up a draft Sandia President's Quality Award application for the *Lab News* team, but didn't have a pen. I asked the flight attendant if I could borrow one from her. She was kind enough to give me one, but I was taken aback when she handed it to me. The pen had the slogan, "QuAAality - from the ground up" printed on it (double cap A's an abbreviation of the airline name). I'd call that a quality coincidence.

* * *

A true item - I joked recently that it doesn't take me long to write the true items for this column, but here's one. This sounds a little insulting at first, but I'm not so sure it's all that bad. This passage is from page 101 of a new semitechnical book titled, *The Next Great Thing - The Sun, The Stirling Engine, and The Drive to Change the World*, by Mark Shelton. He's talking about someone (not a Sandian) who's reputed to be a bit sloppy in his research: "That William is 'sloppy' by the standards of, say, the Sandia National Laboratory [sic] (an organization so obsessed with detail and documentation that it gives new meaning to the term 'anal-retentive') is not in dispute. . ."

* * *

Too many by any name - I've been pretty vocal over the years about my dislike for all the acronyms that Sandians throw around, assuming that everyone knows the meaning of every acronym they know. (Random thought: Can you be "pretty vocal" in print?) Several years ago, I founded SODA, the Society to Outlaw Dumb Acronyms and coined a word for people who overuse acronyms - "acronymcompoops."

I may have been a bit too broad, though, in my definition of an acronym. Ed James (5102) called recently to remind me that an acronym is a combination of letters that can be pronounced as a word and that substitutes for more words (for example, scuba for self-contained underwater breathing apparatus). An *unpronounceable* combination of letters, according to one written source I found, is called an initialism (for example, SNL for Sandia National Laboratories). But *Websters New Collegiate Dictionary* defines an initialism as an acronym formed from initial letters. It would be nice if the experts agreed.

* * *

Call waiting and waiting and . . . - The irony didn't escape former *Lab News* managing editor Charles Shirley (12610) when he called the local phone company's repair service recently and, after holding for nine minutes, noticed that the background music was "All you have to do is call, and I'll be there." Seems to me they should have been playing "As time goes by."
- Larry Perrine

Norm Augustine talks of challenges and good corporate citizenship

Martin Marietta Chief Executive Officer Norm Augustine delivered a brief but strong message when he spoke at the annual meeting of the Greater Albuquerque Chamber of Commerce earlier this month.

Among his points to local business leaders: "Martin Marietta is enormously proud to be a corporate citizen of your community. We believe in supporting the communities where we live, and we'll try very hard to be a good citizen. We realize that we're entrusted with one of America's greatest national assets; that, of course, is the Sandia Corporation, a collection of some of the most talented and dedicated individuals you'll ever hope to meet."

Augustine said Sandia is a key member of the Martin Marietta family as well as a key member of the Albuquerque community and added that it's facing many new challenges. "Its major mission for nearly half a century has been to provide for the national security, in particular nuclear deterrence. Today, they still have an important role in that mission. But they also have other roles - the provision of clean, safe energy for the future; and particularly for helping businesses in America compete in the world market by providing technology that those businesses can build on."

An incubator of new jobs

He mentioned the Technology Ventures Corporation (TVC), established in New Mexico by Martin Marietta, noting that it will be a place where venture capitalists will meet with high technology innovators. TVC's building is now under construction at University and Stadium boulevards. He says the TVC should prove to be as effective an "incubator" as the one Martin Marietta founded in Oak Ridge, which has created many new companies and new jobs.

Augustine noted that recent changes - the collapse of the Berlin Wall, the Warsaw Pact, and the Soviet Union - may well have made the world a little safer, "but in some sense it may have made the world safer for small wars. And today as you look around the world and see what's happening in Bosnia, Somalia, Haiti, North Korea, Iraq, and Iran, and so on - there are 27 wars going on as we sit here right now - this is still a dangerous world."

In the economic sphere, the US has gone from creditor nation to debtor nation, has suffered severe defense cutbacks, and has lost industries to other countries. In fact, he noted, "The US has more government employees than it has employees in the manufacturing sector."

Still the most productive economy

The good news? "America is still the strongest economy, the most stable economy, the most productive," Augustine said.

"It won't be long until college degrees have to have an expiration date, because the half-life of knowledge is so short. And yet, in spite of that, today we have about 19 percent fewer engineering graduates each year than we had 10 years ago. And most surveys of students predict a further decline.

"If we're to be world-class as businesses in this world, we've got to find a way to have government, the private sector, and academia pull together. Any two of those three, I think, won't make it in the tough world market we're in. And Martin Marietta is absolutely dedicated to working with you as part of your community. We're very proud to be citizens of your community." - Bruce Hawkinson (12662)

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MARTIN MARIETTA

★ Congratulations

To Susan (6514) and Roy (1832) Bourcier, a daughter, Gabrielle Morgan, May 30.

To Jennifer and Brad (5371) Mickelsen, a daughter, Sarah Jennifer, June 23.

To Heather (12323) and Steven (2343) Allen, a son, Joseph Fay, June 24.

To Lori and Greg Sjaardema (1562), a daughter, Stephanie Ann, June 26.

☀ Recent Patents

Teddy Blacker (1425): Automated Quadrilateral Surface Discretization Method and Apparatus Usable to Generate Mesh in a Finite Element Analysis System.

Thomas Brennan, Burrell Hammons (both 1311), and Ian Fritz (1312): Strained Layer Fabry-Perot Device.

John Hohimer (1312/11500): Semiconductor Diode Laser Having an Intracavity Spatial Phase Controller for Beam Control and Switching.

Douglas Loy (1812) and Kenneth Shea: Molecular Engineering of Porous Silica Using Aryl Templates.



Joint effort to focus technology on 'farm to fork'

Agriculture program really is 'swords to plowshares'

By Mike Sheehan

Lab News Correspondent

With Cold War tensions subsided, DOE is undertaking an ambitious new program designed to benefit American farmers and consumers alike: turning swords into plowshares.

Working jointly with the US Department of Agriculture (USDA) and the Environmental Protection Agency (EPA), researchers at Sandia and other labs hope to apply technologies — many originally developed for defense purposes — to boost food and fiber production, while also enhancing the safety and quality of agricultural products.

"A few labs are currently involved in projects that support agribusiness, but we hope to expand those efforts by developing a program that takes advantage of the expertise and technology available throughout the entire DOE complex," says Sheridan Johnston, Manager of Industrial Technology Initiatives Dept. 8103. "By combining the various labs' resources to work cooperatively on key agricultural issues with USDA, EPA, universities, and industry, DOE can help accomplish important economic, energy, and environmental goals for the nation."

A three-step process

Sheridan hosted an agricultural committee meeting at Sandia/California in February to discuss ideas for facilitating the proposed joint venture. Committee members who took part include Bill Peila of Engineering for Transportation & Environment Dept. 8411, Darryl Drayer of Facilities Engineering Dept. 7906, Kathleen Manicke of Technology Transfer Program Support Dept. 4202 (both from Sandia/New Mexico), Marv Clement from Pacific Northwest Laboratory, Amy Parent and Jack Quint from AlliedSignal Aerospace Company, and Paul Reep from the Idaho National Engineering Laboratory.

Sheridan notes that three major steps will be involved in planning the joint venture. Last December, DOE took the first step by inviting

all interested labs and facilities to a meeting in Kansas City, where they shared information about agricultural projects and capabilities and formed an action plan. The second step happened in April when about 150 DOE and USDA employees met in Beltsville, Md., to identify technical areas and mechanisms for working together. A third meeting scheduled for early 1995 will bring together all parties — including academia, the EPA, and agribusiness partners — to discuss goals and projects. Sandia/California and the USDA's Western Regional Research Center in Albany, Calif., will host this meeting, which is expected to have 500 participants.

"A Memorandum of Understanding will soon be signed between the USDA and DOE that will support a new agriculture initiative," says Paul Reep. "This agreement provides an opportunity to apply technology developed by DOE facilities during the past 40 years to the agricultural sector. As a result, we can take some of the past investment made by American taxpayers and provide benefits in an area that touches the lives of everyone around the globe: food and fiber."

Technology tracks insects, saves crops

According to Jack Quint, the USDA has already approached AlliedSignal with plans to develop a tiny transponder that can be attached to crop-destroying moths, allowing scientists to track their migration habits.

"Rather than waiting for the pests to get into a crop and then using chemicals to kill them, we can apply technology that will enable us to study their behavior and learn to control infestations with methods less hostile to the environment," he says. "Using satellite remote sensing technology, scientists can also track range weeds and other insect infestations that affect crop yields. The information can be integrated into prescription farming activities and help the agriculture industry make better management decisions."

Some labs have also implemented projects with local government agencies and industry. Marv Clement



SWORDS TO PLOWSHARES — Kathleen Manicke (4202), Jack Quint from AlliedSignal/Kansas City, Sheridan Johnston (8103), and Paul Reep from Idaho National Engineering Laboratory (left to right) discuss agricultural possibilities during their meeting at Sandia/California.

Sandia California News

points out that Pacific Northwest Laboratory is working with the Washington State Department of Fisheries to raise salmon in huge holding ponds formerly used as pre-treatment facilities for reactor water.

"Dams, drift net fishing, and other practices have reduced fish populations to the point where some salmon are being considered as an endangered species in the Columbia River," he explains. "By using idle, uncontaminated facilities that were upstream of the reactors, we created a fish nursery that will supply salmon to the river."

In addition, maintaining a fish industry can reduce dependence on offshore production and help accommodate rising demand, Clement says. The US currently imports 50 percent of its fish supply. With the market expected to grow rapidly during the next 10 years, applying technology to increase domestic production should prove highly beneficial.

"Advances in biotechnology, genetic engineering, and other sciences may provide some important answers," Clement says. "The biggest challenge is to identify needed changes and get people to accept alternative solutions. Today we have technology going unused that could prevent serious problems in the future."

Population threatens food supply

Paul Reep emphasizes that as the world's population increases and arable land decreases during the next several decades, the US must lead the way in finding more efficient ways to grow food and fiber.

"After nearly four decades of expansion in both land-based and aquatic food supplies, the world is experiencing a massive loss of momentum in protein production per capita," Paul says. "And in the US, unless some way can be found to reestablish the rapid rise in yields that prevailed from 1950 to 1984, the exportable grain surplus may well continue to fall."

Protecting the environment and water resources through more advanced farming methods is another goal of the joint venture.

"Agribusiness is the largest industry in the US, so helping it operate more efficiently by reducing energy consumption, environmental impact, and the time from field to market while increasing shelf life is vital to our economy," Sheridan says. "Technology will greatly alter the way agriculture is performed in the next century."



DOE ASSISTANT SECRETARY for Environment, Safety & Health Tara O'Toole (left) visited Sandia/California recently for a briefing and tour of the site. She was accompanied by Mark Williams, acting deputy director for nuclear safety. With her in the photo are George Laskar (center), assistant area manager for ES&H for the DOE Kirtland Area Office, and Toff Garcia of Health Protection Dept. 8641, who was conducting a tour of the Tritium Research Laboratory and explaining how it is being phased out. Following the visit, O'Toole wrote President Al Narath and John Crawford, VP for California Programs 8000, commending Sandia/California for "extraordinary achievements and demonstrated leadership" in the implementation of environmental management systems and programs at the site. She termed the accomplishments "a worthy model for other labs to emulate." She said Sandia/California employees exhibited a "sincere, dedicated, and personal commitment to environmental protection."

R&D 100 Awards

(Continued from page 1)

real achievement, because the competition is truly fierce," says Bert Westwood, VP for Research and Exploratory Technology 1000. "But to win seven of the awards, which I believe is a record, is a magnificent feat. And I'm especially delighted to see that they came from all parts of the Labs. That's really great!"

Here are brief details about Sandia's winning entries.

• **Interfacial force microscope.** This new kind of microscope uses a force-feedback sensor that eliminates the mechanical instability found in deflection sensors currently used in scanning probe microscopes. The interfacial force microscope, which makes it easier to study materials at the atomic level, was developed by Jack Houston and Terry Michalske, both of Surface & Interface Science Dept. 1114.

"We were thrilled," says Jack. "And surprised." In the brief time since the interfacial force microscope was announced, it has stimulated widespread interest. "I think the reason it got this award is that its applications are very broad," Jack says. "People are actually using it. It's being used for studying things from biomaterials, including teeth, to anti-wear films in an actual machine environment."

• **SANDROS computer code.** This code is used for planning paths for robotic controllers. By providing an automatic means of generating paths, SANDROS makes possible the use of automation in the manufacture of products that previously were uneconomic to produce using robots. Principal developers of SANDROS are Yong Hwang and Pang Chen, researchers in Intelligent Systems Principles Dept. 2121.

"I didn't know until about a month ago that it was even up for an award, so it was quite a surprise," says Yong, who has been at Sandia



REVOLUTIONARY SAMPLER — Cecelia Williams of Environmental Restoration Technologies Dept. 6621 and Bill Lowry of Science and Engineering Associates, Inc., with a demonstration model of the award-winning SEAMIST instrumentation/sampling system they helped develop for sampling fluids and carrying instruments in and out of wellbores quickly. Eastman Cherrington Environmental of Santa Fe is marketing the product for hydrologic studies.

for five years. He says the SANDROS code is generally applicable to a variety of types of robots.

• **Parallel dense equation solver.** This is a software package for solving linear systems of equations on parallel computers. The package provides a highly optimized code for a fundamental computation on hard-to-program parallel computers. This allows computational scientists and engineers to concentrate their efforts on their own specific applications and spend less time on the details of programming. David Womble of Applied & Numerical Mathematics Dept. 1422 developed the package.

• **Red-light vertical cavity surface emitting laser (VCSEL).** This is a special class of semiconductor laser diode that emits a highly coherent and intense beam of red light perpendicular to the surface of the wafer on which it is grown. The VCSEL has many fundamental advantages over conventional red-light-emitting lasers and has a potential for a variety of applications, including optical interconnects, fiber optical communications, and laser printing.

Principal developers of the red VCSEL are Richard Schneider and Jeffrey Figiel of Semiconductor Materials Dept. 1311 and James Lott, an Air Force officer who did research with Schneider and Figiel for his Ph.D. studies at the University of New Mexico. Lott has since earned his Ph.D. and is currently assigned to the Air Force

Institute of Technology in Dayton, Ohio.

• **SEAMIST™ instrumentation/sampling system.** SEAMIST (for Science and Engineering Associates Membrane Instrumentation and Sampling Technique), uses an impermeable tubular membrane to deploy sensors or samplers in boreholes for studying subsurface environments or monitoring them for hazardous materials. This was a joint entry with Science and Engineering Associates, Inc. (SEA), of Albuquerque, and Eastman Cherrington Environmental, of Santa Fe. Cecelia Williams of Environmental Restoration Technologies Dept. 6621 is one of the key researchers named in the award. Sandia worked with co-developer SEA to demonstrate that the liner is fast, safe, and adaptable for the cleanup of chemical and mixed waste landfills in arid environments. Eastman Cherrington Environmental has purchased the patent to market the product.

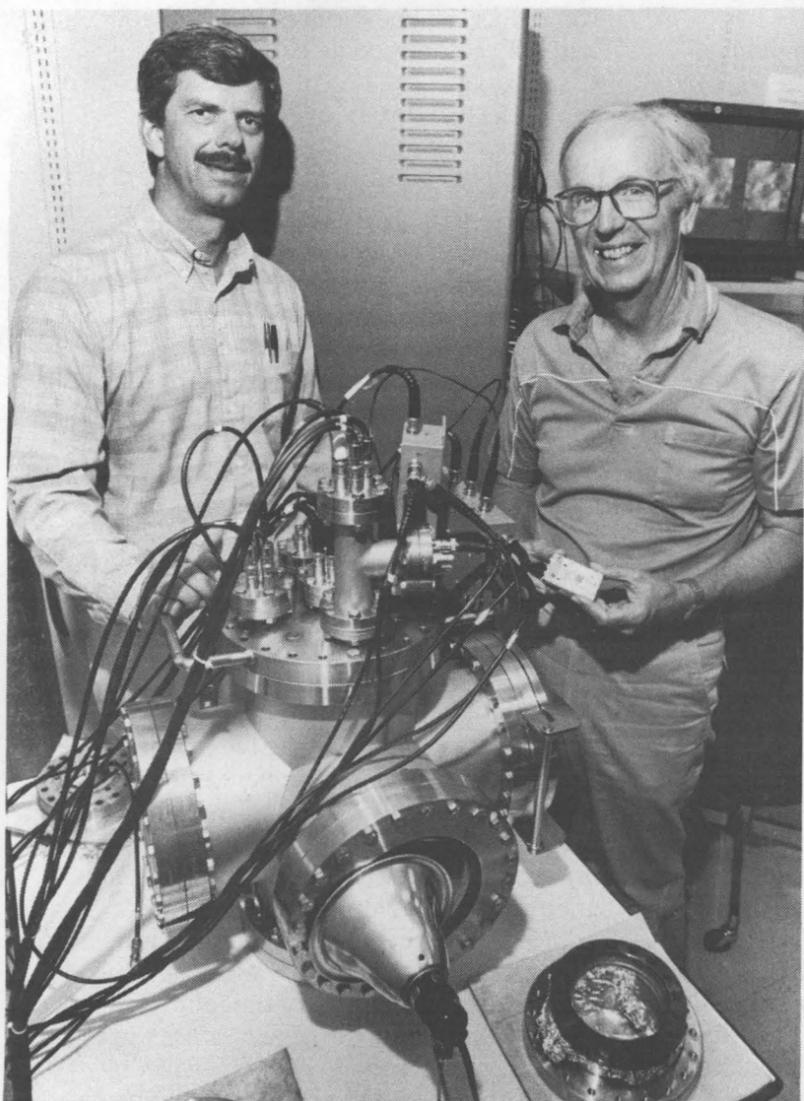
• **High-performance silicon photovoltaic cell.** This photovoltaic cell is more efficient than conventional ones and is amenable to high-volume manufacture by standard integrated circuit processing technology. This award is shared with the Electric Power

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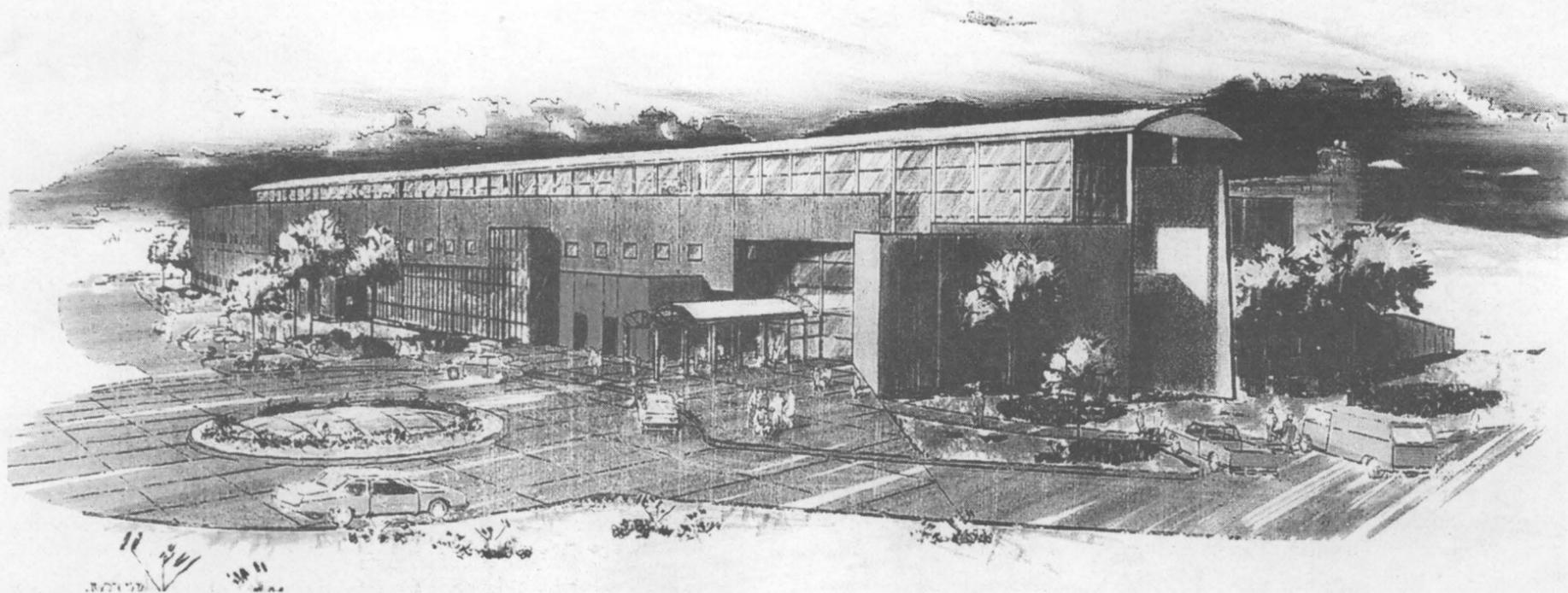
Creativity, breadth, and well-deserved recognition

"The R&D 100 awards illustrate both the creativity of the Sandia staff and the breadth of our technology," says Executive Vice President Jim Tegnella. "It is always a pleasure when others recognize the accomplishments of our staff. The winners have gained well-deserved individual recognition, and through their special efforts they've enhanced the reputation of the Labs. Our congratulations!"

"I'd also like to add that Martin Marietta is proud of these awards to so many Sandians. It's a fine performance."



INNOVATIVE MICROSCOPE — Terry Michalske (left) and Jack Houston (both 1114) with vacuum chamber of Interfacial Force Microscope they developed for studying materials at the atomic level. The electronics and the imaging equipment are behind them.



ARTIST'S RENDERING of the planned Robotic Manufacturing Science and Engineering Laboratory (RMSEL). Construction of the new building, located just east of Tech Area 1 near Kirtland Air Force Base's Eubank Gate, is expected to be completed by October 1996.

Robotics facility

(Continued from page 1)

welding, and advanced manufacturing systems.

By performing duties that might otherwise expose workers to radiation or hazardous materials, "smart" robotics and automation technologies under development at Sandia and other labs may help characterize and clean up contaminated sites within the DOE complex. Robots may also help DOE upgrade nuclear weapons remaining in the nation's stockpile and reduce costs of inspection, disassembly, and certification of retired nuclear weapons and their components without unnecessary human radiation exposure.

Previous buildings from WWII

The new building will also serve as a focal point for transferring key robotics technologies to private industry. As a DOE-designated "user facility," the RMSEL will be located outside the secured area and will host researchers from industry and universities.

"Although our prime customer is DOE, we have always had in mind how our technologies apply to the needs of US industry," says Pat.

During the July 7 ceremony, Labs President Al Narath said DOE's dedication of funds to design, construct, equip, and furnish the facility — nearly \$33 million — is a statement of confidence in Sandia's abilities and in the "promise of robotics to reduce operating costs in industry and in the weapons complex."

He also joked about the "inappropriateness" of the 10 asunder laboratories and buildings previously occupied by 2100 staffers, calling the old buildings remnants "not only of the Cold War, but of the preceding hot war."

Several dignitaries attended the event, including New Mexico Senators Pete Domenici and Jeff Bingaman; Ev Beckner, DOE Principal Deputy Secretary for Defense Programs; Bruce Twining, DOE/AL Manager; Dan Gutierrez, Assistant to Albuquerque Mayor Martin Chavez; and Rosemary Garcia, Deputy Director of the New Mexico Department of Labor, representing Gov. Bruce King.

But the star of the show was RETRVIR, borrowed from actual waste cleanup duties in San-

dia's Gas Cylinder Disposal Site in Tech Area 3. The remotely operated robot, built on a Honda all-terrain vehicle, employs unique sensor-based graphical control technology to locate and excavate unknown or hazardous objects from the ground, place them in containers, and transport them away from the cleanup site.

Other features include a 6-1/2-ft. hydraulic arm, on-board computers, video cameras, ultrasonic and force sensors, automatic planning and programming software, a satellite-based positioning system, and a graphical user interface.

One of RETRVIR's key features, says its creator Peter Boissiere (2161), is its ability to make split-second decisions on its own rather than rigorously follow the cues of its remote human operator. An operator, for instance, might inadvertently steer the robot toward a tree stump just outside his or her field of view. By referring to its sensory data and computer models, however, RETRVIR would avoid the mishap.

"Humans are very good at high-level decision-making, and robots are good at keeping track of details," he says. "When you put the two together you get a system that works well outside the lab in an unstructured environment."

RETRVIR was borrowed from actual waste cleanup duties in Tech Area 3.

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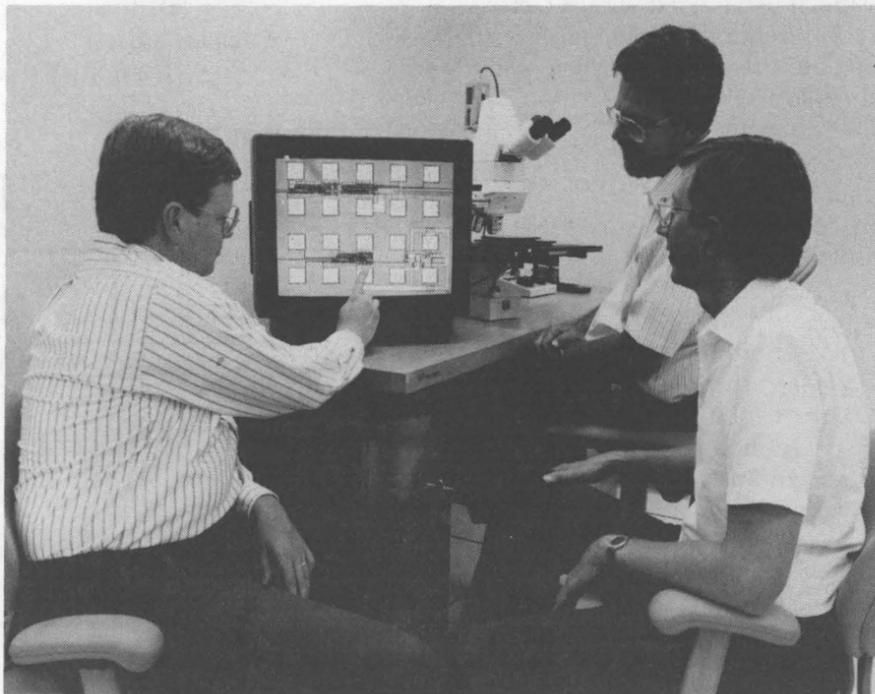
Research Institute (EPRI), the US Department of Energy, Amonix, Inc., of Torrance, Calif., and SunPower Corporation of Sunnyvale, Calif. Amonix and SunPower are photovoltaic cell manufacturers that commercialized the new technology, while EPRI, DOE, and Sandia provided technical and financial assistance to the project. The Sandia researcher who participated on the development team is James Gee of Photovoltaic System Components Dept. 6219.

•**SHIELD™ test chip.** This is a silicon integrated circuit that serves as a "reliability test lab on a chip" by replicating functions normally associated with expensive external reliability test systems. The SHIELD™ test chip allows reliability characterization at the full operating frequency of a semiconductor technology using only a few inexpensive direct current components. Eric Snyder, Donald Pierce, and Scot Swanson, all of Reliability Physics Dept. 2276, and David Campbell of Analog ASICS (Applications Specific Integrated Circuits) & IC Simulation Modeling Dept. 2272, developed the SHIELD test chip. All are associated with Sandia's Electronics Quality/Reliability

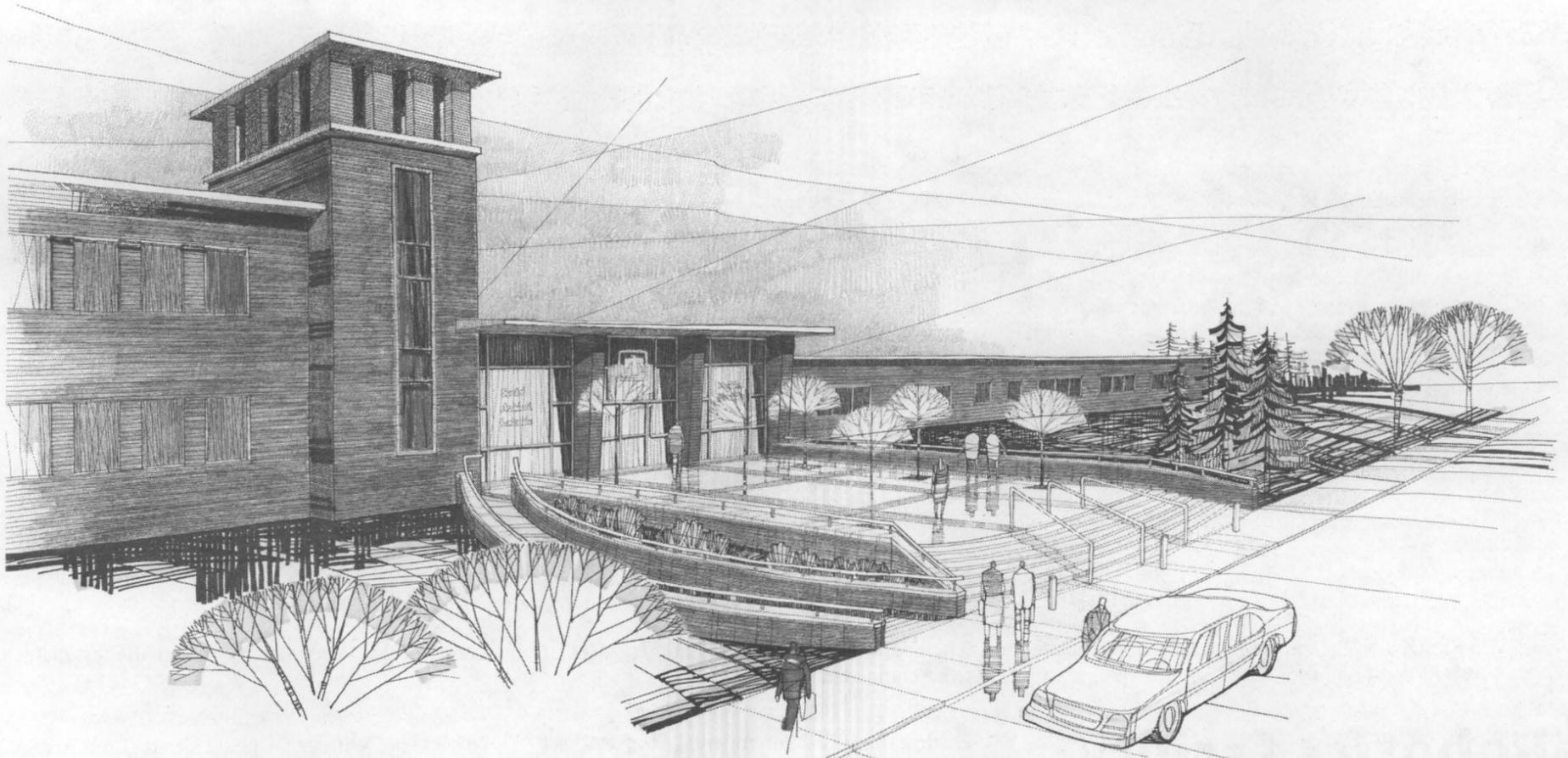
Center.

"We're pretty excited about it," says Eric of the award. "These things happen only once in a lifetime. Our team thinks it's a pretty big honor." He says SHIELD, which sends out its own high-frequency and high-temperature stress signals, tests for failures relevant to operation of the integrated circuit itself rather than the packaging of the chip, as did an earlier Sandia development, the Assembly Test Chip.

— Ace Etheridge
(12630) and
Ken Frazier



CLEVER CHIP — Eric Snyder (left) points out an image of a SHIELD test chip, enlarged on computer screen via a microscope, with colleagues Donald Pierce (center) and Scot Swanson, all of Dept. 2276. David Campbell (2272, not seen) is also on the award-winning team. SHIELD has been called "a reliability test lab on a chip."



NEW DESIGN FOR Bldgs. 800-801-802 includes an enlarged entry plaza extending from the window wall of Bldg. 800 to the sidewalk, and a ramp relocated from the south side of the existing plaza to the north side of the new plaza. Trees planted in front of the building several years ago, in memory of union members, will be preserved.

Bldg. 800 entry

(Continued from page 1)

the estimated \$2.8 million cost at the end of May, she says, and Sandia President Al Narath gave his approval June 1. Planning for asbestos abatement is under way now.

Actual work begins in September

Cynthia says construction on Phase 1 is scheduled to begin in mid September and last about two months, and Phase 2 construction should begin about the first of January 1995. The three-phase project is expected to be finished by the end of 1995, she says.

Design team leader Jim Brunese and Sandia architect Roy Hertweck of Architecture and Engineering Dept. 7915 were involved in the design, which was developed by dekker/perich & associates, she says.

"In addition to needing redesigned, reallocated space inside," says Cynthia, "it was decided that, in view of the Labs' changing mission, a less forbidding look was appropriate — much like the redesigned Gate 1."

Bill Hendrick (7903), project manager for the Gate 1 renovation project, says it is on schedule and should be finished and

reopened to traffic about Aug. 1. Chain link fencing and barbed wire are being replaced with tubular steel fencing to more appropriately reflect the new DOE and Sandia culture of technology transfer and partnering with industry.

Among specific changes included in the Bldgs. 800-801-802 project:

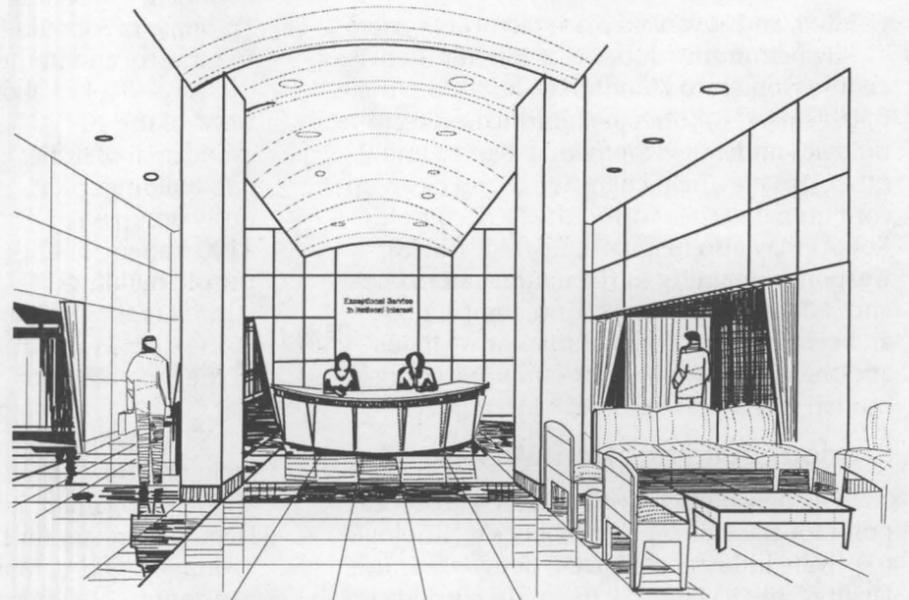
- The area immediately outside the lobby (to the west) will be made into a wider, longer plaza-like entryway,

with rounded steps beginning at the sidewalk and the ramp moved from the south side to the north side.

- The double-door entry into Bldg. 800 will be moved from its present location and centered within the existing window wall.

- The Bldg. 800 lobby will have a two-person receptionist desk directly in line with the new entry, and a waiting area and space for people to conduct informal meetings and discussions.

- The Badge Office will be split into two areas, one for badging and one for clearances.
- The walls of the corridor leading through Bldg. 801 to Bldg. 802 will become a primary display area.
- An automated security station will

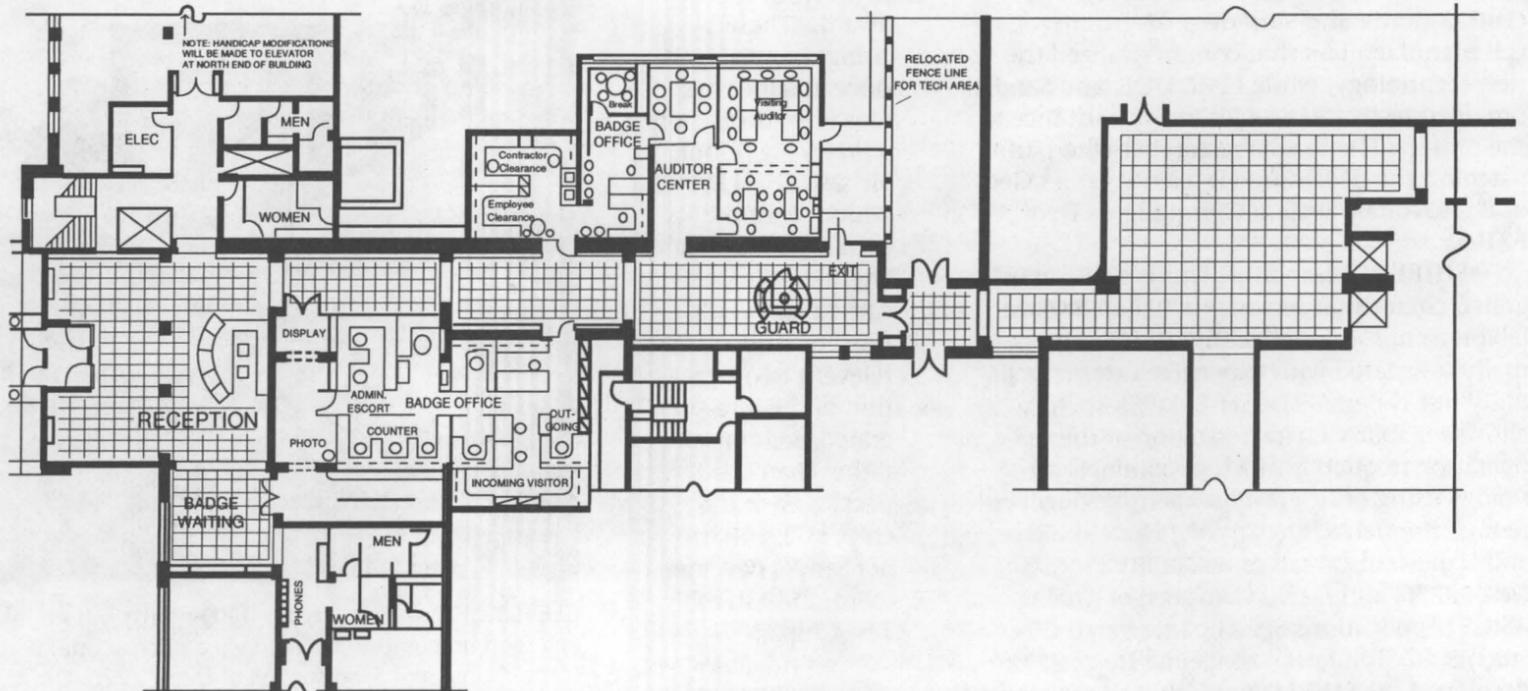


VISITORS WILL SEE reception desk immediately ahead as they enter Bldg. 800.

replace the existing barred guard gate in Bldg. 801 toward the end of the project, although a security guard will be stationed there during normal working hours.

- Creation of an auditors' center, which will be convertible to conference space when auditors are not using it.

— Howard Kercheval



NEW FLOOR PLAN shows Bldg. 800 lobby, left, and changed or rearranged work/display space, extending into the Bldg. 802 lobby, at far right.

CNN gives Labs 'luxury treatment' in Hopi science education segment

A recent expedition to the Hopi reservation in rural northeastern Arizona by a CNN (Cable News Network) crew resulted in a four-minute, nationally televised "pat on the back" for Sandia and two of its education outreach programs.

The TV segment, televised June 11 and 12 as part of CNN's Science & Technology Week program, featured the education outreach work of Science Advisors Myron Garcia (2412), Mark Ivey (6612), and Susan Kato (3020). The setting was Keams Canyon Day School, where Myron presents hands-on "lab" classes regularly as part of Sandia's Rural American Indian Science Education (RAISE) and Science Advisors (SCIAD) programs.

Keams Canyon is one of many schools participating in the RAISE program, which spreads scientific knowledge, equipment, and curiosity to 30 rural schools in nine states from Arizona to Maine.

During the segment, Myron, Susan, and Keams Canyon teacher Harvey Paymella were interviewed. Harvey lectured to the kids on science and Indian culture, and he and Myron showed them how aerodynamics relates to model rockets and archery. Mark was shown launching weather balloons with the kids, and the kids learned about polymers by making slimy "goop" from household products.

The Sandians made several key points during the spot: that science is viewed by many

on the reservation as being contradictory to Indian culture, that scientific knowledge and traditional Indian values can peacefully coexist in the minds of Hopi children, and that American Indians such as Myron (a native of Acoma Pueblo) can succeed in mainstream America without compromising traditional Indian values.

The TV coverage was set up by Nigel Hey of Strategic Media Planning Dept. 12620 and Julie Clausen of Media Relations Dept. 12630, whose jobs are to initiate positive coverage of Sandia by local and national media. The two met last October with Bailey Barash, head of features for CNN.

Nigel calls the four-minute feature "luxury treatment" by TV standards, and says the segment was remarkably positive. "The people from Education Outreach and the Hopi Reservation were great troupers, articulate, expert, dedicated, and they were great on TV," he says. "It would have been hard for the CNN crew to fail."

A videotaped copy of the feature is available at the Sandia/New Mexico Technical Library.

—John German



Take Note

If you plan to retire this year, you might be interested in a meeting about retirement plan rollover alternatives sponsored by Fidelity Advisor Funds on Wednesday, Aug. 10, 5 p.m., in the Coronado Club Zia Room. Call 260-6211 for reservations.

Q-Lambda, a gay, lesbian, and bisexual discussion group, meets for lunch monthly to exchange information about workplace topics such as networking, continuing education, security clearance issues, and hiring and employment issues. The group is currently working on a history of gay, lesbian, and bisexual people at Sandia Base from the early 1950s to the Albuquerque DOE/DoD complex at present. Volunteers are needed to provide historical information and support for this project. Q-Lambda also provides an opportunity to learn about work issues and civil rights issues at the national level. For next meeting date, time, and location for Q-Lambda, or for other information, please call Kent on 265-8388 or Richard on 281-1631.

Retiring and not shown in LAB NEWS photos: Antonia Garcia (13915), 30 years.

Welcome

New Mexico — Paul Sanchez (6700)
Maryland — Allen Stroupauer (5205)

Sandia in the News

This is a periodic column listing a selection of recent print and broadcast news reports about Sandia. It is provided by Media Relations Dept. 12630 to give Sandians a sense of what is being said about Labs work in national and international media.

Susan Kato (3020), Myron Garcia (2412), and a number of Hopi Reservation elementary school children starred in a lengthy CNN feature (see story above).

The *Dallas Morning News* leads off its lengthy and color-picture-filled story about researchers who are examining what exactly happens during an explosion with comments by Richard Behrens (8353), who does that kind of work.

Richard also is quoted in a *Salt Lake (Utah) Tribune* article about University of Utah researchers who are trying to unravel the basic secrets of explosions. He praised their work, adding that "it will enhance the assessment of the safety of existing explosives and propellants. . ."

News of a new solar cell developed by an Australian lab under contract to Sandia shows up on *The New York Times* Science Page. The article also describes Paul Basore (6219) as "a leading solar scientist." The *San Francisco Examiner's* front-page story about evolving agendas of the national labs contains notable quotes by Gerry Yonas (VP 9000) on the importance of US development of a master plan for countering nuclear proliferation.

Recent stories from *Popular Science* that discuss Sandia: the cover article about the Shoemaker-Levy 9 comet, which includes information about our computer simulations of what was expected to happen when pieces of the comet smashed into Jupiter this week; a piece about "green" technologies that covers Sandia R&D on dish/Stirling solar collectors; a story about a coming-generation supercar, which briefly mentions Labs ultracapacitor work; and a major article on a new generation of cleaner

Comet fireballs confirm Sandia predictions

Sandia scientists' predictions were confirmed this week when observatories around the world captured images of giant fireballs rising above Jupiter's horizon after the first fragments of broken Comet Shoemaker-Levy 9 slammed into the planet.

In a series of papers published before the impact, and reported on widely in the media, the Sandia scientists had predicted that such fireballs would be visible to astronomers. Their predictions were based on supercomputer calculations carried out at Sandia.

David Crawford of Experimental Impact Physics Dept. 1433, who along with co-workers Mark Boslough, Tim Trucano, and Allen Robinson made the predictions, said

the size and brightness of the fireballs exceeded their expectations. "That means the comet fragments are bigger than most astronomers thought," said David.

David and Mark were in Hawaii briefing astronomers and observing the collisions from observatories on Mauna Kea and Haleakala. They said Tuesday that they were anticipating brighter fireballs as the week went on. This is because the point of impact of the series of comet fragments was getting closer to Jupiter's horizon as seen from Earth.

They are scheduled to give a public talk about the event Sunday (July 24) at the San Jose Tech Museum of Innovation before returning to Albuquerque late Sunday.

operating diesel-powered vehicles that reviews Sandia/Cummins Engines' work on soot reduction and quotes John Dec (8362).

Signal magazine's three-page story about Sandia's accomplishments in transfer of semiconductor nonvolatile memory technology to industry points out that much of the world's leading R&D on these chips over the past 20 years has occurred right here. Mike Knoll (1341) gets lots of quotes in the story.

And in its two-page story about rapid prototyping as a key to fast development, *R&D* magazine quotes Michael Maguire (1833): "We reduced our precision investment casting cycle times from 52 weeks to less than 3 weeks."

A piece in *Forbes* magazine about firms that do advanced-technique seismic analysis for oil exploration references a Sandia study, which concludes that "three-dimensional seismic technology will reduce the worldwide cost of finding new oil reserves by 47 percent."

Footage of Sandia's nonlethal weapon technologies — those special foams and the smart

gun concept — found its way onto a *KARE-TV*, Minneapolis, newscast.

Paul Peercy (1300) is quoted in *Electronic Engineering Times'* coverage of the cooperative research and development agreement signed recently between Sandia and Intel. He points out that the Labs already has worked with Intel on water-conservation and water-monitoring issues at Intel's Rio Rancho fabrication plant.

A color photo by Randy Montoya (12630) of Jack Houston and post-doctoral fellow Paiboon Tangyonyong (both 1114) working at an interfacial force microscope heads up a page-long story about that department's work in *R&D* magazine.

R&D magazine's coverage about researchers scrambling to meet clean air act goals mentions that a team of scientists and engineers from Chevron, Arco, Mobil, Texaco, Amoco, and Sandia are trying to find "ways to approximate the changes in combustion conditions that take place from the central burner to the smokestack."

Flash flood project brings top international science fair honors to Sandia student intern

Computer simulates 1988 flood's erosion processes

A severe 1988 rainstorm that produced damaging flash floods and loss of life in Albuquerque's Northeast Heights was reconstructed successfully by Karl Anderson (12331) in a science fair project using a computer to mathematically simulate the loss and transportation of soil from runoff in a manner resembling natural occurrences.

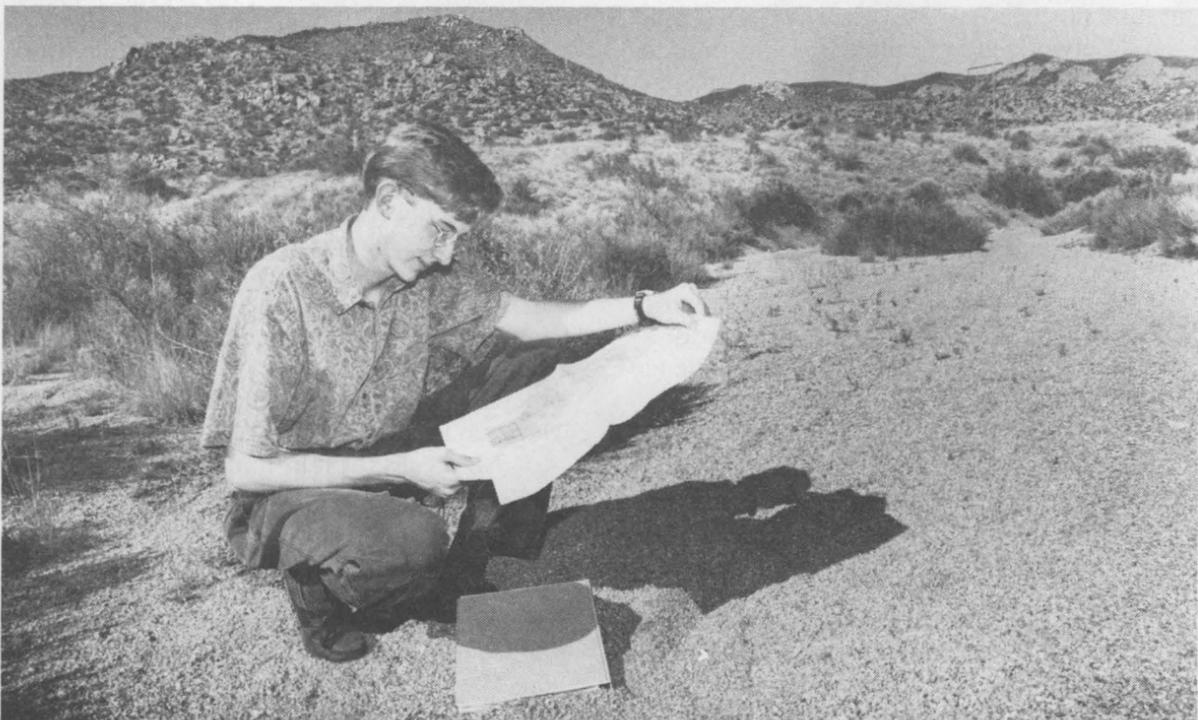
During the actual storm, mud and large boulders from Embudo Canyon were washed down Indian School Road onto and beyond Juan Tabo Boulevard, cars were swept uncontrollably into displaced boulders and the nearby arroyo, and houses and property in the area sustained significant property damage. His project, "Computer Simulation of Rainfall Erosion Losses, Phase II," recreated the documented result of the storm so accurately that Karl, a May graduate of Manzano High School and a Sandia intern in the Career Exploration Program, won a number of top honors in May at the 45th International Science and Engineering Fair in Birmingham, Alabama. Among his honors: four first-place awards, one second-place award, one third-place award, an \$8,000 scholarship, a \$2,000 savings bond, and \$1,000 in cash.

Anderson has been using computers since he was four and has been competing in science fairs since the first grade. "I've always been fascinated with discovering new things and experimenting with new equipment," he says. "Computer programming has long been one of my hobbies. Initially, I learned how to program in the 'C' language through a class I took at the Career Enrichment Center. Since then I have written some arcade games and taught myself to program in C++ using object-oriented architecture.

Programs, maps, and soil on the move

"I've also been reading books to learn about bioerosion. For my science fair project, I wrote programs in C++ to draw terrain maps, mathematically simulate the effects of rainfall, and graphically depict the results," Anderson says. "I created three simulated terrain maps and one map using a contour map of an area near my home. I assigned soil constants to the terrain maps and exposed them to many years of simulated rainfall. For the contour map, I performed soil analysis to determine soil porosity and size. The 1988 storm was noteworthy because it dropped four inches of rain in just three hours, leaving behind considerable damage. These conditions were reconstructed and applied to the model of the contour map. Using test holes, the amount of soil deposited during the storm was measured. Calibration factors found during research were applied to the computer model. As a result of my experiment, I was able to prove that land forms changed over time and the runoff from the terrain models appeared to be realistic. Model prediction of deposition at specific points varied from field measurements, but it was possible to calibrate the model to predict overall deposition volume."

Anderson's Sandia mentor, Stan Spray, Manager of the System Studies Department (12331), says: "Karl is the kind of young person a manager hopes to find when he agrees to become a mentor in Sandia's student internship programs. He is incredibly enterprising and positive in solving just about any problem or assignment we give him. He makes strong contributions, personally as well as professionally. From the manager's perspective, you hope this person will



KARL ANDERSON, in arroyo beyond east end of Indian School Road where 1988 deluge produced devastating flash floods, examines topographic map used for terrain data in his computer model of the movement and loss of soil caused by the event.

pursue a professional career at Sandia after they've completed their academic work."

This fall Anderson will be majoring in Computer Engineering at New Mexico State University where he was awarded the President's Associates Honors scholarship, a full four-year scholarship given on the basis of his 4.2 grade point average. "I will probably end up getting a Ph.D. some time in my life," he says. "And I know that no matter what I do, I will always be working with computers. There is always something new for me to learn when it comes to computer technology."

Prior to his Sandia employment, Anderson worked at a local computer store, where he learned some techniques for fixing computers and how to order computer products from suppliers. This experience has been helpful to him in his present assignment with the Nuclear Safety Information Center (NSIC) of the System Studies Department, where he has similar responsibilities. He's also been involved in his department's robotics projects and is currently developing interactive technologies using a nonlinear video editing system and related multimedia hardware and software. In May, prior to leaving for the science fair in Birmingham, Anderson produced a 20-minute videotape on emergency response activities that was used during a presentation to a large group.

Good for resumé

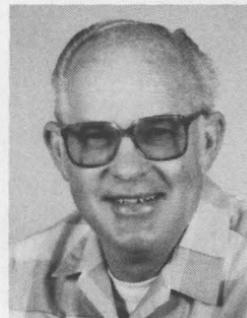
Presentations to large audiences are not unusual for Anderson. He's been involved in speech and debate for the past two years. He says he enjoys the competition and spontaneity involved in morality debates. Besides, he says the experience will serve him well later on in his professional life. ... And what does our young scholar do when he needs to relieve stress? He sings in his church's choir and paints. He learned color theory and watercolor techniques from his grandmother in 1988 when he was twelve, the same year as the great Albuquerque deluge that's contributed to his recent success. He's since developed his own style of painting, and now he prefers acrylics to watercolors.

"I've had a great time working in NSIC this year through the Career Exploration Program,"

Anderson says. "I have so much that I can put on my resumé now. I've had the pleasure of working with some powerful computer systems and new technologies, and I have received so much support from my co-workers that work is surprisingly fun. Unlike situations at school, working as a team at Sandia is essential. People really appreciate seeing friendly faces at work."

—Tonimarie Huning (12331)

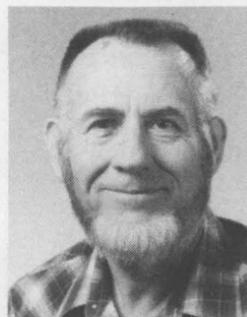
Recent Retirees



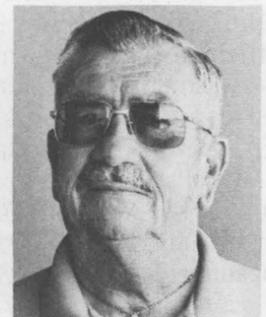
Les Jones
8454 35



Ursula Besse
7615 10



Joe Brown
1744 32



Ed Paboucek
2641 28



Eugene Kenderdine
2645 36



Jim Mace
10221 16

Pensions, other issues addressed by benefits specialists

Questions, answers results of employee forum

Following is the third installment of questions and answers stemming from the May 25 forum on the Labs' retirement plans and other benefits. Because many questions address the same, or closely related, issues, Sandia benefits specialists have combined them and provided a single answer to each basic question.

Videotapes of the forum are available at the Technical Library at Sandia/New Mexico and from the Benefits Organization (Bldg. 911) at Sandia/California. Mark Biggs of Pension Fund/Benefit Program Management Dept. 3542 says any further questions should be addressed to him.

Cost of Living Adjustments (COLAs)

Does our current pension plan have any provisions for Cost of Living Adjustments? If not, why not?

No Sandia pension plan contains a provision for automatic COLAs. DOE Order 3830.1 specifically prohibits automatic COLAs for operating contractors.

What has been Sandia past practice in granting adjustments in retiree pensions?

Sandia's Board of Directors has granted the following ad hoc increases to retired employees covered by the Retirement Income Plan (RIP): 1974, 11.2 percent; '77, 10.8 percent; '79, 16.0 percent; '81, 9.0 percent; '82, 7.5 percent; '85, 5.0 percent; '88, 4.5 percent; '91, 5.0-6.5 percent.

Employees who were not retired for the entire period covered by any of the above ad hoc increases received a pro-rated portion of the full increase for that period. Retirees covered by the Pension Security Plan (PSP) received a similar pattern of increases. Neither Martin Marietta nor AT&T, whose pattern of increases was followed by Sandia in the past, have granted increases since 1991.

How does Sandia's practice of post-retirement pension increases compare with other DOE design labs (Lawrence Livermore and Los Alamos national labs) and with industry?

Both LLNL and LANL participate in the University of California Retirement Plan, which contains a provision for annual cost-of-living adjustments. This provision was in place prior to implementation of the DOE policy prohibiting automatic COLAs. The UC Retirement Plan is exempt from many of the provisions of the Employee Retirement Income and Security Act. Sandia's past history of ad hoc increases compares favorably with private industry, both in the frequency of ad hoc increases granted and their replacement of inflation. For example, a Hewitt Associates survey indicated that only one-third of private employers granted a retiree increase between 1988 and 1992, while Sandia granted two increases during that period.

During the years 1984 to 1993, government employees received COLAs amounting to more than 39 percent (according to Encyclopaedia Britannica). SNL retirees received considerably smaller increases. How can this discrepancy be explained, particularly in the context of the huge reserves that currently exist in the pension plans?

The Federal Employees Retirement System (FERS) contains a provision for automatic annual COLAs, whereas Sandia's pension plans do not. Government employees covered by the FERS do not receive Social Security benefits based on their government service, whereas Sandia employees receive full credit under Social Security, which provides COLAs for their Sandia service. While Sandia's defined benefit pension plans are currently well

funded, the benefits provided by the plans are not determined by the level of assets in the pension trust, but rather by the plan design.

What would have been the cost of an annual COLA for each year since 1975?

We do not have these cost figures and are unable to provide them because they would require extensive (and expensive) calculations by Sandia's third-party pension actuaries. However, to give some perspective, the RIP ad hoc adjustment granted in 1991 increased the plan's actuarial accrued liability by approximately \$11.5 million.

Has Sandia granted increases to Pension Security Plan retirees as a result of union negotiations that have not been extended to retirees under the Retirement Income Plan?

No, the ad hoc increases granted in the past to retirees covered by the Pension Security Plan have not been bargained with the unions. While the timing has been somewhat different, the overall pattern of increases granted to PSP retirees has been very similar to the increases given to RIP retirees.

How are ad hoc increases determined?

The primary factors monitored to evaluate possible ad hoc improvements are inflation rates, but they also include the prevalence and level of increases granted by private industry.

Employee Contributions

Are adjustments planned for employees who contributed to the pension plan before 1976? If not, what is the justification?

No special adjustments, or extra pension benefits, are currently planned for those employees who contributed to the pension plan before July 1975. However, Charles Emery, Vice President of Sandia's Human Resources Division 3000, is using the actuarial consulting firm of Towers-Perrin (TPF&C) to review the issues surrounding employee contributions and issue an independent review and opinion.

Hasn't Martin Marietta already set a precedent in recognizing employee contributions with additional benefits in other areas under the Martin umbrella?

When Martin Marietta Energy Systems (MMES) assumed the contract for a facility previously managed by Goodyear Atomic Corporation, they did allow participants who contributed to the Goodyear pension plan to receive their contributions plus interest upon retirement from MMES. However, the negotiation of this provision was coupled with a significant reduction in health care benefits provided to the former Goodyear employees. In addition, those employees who made contributions to the Goodyear plan did so on a voluntary basis with the promise that they would receive additional benefits at retirement, which is unlike the circumstances of the employee contributions made to Sandia's pension plan.

Why were employee contributions credited with 2-percent interest while the rest of the assets earned 10-20 percent?

Sandia's pension plans credit interest on employee contributions to calculate minimum required benefits at termination of employment and calculate a minimum death benefit to retirees who did not elect the survivor annuity option. (This benefit is equal to the excess, if any, of the employee's contributions plus interest over the sum of all pension payments made to the retiree.) In both cases, the rate of interest applied to the employee contributions is based

on legal requirements applicable to defined benefit plans, and is not tied to the actual investment return of the pension trust assets. Prior to 1976, the interest rate credited to employee contributions ranged from 2-3.5 percent. From 1976 through 1987, an interest rate of 5 percent was used. Since 1988, the interest rate used has changed annually, and has ranged from 6.4-11.11 percent.

Do you think the method Sandia uses to set a monetary value on employee contributions is fair to those who contributed? Would you be willing to consider an alternative method of valuation for the employee/retiree contributions?

The method Sandia uses to credit interest on employee contributions is based on legal requirements. The allocation of an employee's accrued pension benefit between employee and employer sources is established by the Internal Revenue Code and supporting regulations. No other method is being considered.

Are separate accounts maintained in our pension plan to segregate funds contributed by employees from funds contributed by Sandia?

Prudential requires Sandia to maintain a minimum balance in its General Account, which is a fixed income investment primarily invested in bonds, for employee contributions made before 1967. Employee contributions made after 1966 are commingled with other trust assets.

What have been the total contributions to our pension plans since inception by employees and by Sandia? Please also itemize by year.

Employees contributed approximately \$68.2 million from 1950 through 1975, and Sandia contributed approximately \$312.2 million between 1950 and 1986. Itemized annual figures are available for review in Depts. 3542 and 8522.

Miscellaneous

Could pension plan assets be used to provide inducements for early retirement or voluntary layoff?

Yes, an early retirement incentive could be paid from pension trust assets if the incentive provisions met plan qualification standards and did not result in unlawful discrimination. Any such change in the plan would be subject to approval by Sandia's Board of Directors and DOE. No early retirement or voluntary layoff incentives are under consideration at this time.

Congress recently passed federal employee buy-out legislation to reduce the budget by offering incentives of up to \$25,000 to reduce the federal workforce. What options are being exercised by DOE? What options are being exercised by Sandia?

DOE submitted a plan to implement this incentive for up to 500 employees department-wide during a limited period — May 11-June 8, 1994. Various restrictions applied to different DOE sites. Sandia's pension plans are not affiliated with the pension plans covering federal employees and this incentive does not apply to Sandia employees.

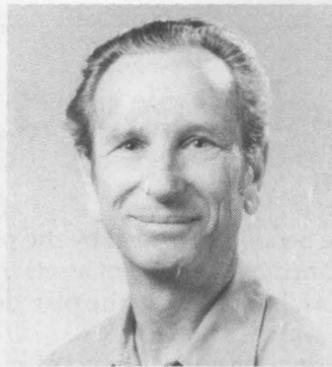
When will we receive an updated summary of the revised pension plan?

Pension Fund/Benefit Program Management Dept. 3542 is currently revising the Summary Plan Descriptions for both qualified pension plans and expects to distribute updated copies to all employees before Oct. 1.

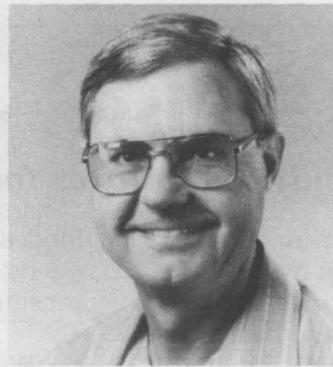


Mileposts

July 1994



Raymond Peabody
9333 35



William Oberkamp
1554 15



Dennis Reynolds
9205 25



Frank Comiskey
7616 40



Mary Ann Sweeney
1241 20



Robert Klett
9614 35



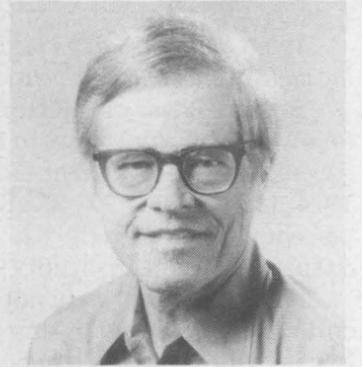
Steve Breeze
1273 25



Robert Vaughan
7613 30



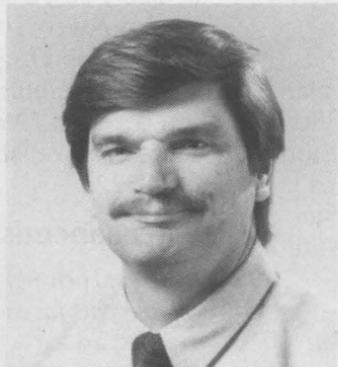
Max Marrs
13401 15



Kenneth Hessel
5933 25



Frank Arellano
7572 30



Philip Zablocki
9212 15



Brian Joseph
5161 25



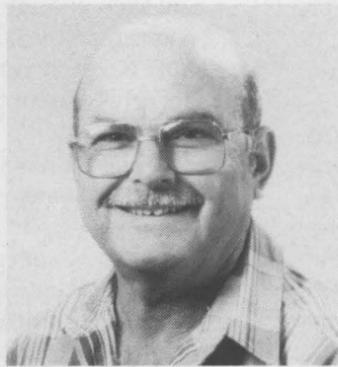
Pace VanDevender
4700 20



Rick Hartzell
7909 15



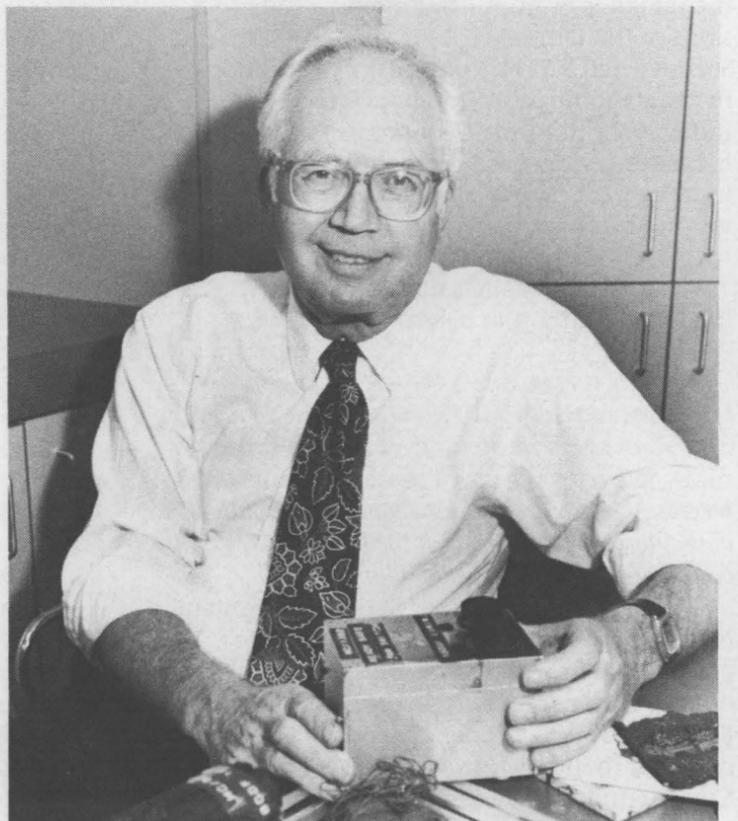
Ruth Ronan
12361 15



Raymond Sanchez
9613 25



Kay Hays
1709 20



Stanley Spray
12331 40



Jeffrey Cummings
2335 15



James Renken
9352 30



David Werling
2345 20

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

MISCELLANEOUS

- COLOR TV, Magnavox, 19-in., w/remote, excellent picture, \$80; Kenmore sewing machine, old but works. Ryan, 298-8692.
- SCREEN DOOR, 36", white aluminum, good condition. Poulsen, 265-0566.
- TRAVEL TRAILER, '91 Nomad, 2-dr., bedroom, generator, microwave, AC, electric tongue, awning, used approximately 2K miles, \$10,500. Crawford, 881-3812.
- BABY ITEMS: playpen, \$10; two potty chairs, \$5/ea.; crib toy, \$2; booster seat, \$5; carri-cradle, \$10; Snuggli carriers, \$10; boy's clothes, \$1/ea. Caton, 281-9420.
- KITCHEN/DINING ROOM TABLE, 36"x60", dark wood, w/three glass panels, perfect condition; four chairs w/cane seats, one needs repair, \$150. Lopez, 294-4325.
- SWISS POCKET WATCH, gold, Caravelle, \$45; Hoover "Portable" canister vacuum cleaner, \$15; business card case, engraved "D F", \$3. Fogelson, 296-0620.
- BENTWOOD ROCKING CHAIR, rattan back and seat, \$35; MXD-200 all-graphite golf clubs, 1, 3, 5, Yonex copies, 45-in. driver, \$175. Stang, 256-7793.
- CAT, older, Siamese, needs good home, gentle, friendly, loving, to right person, \$5. North, 299-5091.
- OCCASIONAL TABLES, solid oak, w/glass inset tops; coffee table, \$120; end table, \$100; library table, \$120. By Bassett, excellent condition. Seyfer, 292-0179.
- BALDWIN SPINET PIANO, w/beautiful walnut finish, 6 years old, guaranteed harp, \$1,500. Hernandez, 299-5749.
- WATERBED, queen-size, includes waveless mattress and heater, \$35 OBO; exercise bike, \$50 OBO; Culligan exchange tank, HCL, \$100 OBO. Mackoy, 281-8606.
- PROJECTOR LAMPS, in original box, one ELH tungsten halogen by GTE Silvania, one AV/Photo Wiko ENX, \$10/ea. Wagner, 823-9323.
- DESKTOP COPIER, Sharp Z-50, w/two new toner cartridges and case of paper, \$300. Woodward, 293-4369.
- CROCHETED AFGHANS and shoulder capes, various colors, sizes, and patterns, mostly acrylic, some wool, average size 50x72. Tennant, 294-1347.
- VIDEO GAME, Super Nintendo, *Contra III, the Alien Wars*, never used, original package, retail \$49.95, sell for \$30. Kirby, 268-8666.
- BARBIE POOL HOUSE, \$25; shoplights, \$6/ea.; portable/adjustable basketball hoop, \$25. Moonka, 856-1110.
- HOME STEREO, Pioneer, 225-watt amp, 6-CD disc changer, dual-cassette, tuner receiver, 100-watt EQ, four 3-way speakers, must sell, \$1,500 OBO. Aguilar, 857-0687.
- DISHWASHER, Montgomery Ward, ivory, w/cutting board top, excellent condition, \$200. Baugher, 254-0335 after 5 p.m.
- WINDSURFER, 12-ft., O'Brien Sensation, includes 5.6 sail w/bag, mast, adjustable boom, ready to ride, great for beginner/intermediate, \$350 OBO. Gardner, 884-9264.
- HOTEL ACCOMMODATIONS, Grand Bahama, 3 days, Orlando/Daytona, 3/2days, by 12/94, extension available, \$400 total/deal separate. Garcia, 266-9419.
- SOFA & LOVESEAT, turquoise and mauve, less than one year old, excellent condition, paid \$1,200, will sell for \$600. Langwell, 293-2728.
- MOTORCYCLE TRAILER, easy haul, will carry two large, full-dress motorcycles, lowers to ground for easy loading, \$1,250. Oatley, 821-6801.
- FISH TANK, 37-gal. set up w/wood cabinet, lots of plants and decorations, \$175 OBO. Towne, 898-2700.
- SLIDE PROJECTORS: Kodak Carousel 760H w/trays, AIRQUPT 450EF w/trays, slide viewer, photo books, \$100 OBO. Kaufmann, 292-9249.
- JET SKI, '85 Kawasaki 440, fresh engine, custom paint, many high performance parts, \$2,000. Gillen, 294-7551.
- FEMALE CAT, spayed, very loving, approximately 1 yr. old, black with orange, shots current, free to good home. Evans, 281-0288.
- CINDER BLOCK PAVERS: 15-1/2"x8"x2-1/4", 34 ea.; 15-1/2"x8"x1-1/2", 34 ea., free. Bauer, 299-0640.
- ORIGINAL R.C. GORMAN, 1977, current value \$15,000. Call for details. Baca, 296-6985.
- COLOR TV, 25-in., excellent working condition, \$150. Williams, 266-3688.
- ELECTRIC WHEELCHAIR, \$750; wheelchair ramp, \$25; electric hospital bed, \$950; electric lift chair, \$100; bathtub seat, \$55. Lane, 856-1341.
- BALDWIN STUDIO PIANO, \$1,850; oak dining table, four chairs, \$100; double bed, nightstand, \$200; Teak queen-size bed, nightstands, \$350. Bergstresser, 293-6858.
- GIUITAR, Ibanez Artist limited edition, gold hardware, pearl inlays, beautiful, dad's, hardly ever played, \$350. Stuppy, 898-4720.
- EVAPORATIVE COOLER, Champion 4800DD, w/2-spd., 1/2-hp motor, never used, \$210. Griffiee, 296-8129.
- GARAGE SALE, July 28, 29, 30, 8 a.m.-4 p.m., three families, households, furniture, stereo, television, beds, bikes, dinette chairs, more. Rael, 884-4778.
- WINDSURFING EQUIPMENT: sails, masts, booms, bases, harness, manual reel mower, \$35; answering machine, \$20; crib, \$35; buggy, \$15. Horton, 883-7504.
- SHALLOW WELL PUMP, 1/2-hp, w/air tank, 30-50-lbs.-sq.-in. pressure, \$175; wood burning fireplace, \$125. Childers, 344-9281.
- WALKER, folding, adjustable height, \$35; bedside commode chair w/arm rests, adjustable height, \$35. Cleveland, 298-0218.
- DINING TABLE, 38"x58", w/18" leaf, insulated pad, four chairs, backs need recaning, \$150. Reed, 268-7484.
- LANDSCAPING ROCKS, large, more than 1-ft. in diameter, you haul, free. Mozley, 884-3453.
- WATERBED, king-size, complete w/six drawers, bookcase headboard, good condition, \$135. Chavez, 865-5820.
- LOVESEAT, good condition, \$50 OBO; old color TV, needs work, \$10 OBO. Alexander, 291-8028.
- WARDS REFRIGERATOR, good; seats, make RV bed; electric organ; hide-a-bed; microwave, good; dollhouse; log cabin. Neas, 293-3422.
- ANTIQUA DRESSER, excellent condition, \$300. Baca, 864-8693.
- AMANA STOVE/HOOD; trash compactor; kitchen table, chairs; solid wood doors; tile counters; stainless steel sinks; bath sink; tubs; toilets. Benham, 881-2593.
- DINING ROOM TABLE, w/two leaves, six chairs; lamps; toaster oven; mower; radio transmitter; desk; recliner; chair & couch; wrought iron patio chairs. Fisher, 881-8072.
- OAK WATERBED, queen-size, like new, \$200; new entertainment center, \$75; color TV, 19-in., \$75. Jaramillo, 884-2046.
- COLOR CONSOLE TV, 23-in., RCA, \$25. Shane, 294-4920.
- ROLLERBLADES, Bauer, kid's size 3, brand new, \$55 OBO; large Vari-Kennel, \$60 OBO. Poulter, 291-0607.
- BOX SPRINGS, old-fashioned, uncovered, full-size, free; metal sign, "For sale by owner", w/metal frame, \$20; Eureka upright vacuum cleaner, \$30. Langkopf, 293-4076.
- DINING ROOM TABLE, w/four chairs and leaf, good condition, \$150 OBO. Aronson, 898-8893.
- COLOR TV, 19-in., \$25; comforter w/matching bed skirt, queen-size, pastel, \$35. Ask for Mary. Mohagheghi, 271-0724.
- VCR, VHS-format, needs repair, \$20. Hartwig, 298-5048.
- ENCYCLOPEDIA AMERICANA, 30 volume set, help your children achieve their best, new, \$1,052. Conway, 271-0770.
- WATERBED, king-size, frame, mattress, and heater, \$50 OBO; three-piece wall unit, includes bookshelves, dresser, and desk, \$75 OBO. Dye, 897-0304.
- REFRIGERATOR, good condition; chest-type freezer, works well, \$100/ea. Marquez, 899-2408.
- WATERBED, king-size, black lacquer, semi-waveless, underdrawers; chest of drawers, lamps, gold trim. Salazar, 873-5867.
- SALE, July 22-23, 8 a.m.-2 p.m., 1321 Glorieta NE, 50s table, two student desks, electronic typewriter, golf woods, bar/stools, stuffed toys. Baney, 294-8970.
- RADIAL ARM SAW, Sears Craftsman, 10-in., on metal roll-around stand, some extra blades, \$95 OBO. Daniel, 821-2935.
- COMPUTER, Mac SE, 4MB RAM, 40MB HD, w/manuals, much software and games, \$500; w/Sylewriter printer, \$650. Griego, 899-2324.
- GOLDFISH, about 6", plain and fancy, about 20 available, free. Shirley, 883-3210.
- SALE, July 22-23, 8 a.m.-2 p.m., 1321 Glorieta NE, 50s table, two student desks, electronic typewriter, golf woods, bar/stools, stuffed toys. Baney, 294-8970.
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Deadline: Friday noon before week of publication unless changed by holiday. Mail to Dept. 12660, MS 0413, or fax to 844-0645.

Ad Rules

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

STAIR STEPPER EXERCISER, \$50; color TV, 13-in., great picture, \$50. Perez, 888-9718 after 5 p.m.

COMPUTERS: three XT's, \$100/ea.; three 286's, \$300/ea.; two 386's, \$500/ea. All come with software/peripherals. Smith, 823-1199.

CHANGING TABLE, white, \$15; Schwinn Aire Dyne, very nice, \$450. Sullivan, 298-4880.

PELLA WOOD WINDOW, fixed vent, 36"x48", brown clad, removeable storm glass, new cost, \$200, sell for \$105. Biffle, 293-7043.

COMPUTER, Apple IIe, w/imagewriter printer, \$400; waterbed, twin-size, frame mattress, and heater, \$75; tenor trombone, w/case, \$175. Montano, 821-1235.

PERFECT SPA, 6'7"x6'7", seats 4-5, two months old, w/six month chemicals, tiled, redwood, cover, lots of extras, \$4,700. Falconi, 856-8720.

GIUITAR, Ibanez acoustic, \$50; Samson Stage 22, True Diversity Wireless System for electric guitars, \$125. Schultz, 275-9349.

COMPUTER, Tandy 1000 EX, w/dot matrix printer, 640K, color monitor, 5-1/4 single drive, MS-DOS, DeskMate software, \$500 OBO. Glenn, 821-6952.

HOT TUB, Cal-Spas Newporter, 8-ft. x 12-ft., redwood skirt, 7 seats, 3 years old, little use, \$3,500. Holmes, 292-0898.

RANGEFINDER CAMERA, Rollei 355E, w/case and strap, \$300; Quantum Calculash II flash, and ambient meter, case, cord, instructions. Brooks, 275-0056.

GARAGE DOORS, two, 8'x7', 2-in. thick, insulated, raised panel, brown, 26-gauge steel front and back, brand new, \$450 and \$550. Carroll, 299-9486.

DRYER, electric, white, Kenmore, large capacity, excellent condition, \$125 OBO. Waye, 821-3484.

PORTABLE REFRIGERATOR, Dometic RC2000, 3-way operation, 120VAC, 12VDC, propane, never used, excellent for camping, \$300 OBO. Sniegowski, 294-7329.

ANTIQUA FURNITURE: Mahogany dining room set, table, chairs, buffet, china cabinet; Mahogany bedroom set, bed, chest w/mirror, armoire, desk. Trujillo, 344-1259.

REFRIGERATOR/FREEZER, Wards Signature, 21.8 cu. ft., double-door, almond, \$300 OBO. Sisneros, 877-1273.

ESTATE SALE, Sat. July 30, 9 a.m.-5 p.m., Valle Grande apartments, Spain and Wyoming, Apt. 26B, furniture and kitchen appliances. Kaiser, 828-1660.

EXERCYCLER, excellent condition, \$50; original floral painting, 26x31, \$10; women's dresses, size 12-14, \$10; other miscellaneous. Pierce, 299-2801.

SALE, July 22-23, 8 a.m.-2 p.m., 1321 Glorieta NE, 50s table, two student desks, electronic typewriter, golf woods, bar/stools, stuffed toys. Baney, 294-8970.

RADIAL ARM SAW, Sears Craftsman, 10-in., on metal roll-around stand, some extra blades, \$95 OBO. Daniel, 821-2935.

COMPUTER, Mac SE, 4MB RAM, 40MB HD, w/manuals, much software and games, \$500; w/Sylewriter printer, \$650. Griego, 899-2324.

GOLDFISH, about 6", plain and fancy, about 20 available, free. Shirley, 883-3210.

TRANSPORTATION

'68 MGB, looks good, runs well, \$4,200. Smith, 243-0714.

'85 MOTO-GUZZI, 1,000cc California II, AT, fully dressed, Pichler fairing, new Dunlop tires, 17K miles, perfectly maintained, \$4,000. Oatley, 821-6801.

'79 TOYOTA COROLLA, still runs well, needs brake work, \$300. Barnaby, 255-7767.

'88 TOYOTA SR5 TRUCK, 4x4, V6, black, extra-cab, roll-bars, low mileage, excellent condition, \$8,500. Knuth, 256-7323.

'87 FORD VAN, Bivoac camper package, captain's chairs, sofa bed, AC, cruise, stereo, custom cabinets, luggage carrier, \$5,200. Vaughn, 867-4625.

'91 CHEV. SILVERADO TRUCK, 4x4, 271, w/hitch, V8, 5-sp., all power, AM/FM cassette, tool box, bed liner, \$13,900. Lawson, 821-0360.

'86 PONTIAC GRAND AM, 2-dr., w/13x7 Dayton's, new clutch, heat/AC, \$5,500 OBO. Archibeque, 877-8818.

'91 CORVETTE, red, w/gray leather interior, Delco Bose Gold CD/cassette, 6-way power seats, 24K miles, still under warranty, \$24,500 OBO. Walker, 275-2861.

'72 CHEV. PICKUP, 3/4-ton., w/11-1/2-ft. "Open Road" overhead camper. Maldonado, 892-3653.

'85 NISSAN 4X4 PICKUP, very clean, one owner, 5-sp., AM/FM cassette, camper shell. Evans, 281-3864 after 6 p.m.

BOY'S FREESTYLE STUNT BICYCLE, \$60. Moonka, 856-1110.

WOMAN'S BICYCLE, Schwinn Traveler, 10-sp., excellent condition, \$60. Kjeldgaard, 268-8835.

HOBIE CATAMARAN SAILBOAT, 16-ft., w/trailer, good condition, \$1,100. Glowka, 281-1488.

'86 DODGE D50 PICKUP, white, camper shell, clean, 5-sp., runs great, 28-30 mpg, 156K miles, \$2,650 OBO. Kerschion, 281-1671.

GIRL'S BICYCLE, Schwinn Fairlady, 22-in., excellent condition, \$95; boy's Rallye BMX coaster bicycle, 20-in., like new, \$65. Goetsch, 892-8366.

MOUNTAIN BIKE, 18-in. Yokota Tuolumne, white, new free wheel, new chain, Suntour components, good condition, \$160. Connor, 268-1682.

'86 TOYOTA MR2, bright white, 5-sp., AC, PW, PL, spoiler, bra, black tinted windows, 83K miles, \$4,300 OBO. Barker, 831-5055.

'74 MOTOR HOME, 440 Dodge Superior, 22-ft., 66K miles, generator, AC, CB, excellent condition, \$7,250. To-byas, 877-0354 after 6 p.m.

'73 JEEP CJ5, single owner, \$2,000. Shane, 294-4920.

BOY'S BMX BIKES: Schwinn, 16-in., \$20; 20-in., \$30. Hartwig, 298-5048.

DIRT BIKE, '75 Yamaha, 250cc, Monoshock suspension, air-cooled engine, 5-sp. transmission, very nice condition, well maintained, \$550. Hesch, 298-4902.

'75 INTERNATIONAL TRAVELALL, 4x4, AT, PS, PB, AC, many new parts, all records, mechanically sound, body poor, \$2,500. Kureczko, 281-8206.

'91 HONDA CIVIC CRX, 37K miles, 5-sp., CD, bra, new tires, \$6,800. Eldredge, 881-4528.

'87 NISSAN PULSAR NX/SE, 51K miles, silver, T-top, garaged, full records, includes cover and alarm, excellent condition, \$4,900. Sjaardema, 299-8042.

'79 CHRYSLER LEBARON, 4-dr., AC, PB, PS, cruise, vinyl top, \$800 OBO. Liguori, 256-3613.

'85 DODGE TRUCK, 4WD, RV cam, headers, intake & dual exhaust, excellent condition, \$4,350. Sullivan, 298-4880.

'92 JEEP CHEROKEE, 31K miles, Laredo, CD player, hitch, 5-sp., tinted windows, excellent condition, \$15,500. DePoy, 281-4536.

'93 GEO METRO, AC, AM/FM cassette, 13K miles, \$7,000 OBO. Nation, 298-5605.

'91 GEO METRO, 4-dr., AT, AC, 39K miles, \$3,700. Roeschke, 266-8988.

'76 MOTORHOME, Titan Champion class A, 440 Dodge, 64K miles, fully loaded, includes 5kw generator, awning, top rack, much more, \$8,000. Smith, 384-5182.

'81 CHEV. CITATION, 4-dr., hatchback, AC, radio/cassette, V6, AT, \$900 OBO. Hanson, 299-6421.

'66 JEEP CJ5, V6, must sell, mechanically sound, like-new tires, great hunting rig, great buy, \$1,700. Fernandez, 344-1432 evenings.

'87 FORD TAURUS, V6, leather seats, new tires, loaded accessories. Cooper, 888-0967.

'78 NUWA TRAVEL TRAILER, 21-ft., fully contained, AC, sleeps 6, excellent condition, \$4,000 OBO. Harrison, 821-9099.

REAL ESTATE

5-BDR. HOME, 3 baths, 2,800 sq. ft., sun room, pantry, big backyard, near Constitution & Chelwood, \$169,900. Greenwood, 869-0153.

4-BDR. HOME, 1-3/4 baths, 1,620 sq. ft., in-ground pool, rock wall fireplace, 10 minutes from base, can't list all extras, must see, \$119,800. Duffy, 275-2857.

20 ACRES, NE of Edgewood, 660' Frontage on SR472, 2.5 miles east of SR344. Kureczko, 281-8206.

4-BDR. HOME, 1-3/4 baths, 2,550 sq. ft., 2-car garage, living room, formal dining room, game room, family room, NE heights, \$165,500. Vocco, 292-6001.

3-BDR. HOME, Belen area, 2 baths, 2,000 sq. ft., on 1/2 acre, excellent condition, good neighborhood, \$118,000. Baca, 864-2493.

4-BDR. HOME for rent, 1-3/4 baths, 2-car garage, wet bar, best schools, great views, no smoking or pets, \$1,325/mo., 1st, last, and DD. Berry, 294-0597.

WANTED

HOUSEMATE, female or male, 3-bdr. house, private baths, washer/dryer, large backyard, storage area, \$225/mo. plus 1/2 utilities. Ewen, 836-3563.

DOG CARRIER, extra large. Sanchez, 873-2058.

SCHOOL FOUNDERS, for new 6-12th grade college preparatory school in Albuquerque, to open Fall '95. Head, 828-2628.

ROOM TO RENT, for Sandia employee, Aug. 6-Sept. 21. Waters, 272-9088.

FIFTH-WHEEL RV, small, under 24-ft., late model, in well-maintained condition, prefer Lance or Alpenlite, will consider others, price open. Zaorski, 281-9194.

ROOM TO RENT, for summer student, Aug. 1-Sept. 23, will pay rent and help out around home. Jackson, 291-0584, or Fitzpatrick, 272-9325.

WAFFLE IRON, cast-iron, good working condition. Nimick, 281-3148.

BED FRAME, twin-size, in good condition. Chavez, 293-2202.

SOMEONE to repair a stereo/hi-fi in my home. It works but needs help. Pitts, 293-5481.

MINI-BIKE, complete or basket case, with or without engine, running or not. Will consider pieces and parts. Dawson, 281-1235.

LOST & FOUND

LOST: Woman's Seiko watch, w/gold band. Aragon, 343-8532.



Sandia News Briefs

New Mexico teachers attend Sandia supercomputing institute

Teachers from Manzano, Highland, Santa Fe, West Las Vegas, and Cimarron high schools recently completed a two-week Sandia institute on supercomputing as part of the DOE-funded Adventures in Supercomputing (AiS) program. Designed to cultivate the interest of women, minority, and disadvantaged high school students in science, math, and computing, the AiS program offers teachers training in computer languages, networking tools, graphics packages, supercomputing, and computational science. Skills learned from the AiS institute will be applied to class activities and projects to be displayed at a statewide exposition in the spring. Dick Allen, manager of Applied and Numerical Mathematics Dept. 1422, coordinates the New Mexico AiS program.

Sandia hosts National Geographic Society summer teacher institute

Twenty Albuquerque-area teachers recently spent a week at Sandia learning about solar energy applications to day-to-day living and classroom teaching at a summer institute sponsored by DOE and the National Geographic Society. Designed to help teachers integrate hands-on experimentation and computer technology into their classes, the institute, coordinated by Sheri Martinez of Education Outreach Dept. 3020, taught teachers how to design and test solar ovens, build solar collectors, and measure solar radiation levels.

Send potential Sandia News Briefs to Lab News, Dept. 12660, MS 0413, fax 844-0645.

Sandia Day 1994 scheduled for Oct. 22

Three years ago, nearly 16,000 pairs of feet roamed Sandia during Family Day '91, an event with more than 70 exhibits including remote control robots, wind tunnel tests, finger printing demonstrations, and tours of the Particle Beam Fusion Accelerator II (PBFA II). This fall, Sandia (both in New Mexico and California) will again open its gates to employees and their family, friends, and neighbors as part of Sandia Day '94 — a special celebration of Sandia's past and future under the theme "Today and Tomorrow."

Mark your calendars for Saturday, Oct. 22, and start thinking about your guest list. Although the Sandia Day planning committee hasn't revealed the full slate of activities or guest requirements, the event is sure to include exhibits, children's activities, food, fun, and more, according to Sandia/New Mexico coordinator Ken Hanks of Program Management and Support Dept. 6911. Sandia/California coordinator Laura Santos of Project & Administration Dept. 8601 agrees.

"Sandia Day will be a great opportunity for employees to share their workplace with family

and friends," says Laura.

For more information on retiree arrangements, guest planning, and special attractions, look for the Sandia Day logo in upcoming issues of the *Lab News*.

Retiree deaths

Arthur Starz (86).....	4222.....	Jan. 15
C. B. Torres (77).....	8513.....	March 6
E. H. Baber (78).....	9581.....	March 10
Lee D. Stull (79).....	1326.....	March 11
James C. Laffoon (70).....	3417.....	March 14
Milo Conrad (70).....	1112.....	March 16
Evelyn M. Bachman (71).....	8265.....	March 18
William T. Owens (78).....	1212.....	March 18
James C. Taggart (76).....	9214.....	March 18
Albert J. Tucker (69).....	5213.....	March 28
Milton J. Lesicka (71).....	3435.....	March 31

(Due to an oversight, the *Lab News* did not receive the March list of retiree deaths until recently.)

Coronado Club

July 22 (6 p.m.)-July 25 — Pool and patio closed for Sundance Swim Meet.

July 29 — Friday night dinner/dance. Dinner 6-9 p.m., filet mignon or fried shrimp (two entrees for \$14.95), all-you-can-eat buffet (baked ham, beef, roast turkey breast, poached fish, chef's surprise), \$6.95. Westwind Band, 7-11 p.m.

August 4 — Bingo Night. Card sales and buffet begin at 5:30 p.m., early birds' bingo at 6:45 p.m.

August 7 — Sunday Brunch Buffet, 10 a.m.-2 p.m. Tea Dance, 1-4 p.m., music by Best Shot. Adult members \$6.95, nonmember guests \$7.95, children 4-12 \$1, child 3 and under free.

'Take Your Sons to Work Day' scheduled for Aug. 8

Because of the great amount of interest shown in "Take Your Daughters to Work Day," a "Take Your Sons to Work Day" has been scheduled next month at Sandia/New Mexico.

Sandia and DOE/Kirtland Area Office employees are invited to bring their sons, grandsons, brothers, nephews, or male friends aged 9-15 with them to work on Monday, Aug. 8.

Registration forms will be sent to all employees the week of July 25, and additional information about activities at Sandia/New Mexico will be announced in the July 25 *Weekly Bulletin*.

For information about "Take Your Sons to Work Day," please call 845-8250.

Community Focus Lecture on coal camp life in Madrid, New Mexico

The next Community Focus Lecture will feature the colorful New Mexico mining town of Madrid. "Madrid Revisited: Life in a New Mexico Coal Camp in the 1930s" is the subject of the talk by historian Richard Melzer, Chairman of the Division of Arts and Sciences at the University of New Mexico's Valencia Campus.



Houses in historic Madrid, New Mexico

The lunchtime lecture is Tuesday, August 9, from noon to 1 p.m. in the Technology Transfer Center auditorium, Bldg. 825.

Melzer has been a New Mexico resident since 1973 and has taught at UNM's Valencia campus since 1979. He has written one book and more than a dozen articles on New Mexico history. In 1993 he received the UNM-Valencia's Teacher of the Year Award. He just completed a five-year term as president of the Valencia County Historical Society and is now the society's vice president.

The Community Focus Lecture Series, coordinated by Community Relations Dept. 12640, is intended to give Sandians an opportunity to hear speakers from New Mexico discuss a variety of topics of general interest. For further information, contact Redd Torres Eakin on 844-4124.



SPACEY MEMORABILIA — Sandians Polly Scardino (10504) and John Bertin (4503) look over some items Polly saved from her "space days," including some Apollo 11 items. The Apollo 11 mission landed men on the moon (Neil Armstrong and Ed Aldrin, Jr.) for the first time 25 years ago, July 20, 1969. Polly worked for a NASA contractor from 1963 to 1975 and collected these items and many more along with lots of mission posters during that time. John has worked on space projects for years and still does some work for the Space Shuttle program. He worked at NASA's Manned Spacecraft Center from 1962 to 1966 and continued working on Apollo and other space projects under contract while teaching at the University of Texas from 1966 to 1989.